

Amplifying the voices of individuals with visual impairments and deaf-blindness in the context of sports

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Amplifying the voices of individuals with visual impairments and deaf-blindness in the context of sports

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Editorial: Amplifying the voices of individuals with visual impairments and deaf-blindness in the context of sports

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KEYWORDS

inclusion, visual impairment, blindness, deaf-blind, physical activity

Editorial on the Research Topic

Amplifying the voices of individuals with visual impairments and deaf-blindness in the context of sports

The global inclusion movement and the United Nations Convention on the Rights of Persons with Disabilities (CRPD) stress the urgent need to address ongoing marginalization and discrimination against people with disabilities. Despite some progress, individuals with visual impairments and deaf-blindness still face significant barriers to participating in sports, physical activity, and physical education. Research continues to reveal gaps in our understanding of their perspectives and experiences—insights that are crucial for building truly inclusive environments. To close these gaps, it is essential to center and elevate the voices of people with visual impairments and deaf-blindness within academic discussions. Accordingly, this research topic aims to explore the challenges faced and insights shared by people with blindness, visual impairment (BVI), and deaf-blindness, providing a deeper understanding of their experiences and helping to transform society. By identifying current obstacles and suggesting practical solutions, this work seeks to encourage greater participation and inclusion for individuals with BVI and deaf-blindness in these areas.

In order to paint as broad and diverse a picture as possible of the barriers to participation, as many perspectives as possible are considered. For example [Höger et al.](#) studied the social hierarchies in segregated physical education (PE) classes for blind and visually impaired (BVI) students in Austria. Using Clark's Mosaic Approach with school tours and interviews of 19 BVI students and three sighted PE teachers, they identified three main forms of hierarchy: differences between sighted and BVI students supporting segregation, distinctions among BVI students based on their vision level affecting teaching and student views, and varying perceptions of students' development by teachers vs. students themselves. The study found that while inclusion is possible by challenging ableist norms, these biases often persist subtly.

[Markov-Glazer et al.](#) team interviewed 23 Deaflympic athletes and four coaches to explore attitudes toward mental training. They identified three themes: sport psychology consultation, visual orientation in psychological skills, and how Deaf sport culture affects communication. Interest in sport psychology was high, but barriers like limited sign language consultants and structural challenges hindered access. Deaf

athletes adapted strategies to suit their visual strengths, facing unique advantages and obstacles. Communication styles varied between native signers and spoken-language users. The study highlights the need for culturally sensitive sport psychology and equitable access for Deaf athletes.

Barrera-Garcimartín et al. presented a case study of a Spanish blind judo Paralympian, covering her journey from Athens 2004 to Paris 2024 through interviews and written accounts. The study identified two critical phases in disabled athletes' careers: starting sports and preparing for Paralympic participation. It notes barriers faced by women with disabilities, the role of support systems, and the positive impact of initiatives like Paralympic School Days. The athlete emphasized how rules, sport type, and inclusion affect talent development, urging increased support for women with disabilities in sport.

Carretti et al. studied adapted sports' social and educational effects via the first female blind baseball match, surveying 33 women involved. They found no significant differences in wellbeing between visually impaired and sighted participants, highlighting adapted sport's empowering and integrative benefits. The research, tied to gender violence awareness, suggests such events foster integration and offer educational approaches to combat discrimination.

Bödicker and Elisath presented the experiences of a 15-year-old visually impaired student who transitioned from mainstream inclusive schools to a special school. The study, based on a semi-narrative guided interview, explores the interplay between empowering personal and non-personal factors and participation in sports and physical education contexts. The findings critically reflect on the teachers' role in either facilitating or hindering participation, emphasizing the necessity for teacher education programs that are sensitive to inclusion. The research adopts a critical perspective on ableism, re-examining societal attributions of abilities and highlighting the importance of resilience and vulnerability in sports participation among young people with visual impairments.

Sträter et al. examined how a seminar on blind and visually impaired (BVI) ski guiding affected physical education teacher education (PETE) students' attitudes toward diversity. Through simulated and real BVI skiing experiences, students gained direct guiding practice. Interviews showed that these experiences improved attitudes, reduced uncertainty, and boosted self-efficacy, though some uncertainty remained due to individual differences. The study underscores the importance of interactive teaching methods for fostering inclusion.

Greve et al. evaluated the BAT-Sailing project, a collaboration between Norddeutscher Regatta Verein and FC St. Pauli Segeln to promote inclusive sailing for athletes with and without disabilities. „BAT“ references bats' ability to navigate without sight. The project (2021–2023) used Patton's utilization-focused evaluation and found that communication between sighted and blind sailors was vital for teamwork and cooperation. This approach effectively improved inclusive sailing teams and offered insights for future sports initiatives.

Giese and Grenier investigated the barriers faced by blind and visually impaired students in general physical education (PE)

classes. Interviewing ten students aged 17–19 who moved from mainstream to specialized schools, they found that PE was particularly challenging and often led to negative experiences for these students. The study emphasizes the need to review exclusionary practices in PE and promote inclusion by directly considering the perspectives of visually impaired students.

Oldörp et al. explored how different abilities influence inclusive experiences for people with visual impairments in alpine skiing. Through interviews with six German skiers, they found four key themes: skiing boosts self-confidence, serves as proof of skill, allows participants to ski without drawing attention, and provides a way toward greater accessibility and inclusion. The skiers noted improvements in confidence, motor skills, social abilities, and advocacy for better access. Despite viewing skiing as inclusive, they faced obstacles like a shortage of guides, limited awareness of para-skiing, and separate competitions. The research highlights the need to raise awareness, enhance access to guiding, and introduce policy changes so that people with disabilities have equal opportunities, aligning with the UN Convention on the Rights of Persons with Disabilities.

Author contributions

GM: Writing – original draft, Writing – review & editing. MS: Writing – review & editing. HB: Writing – review & editing.

Conflict of interest

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Female blind baseball players against gender discrimination: the “red diamonds” experience

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Background: Sport has the well-known power of improving body awareness, self-esteem, and social interaction, thus promoting quality of life and psychophysical wellbeing. Specifically referring to adapted disciplines, habitual practice often becomes an effective integration and self-efficacy booster. Among disabilities, visual impairment deeply alters body image perception, autonomy, and environmental/social interaction heavily reducing sport or leisure involvement opportunities. In particular, visually impaired women represent one of the most vulnerable categories to gender and disability discrimination. Moreover, even when congenitally sightless, they perceive social pressure of mainstream beauty ideals, mostly spread by media, comparable to their sighted peers. On these premises and the previously demonstrated psychophysical benefits of Italian blind baseball practice on this target population, the present study aimed to deepen the social and educative potentialities of such adapted sport applying a more sociological research approach.

Methods: The “red diamonds” event, namely, the first ever female blind baseball match, was the setting for the administration of our structured online survey. In detail, our survey comprised different evaluation tools such as the 18-item Psychological Well-Being Scale, the 12-item Short Form questionnaire, the Dresden Body Image questionnaire, the Rosenberg Self-Esteem Scale, and sociological model designed questions. Quality of life, psychological wellbeing, self-esteem, body image, and perceived female sport psychological violence were investigated in the whole women sample ($n = 33$) voluntarily adhering to the game.

Results: Survey results revealed no statistically significant differences between visually impaired players ($n = 13$; mean age: 32.84 ± 12.05 years) and sighted on-field subjects (i.e., coaches, assistants, and referees; $n = 20$; mean age: 47.15 ± 12.31 years) in almost all the inquired variables, thus remarking the social and functional benefits of adapted sport through the “dual embodiment” and empowerment phenomenon.

Conclusions: Given that the event was inspired by and performed on the World Day against women violence, our study deepened not only the topic of disability discrimination but also the currently alarming gender-related one. In such a context, the present research might provide interesting cues for further investigations on disability and gender disparities in sports, hence spreading interest in this under-investigated field. In perspective, the “red diamonds” experience could also contribute to inspiring and progressively developing educative tools against any kind of discrimination by promoting integration and social growth through regular sports practice.

KEYWORDS

visual disability, adapted baseball, female sport, gender discrimination, dual embodiment, empowerment, social integration, body image

1 Introduction

The literature has widely acknowledged physical activity as an essential component of a healthy lifestyle and a determinant of perceived quality of life and psychophysical wellbeing. Despite such growing evidence and the current health recommendations, most all-aged individuals do not meet the established daily movement guidelines, especially those affected by disability (1–3).

Specifically, it is well-known that visual impairment deeply impacts psychological, social, and physical functionality, thus hindering participation in daily-life, leisure, and sport activities (4). According to several studies, visually impaired people perceive and experience prejudices, barriers, accessibility issues, and restrictions in participation in a regular and structured physical activity throughout their lifespan (5–8). Regardless of the cause, type, and severity of visual impairment, the lack of sight impedes to effectively interact with the surrounding environment and other individuals, hence delaying or altering body awareness acquisition (9–11). A recent investigation also highlighted the influence of gender on physical activity and regular engagement of people with disability, detecting lower levels in the female component (12, 13). Sport practice, recreational or competitive, offers an enjoyable and healthy psychophysical and socioemotional growth opportunity to visually impaired people while counteracting disability-related onset of physical and mental disorders (14, 15). Although research addressing these topics is still scarce and almost no exercise guidelines tailored to this target are available, it has been demonstrated that regular physical activity practice plays a key role not only in the structuring of sensorimotor skills but also in the development of personality, autonomy, body awareness, and self-esteem. Visual disability-affected people often perceive a loss of control and reduced self-mastery and abilities in performing daily-life activities and social interaction. Vision loss substantially impacts the overall functionality and the consequent autonomy of these individuals, thus negatively affecting their perceived quality of life and wellbeing (16, 17). Although such parameters have been widely investigated and described as multidimensional constructs resulting from the balance between psychophysical and social challenges and subjective available resources/skills, they still remain not peculiarly defined in visually impaired people (18). The literature repeatedly highlighted the difficulty in assessing the health-related quality of life in this target population though simultaneously acknowledging the key role played on it by physical activity and sport practice (9, 19). Indeed, constant physical exercise engagement enhances cardiorespiratory functionality, postural control, coordination, balance, and social/environmental interactions with consequent improvement in sensorimotor efficiency, autonomy, and the overall health status (4). Moreover, given the multiple values, primarily fair play, effort, discipline, respect, challenge, teamwork, and membership underlying sport engagement, a regular and structured practice may help counteracting the aforementioned disability-related deficits while promoting self-efficacy, social integration, and body confidence (20).

Modern society is strongly based on unreachable esthetic and performative models that can easily undermine self-esteem and body acceptance, especially in particular sensitive age, gender, or health-condition groups (21–23). Even though visual experience has a significant impact on how we interiorize our own body template, recent studies highlighted that, when compared to sighted peers, visually impaired individuals show similar beauty ideals awareness and media pressure perception. Among them, women feel higher conforming and social comparison pressure, hence clearly demonstrating that vulnerability to sociocultural standards of attractiveness is sight independent (24, 25). Media and fashion industries are growingly spreading pro-thin and anti-fat ideals, thus contributing to increased body dissatisfaction, and eating disorders, especially among females. The literature specifically investigating body image and satisfaction in sight-impaired individuals is still scarce. Furthermore, most published studies were limited to small samples and reported heterogeneous results obtained through evaluative tools not yet peculiarly validated for this target population. Despite these criticalities, research addressing beauty standards in congenitally blind women suggested that thin ideal internalization can occur even without any body shape visual exposure, automatically developing a pro-thinness attitude, mostly fueled by the media, comparable to sighted peers (26, 27). Body image is a complex multidimensional construct comprising perceptual, socio-educational, and affective factors. Individuals with disabilities often experience their condition as a social stigma, thus perceiving discrimination to negatively impact and alter their self-concept. Noteworthy, physical appearance and body efficiency involve not only the self-perception of the impaired persons but also the reaction of other individuals to their diversity (28, 29). In the case of vision loss subjects, particularly young women shape this concept on externally provided verbal feedback, tactile body exploration, and perceived feelings/emotions during physical and social interaction (30, 31).

Since sport and physical activity involve all these aspects, urging participants to develop healthy and fair comparisons and to overcome limits, they undoubtedly represent effective tools/facilitators to promote self-confidence, emotional intelligence, inclusiveness, and tolerance beyond any kind of diversity or standard (32–34). From a sociological perspective, Paralympic sports aim to reduce the gap between able-bodied and disability-affected people, therefore representing an integration-oriented phenomenon (35–37). Noteworthy, to realize a real integration, it is crucial to approach/apply such a concept as a two-sided process based on reciprocity as the main interaction driver. In this perspective, both able-bodied and disabled persons are actors who reciprocally integrate each other (38, 39). Concretely, each part must learn to think, act, and perform in a way like the other, and, in particular, able-bodied subjects need to understand the feelings of disability-affected ones, while the latter need to be able to perform under psychophysical and competitive stress as it typically occurs in sport frames (40). Such reciprocal understanding/exchange is a sort of pact

characterized by a mutual help dimension aimed to set up good situational cooperation. This reciprocal attitude can be framed as a “dual embodiment” affair meaning such term as a process by which the body becomes a tool to gain experiences; adapt to social and ecological environments; interiorize; and share sensations, socialize individuality, and explore ways of socialization (41–43). Therefore, the body simultaneously represents a tool of action and knowledge, and embodiment is the process by which the knowledge mechanism is performed.

Among disability-adapted sports, the Italian blind baseball (BXC) can be considered a unique model of the aforementioned dynamics given that, as already detailed in our previous study, it officially provides for age, gender, and disability severity-mixed team, contemporarily involving sighted and sight-impaired subjects. Recently, on the World Day against gender violence, the first ever BXC match exclusively played, coached, and refereed by women was performed in Sardinia, Italy. The event, named “red diamonds,” thus recalling the baseball field shape and the color of the symbol against women violence, contributed to paving the way for a more conscious, attentive, and respectful approach to female sport and disabled women integration opportunities (44).

In such a context, the present study aimed to investigate the perceived quality of life, psychological wellbeing, self-esteem, and body image of all the female subjects involved in the match, featuring visually impaired BXC athletes, sighted coaches, field assistants, and referees. Though the BXC regulation provides for and promotes gender-mixed teams, the female subjects, both sighted and sight-impaired, are still underrepresented in this discipline. Therefore, the enrolled women, who voluntarily adhered to the match and to the study, represented almost the entire Italian female component regularly engaged and officially signed up in this adapted competitive sport. Given the uniqueness of the “red diamonds” event and the increasing promotion of this sport carried out by the Italian Blind Baseball Association/League (AIBXC/LIBCI) among women, the match offered the unique opportunity to investigate and deepen the aforementioned variables in female competitive BXC regular practitioners. In addition, involvement in this study of all the provided game roles (i.e., sighted assistants, coaches, referees, and visually impaired athletes) allowed us to explore such variables from different perspectives, contemporarily detecting possible sight- and disability-influenced differences. To collect reliable data, validated qualitative scales and questionnaires were administered to each participant. Moreover, given the intrinsic sociological implications and potentialities of sport, gender, and disability disparities perceived in sport practice, management and media portrayal were also explored through a multiperspective approach. In detail, one of the online survey sections was imprinted on three macro focuses investigating the reason underlying sport practice and “red diamonds” participation, the relationship with corporeal dimension framed to sport field, and the perceived prejudices and psychological violence in female sport, respectively. Such sections were purpose-designed following a question structure typically applied in sociological studies.

2 Materials and methods

2.1 Participants

The study group consisted of 33 women of whom 29 regularly signed up to one of the BXC teams officially affiliated to the Italian Blind Baseball Association/League (AIBXC/LIBCI) and 4 female referees licensed and acknowledged by the BXC authorities. In detail, the whole women sample was composed of 13 visually impaired competitive athletes and 20 sighted subjects, namely, 2 coaches, 12 field assistants, 2 second-base catchers, and 4 referees. All the participants voluntarily adhered to the “red diamonds” BXC match and, in such a context, they deliberately gave their consent to take part in the present research and anonymously compiled a self-administered online questionnaire. Given that the “red diamonds” event and the study design were concurrently conceived aiming to involve and investigate the whole Italian female component of BXC regular practitioners, both sighted and visually impaired, no inclusion/exclusion criteria were applied to participants. AIBXC and LIBCI detailed and promoted the adherence to the match, as well as to this study, through their official communication channels and the direct link with the staff of each regularly affiliated competitive team. Study procedures were carried out following the rules of the 1975 Declaration of Helsinki, revised in 2013; this anonymous online survey did not require an ethics committee approval.

2.2 Instrument and procedure

The tool employed to collect data consisted of a self-administered online questionnaire purposely designed through the Google Forms platform and distributed to participants in the form of a direct access link shared using the official communication channels of the event. Concerning the modality of survey administration and answering, visually impaired athletes took advantage of specific assistive technologies such as speech synthesis or video magnifiers. All the completely anonymous and confidential responses were recorded in the Google Forms database (45).

The questionnaire was organized in a first section gathering sociodemographic data regarding age, educational and marital status, job type, visual disability classification (only for visually impaired women), and information about actual and previous physical activity/sport practice. The subsequent section included multiple choice questions investigating the individual attitude toward sport and, in particular, personal reasons underlying sport practice, BXC engagement, and adherence to the “red diamonds” event. The final part of this section included questions inquiring issues specifically regarding female sport practice and management, as well as the perceived psychological pressure. The last survey section comprised the 18-item Psychological Well-Being (PWB-18) scale and the 12-item Short Form (SF-12) Questionnaire to assess six components of wellbeing (i.e., autonomy, environmental mastery, personal

growth, positive relations with others, purpose in life, and self-acceptance), and quality of life, respectively (46). In addition, it also included the Rosenberg Self-Esteem Scale (RSES), a 10-item qualitative tool investigating global self-esteem using multiple choice questions scored through a direct or reverse 0- to 4-point Likert scale (47). The 35-item version of the Dresden Body Image Questionnaire (DKB-35) was administered to assess body satisfaction through 35 items attributable to five subscales inquiring body acceptance, vitality, self-aggrandizement, physical contact, and sexual fulfillment. All the subscales include both directly and reversely scored items, rated through a 1- to 5-point Likert scale (48). Concerning both RSES and DKB-35, a higher score corresponds to a greater self-esteem and a mastered overall body image level, respectively. Finally, body shape awareness and beauty/attractiveness ideals were investigated using, for the first time in visually impaired women, a visual and descriptive tool habitually applied in the armochromy body shaping analysis (49). Specifically, this qualitative tool provides five coded body shape options (i.e., apple, pear, hourglass, oval, and rectangle) and requires choosing the one that better represents own body silhouette, the personally desired one, as well as the subjective beauty ideal one, both in general and supposed to be more attractive for men. Regarding the sighted participants, options were also available as a picture, in addition to the corresponding written description accessible by visually impaired subjects. Adding a description of the available options, written following the armochromy-specific parameters, allowed us to apply such a tool even to our visually impaired target, thus collecting totally comparable data from all participants.

2.3 Statistical analysis

Data were entered and stored using Microsoft Office Excel. All data are represented as mean \pm standard deviation (SD), or the number or percentage of study subjects. SPSS version 25.0 (Statistical Package for the Social Sciences, Chicago, IL, USA) was used for statistical analyses. Differences between two groups were analyzed by unpaired Student's *t*-test or chi-square test, as appropriate, after verifying the normality of data with a Kolmogorov–Smirnov test. Values of *p* < 0.05 were considered statistically significant.

3 Results

A total sample of 33 women involved in the “red diamonds” match, comprising 13 visually impaired BXC players [mean age: 32.84 \pm 12.05 years; 7 (53.8%) blind and 6 (46.2%) severely sight-impaired subjects], of whom 10 (76.9%) were congenitally visually impaired while 3 (23.1%) had acquired vision loss, and 20 sighted on-field subjects (mean age: 47.15 \pm 12.31 years) voluntarily joined this study by responding the self-administered online survey. The collected data regarding sociodemographic characteristics (i.e., age, educational level, employment status, and relationship status) revealed no significant difference between

TABLE 1 Sociodemographic data of study participants.

Variables	BXC players <i>n</i> = 13	Sighted on-field subjects <i>n</i> = 20
Age (years), mean \pm SD	32.84 \pm 12.05	47.15 \pm 12.31
Educational level, <i>n</i> (%)		
Middle school degree	2 (15.4)	4 (20)
High school degree	9 (69.2)	7 (35)
University	2 (15.4)	9 (45)
Employment status, <i>n</i> (%)		
Employee	6 (46.1)	7 (35)
Student	2 (15.4)	3 (15)
Retiree	1 (7.7)	2 (10)
Unemployed	2 (15.4)	1 (5)
Other	2 (15.4)	7 (35)
Relationship status, <i>n</i> (%)		
In a relationship	6 (46.1)	12 (60)
Single	7 (53.9)	8 (40)n

visually impaired and sighted women groups (Table 1). A statistically significant difference in mean age was only observed between the two groups (*p* < 0.05).

Regarding the evaluation of psychological wellbeing and perceived quality of life assessed through PWB-18 scale and SF-12 questionnaire, respectively, mean score results are reported in Table 2.

The comparison between visually impaired and sighted women showed statistically significant differences in the environmental mastery and self-acceptance dimensions of the PWB-18 scale, as well as in the PWB-18 total score, in favor of sighted individuals (Table 2). Conversely, no significant differences in the SF-12 questionnaire score were found between visually impaired baseball players and sighted on-field subjects, though a slightly higher mental index could be observed in the first group (Table 2).

Table 3 displays the comparison of score results concerning body image perception/acceptance and self-esteem level assessed through the DKB-35 questionnaire and the RSES, respectively, between the two groups. Although visually impaired women

TABLE 2 Mean scores of the Psychological Well-Being scale and Quality of Life questionnaire in visually impaired baseball players compared with sighted on-field subjects.

Variables	BXC players mean (SD)	Sighted on-field subjects mean (SD)	<i>p</i> -value ^a
Psychological Well-Being 18			
Autonomy	10.69 (3.31)	11.70 (2.88)	NS
Environmental mastery	9.23 (2.38)	11.50 (2.21)	0.009
Personal growth	12.23 (3.11)	13.45 (1.19)	NS
Positive relations with others	9.07 (3.59)	9.35 (2.36)	NS
Purpose in life	9.15 (3.18)	11.00 (2.79)	NS
Self-acceptance	10.07 (2.62)	12.40 (2.37)	0.013
Total score	60.46 (12.38)	69.40 (8.14)	0.018
Short Form-12			
Physical	50.31 (10.57)	53.24 (5.60)	NS
Mental	50.11 (11.61)	47.69 (11.00)	NS

NS, non-significant.

^aStudent's *t*-test for unpaired data.

TABLE 3 Mean scores of body image questionnaire and self-esteem scale in visually impaired baseball players compared with sighted on-field subjects.

Variables	BXC players mean (SD)	Sighted on-field subjects mean (SD)	p-value ^a
Dresden body image			
Self-aggrandizement	16.53 (5.31)	17.55 (3.79)	NS
Vitality	28.07 (6.00)	28.00 (5.01)	NS
Body acceptance	21.69 (8.23)	23.40 (4.18)	NS
Physical contact	18.53 (4.23)	19.35 (3.92)	NS
Sexual fulfillment	19.76 (6.48)	18.06 (3.83)	NS
Total score	104.61 (23.11)	112.60 (15.18)	NS
Rosenberg self-esteem scale	18.61 (5.69)	21.95 (4.85)	NS

NS, non-significant.

^aStudent's t-test for unpaired data.

showed slightly lower scores, both instruments did not reveal any statistically significant difference.

Detailing data about body shape perception and the associated beauty ideals, the majority of the entire sample identified the hourglass shape as the most attractive and desirable one [8 out of 13 (61.54%) visually impaired women and 16 out of 20 (80%) sighted women], though just a minority stated that their own bodies conform to it [3 out of 13 (23.8%) visually impaired women and 7 out of 20 (35%) sighted women].

With specific reference to the survey section investigating the sport sociological dimension, three macro inquiring focuses could be identified, the outcomes of which are briefly summarized as follows. The first focus concerned the motivations underlying sport practice/involvement, both in general and BXC related. Responses provided by the study participants revealed a consensus view of sport, particularly BXC, as a tool for social comparison, sharing, and integration. Such results, presented in [Supplementary Table S1](#), are mainly evidenced by the option *“Desire to meet new people and feel part of a group”* chosen by 53.8% of BXC players and 45% of sighted on-field subjects, as well as the option *“Desire to use sport as an integration tool”* chosen by 38.5% and 80% of the aforementioned subjects, respectively. At the same time, a more instrumental approach aimed at self-improvement in the sighted subjects (data emerging from 50% of respondents having selected *“I think sport helps temper character for other challenges”* and 25% *“Enrich my wealth of experience”*) and a more expressive one aimed at self-actualization in visually impaired players (*“Competitive spirit”* selected by 38.5% of respondents, and *“Challenge myself”* and *“Desire to challenge myself physically”* by 46.2% and 38.5%, respectively) were also detected. In addition, a different wellbeing concept also emerged between the two groups, markedly more comparable to physical fitness in the sighted than in the visually impaired individuals. Referring to sighted subjects, such a perspective can be inferred from the similar percentages reached by the *“Keep me in good physical shape”* and *“Improve my sense of well-being”* options that were selected by 40% and 45% of respondents, respectively. Conversely, 46.2% of BXC players

selected the *“Keep me in good physical shape”* option but did not relate it to wellbeing, as it was inferable by a lower percentage of respondents (23.1%) who chose the corresponding option. Finally, concerning the reasons behind the participation in the *“red diamonds”* match, both groups asserted that they had been mainly driven by the social value and the visibility opportunity for female sport characterizing the event (*“Opportunity to spread an important social message through sport”* and *“Contribute giving visibility to female sport”* options selected by 53.8% and 46.2% of visually impaired BXC players and 75% and 60% of sighted women, respectively). Such motivations were accompanied by the curiosity to experience a women-only version of BXC for sighted subjects (35% of respondents) and by the socialization opportunity for the visually impaired ones (*“Desire to challenge myself in a different team group and sport context”* chosen by 38.5% of respondents). The second focus, which inquired about the relationship with the corporeal dimension specifically framed in a sport context, revealed a substantial agreement in perceiving the body as a precious asset to be preserved with the utmost care by both groups (option chosen by 76.9% of BXC players and 60% of sighted on-field subjects). Only the sighted participants also attributed to it a connotation of personal integrity element and environment interaction medium (75% and 55% of respondents, respectively). The third and last investigative focus was on the eventual perception of prejudices and psychological violence in the specific area of female sport. Both groups agreed that no due importance is generally attributed to such a field (61.5% of BXC players and 70% of sighted subjects), as well as that rooted prejudices about the unsuitability of certain sport disciplines for women practice still persist (38.5% of BXC players strongly agreed and 55% of sighted subjects moderately agreed with it) and that female athletes are still portrayed more in terms of esthetics and seductiveness than of their actual athletic skills when compared to the male counterparts (38.5% of BXC players and 45% of sighted subjects moderately agreed with it). Additional biases addressing women sport practice and a devious motherhood boycott within competitive sport were recorded only by the sighted component of the sample (35% strongly agreed and 50% moderately agreed with it). On the request to suggest possible improving/counteracting actions, the visually impaired subjects indicated the need to approach and manage female sport not as a gender-adapted version related to men but as a reality having specific peculiarities (76.9% of respondents). Simultaneously, they also highlighted the necessity of applying equal economic treatment to male and female athletes (53.8% of respondents). In the same perspective, sighted individuals indicated the need for a greater female presence within the management and technical staff of sport societies and federations (70% of respondents). Finally, concerning the possible existence of psychological violence in this specific field, most of the whole women sample stated to be unable to answer (53.8% of visually impaired respondents and 50% of sighted ones). Among the subjects, both sighted and visually impaired, who declared to have perceived/experienced such kind of violence/pressure during their sport practice [7 out of 20 sighted subjects (35%) and 3 out of 13

BXC players (23.1%), respectively], the most responsibility was appointed to managers and coaches (3 out of 3 BXC players and 4 out of 7 sighted subjects) while the audience was held highly responsible by the sighted component only (5 out of 7 respondents).

4 Discussion

To the best of our knowledge and starting from the previously demonstrated psychophysical benefits of BXC practice on visually impaired people (20, 46), this is the first study to investigate the social potentialities of such adapted sport not only in the aforementioned target population but also in the sighted component officially provided on-field by the BXC regulation (i.e., assistants, catchers, coaches, and referees). This innovative perspective, along with the event inspiring theme, aimed to inquire about disability and gender discrimination issues increasingly emerging nowadays and potentially contrastable through adapted sport promotion. Since the present investigation was conducted also applying a sociological research approach, our findings must be discussed and framed specifically referring to the Western society to which the investigated sample belongs to. Modern society, strongly based on individuality, productivity, high performative standards, and conformity to the esthetic models imposed by media (50–52), has often considered and represented disabled people as without gender. It is well-known that gender plays a key role in cultural stereotypes of power and performance and, consequently, in discrimination perception/experience and social opportunities. Furthermore, gender stereotypes add to disability-related ones, thus making disabled women one of the most vulnerable and marginalized social category (53).

Due to the deep society transformation caused by globalization, uncontrolled technological progress, media increasing power, and urbanization in the last century, educative and social interaction models faced new difficult challenges (54). Nowadays, human interplay increasingly happens through a virtual approach, which often tends to belittle emotional intelligence, empathy, sense of responsibility, and tolerance that should characterize and drive every interaction. Growingly, we are witnessing bullying and discrimination phenomenon especially affecting the most disadvantaged social groups/individuals, hence highlighting the urgent need to find effective counteracting and educative tools (55, 56).

In such a scenario, sport may represent a promising field through which all these critical issues and challenges can be faced safely and positively. Indeed, the practice of sport, above all adapted team disciplines, urges participants to concretely overcome limits, diversity, and stereotypes to reach a shared goal thus promoting cooperation, reciprocal growth, and integration (19, 57, 58).

On these premises, the present study investigated, for the first time, the complex and multidimensional concepts of psychological wellbeing, quality of life, body image, and perceived sport psychological violence in visually impaired and sighted Italian women playing BXC. The research frame was particularly reach of social meaning given that the “red diamonds” event was conceived and designed to spread a strong message against gender violence and disability discrimination through sport

practice. A comparison of the self-administered online survey outcomes, compiled both by visually impaired and sighted participants, revealed no significant differences between the two groups in almost all the investigated variables. Such a general result remarked the already well-demonstrated sport potentialities of counteracting disability-related psychophysical deficits and promoting a constructive interaction between able-bodied and disabled individuals (59–61). Specifically detailing psychological wellbeing, evaluated through the PWB-18 scale, statistically significant differences between sight-impaired and sighted women, in favor of the latter, were detected in the environmental mastery and self-acceptance dimensions, as well as in the total score. Since visual disability deeply and negatively impacts interaction with the surrounding environment and daily-life self-efficacy, such results simply reflect the specific impairment-related issues (4). Moreover, given that the visually impaired women adhering to the study were younger than their sighted counterpart, a lack of environmental experience and self-awareness could be ascribed also to the younger age (62). In addition, though not statistically significant, the SF-12 mental index resulted higher in the BXC players than in sighted on-field subjects confirming the findings of our previous study regarding the benefits of BXC habitual practice in visually impaired individuals (46).

Sport generally promotes a balanced relationship with the corporeal dimension, thus educating practitioners to perceive and use it both as a performative and expressive/relational tool (63, 64). The results concerning body image, evaluated through the DKB-35 questionnaire, revealed no statistically significant differences between the two groups. Visually impaired women showed slightly lower scores in all the areas investigated by the questionnaire except for sexual fulfillment, which might be explained more by the younger age of this group than any other peculiarity (65). Overall, all the women involved in the study achieved a medium to high total score with respect to the established 135 maximum value. It is well-known that self-esteem is strongly related to body acceptance, especially for the female gender (66–68), and such an interconnection can be clearly demonstrated by putting in relation data obtained in the RSES and the specific dimension of the DKB-35 questionnaire. As far as RSES is concerned, the whole women sample reported a total score comprised in the 15–25 range of normality, hence remarking the benefits of sport practice on personality and self-esteem development (69–71). Finally, the survey section investigating body shape perception and the related beauty ideals through the armochromy patterns revealed a common vision within all the participants. Specifically, both sighted and sight-impaired groups stated to consider and desire an hourglass-shaped body as the most attractive but, at the same time, to not perceive so their own. This discrepancy between esthetic ideals and self-body perception might simply highlight the well-demonstrated vision-independent media influence on female beauty models (72, 73). Among visually impaired subjects, blind women particularly appreciated this armochromy-inspired tool, first ever applied in such a target population, finding it useful to mentally visualize/imagine their corporeal shape.

To further deepen the knowledge in blind adapted sport through a multidisciplinary perspective, the present research

enriched the evaluative approach investigating not only the psychophysical but also the social dimension of this still under-investigated field. Summarizing the sociological survey outcomes, an instrumental approach to sport emerged in the sighted subjects compared to a more expressive one in the visually impaired group. Such diverse attitudes probably depend on different game roles carried out by the two categories of participants, specifically, assistive/supportive for sighted on-field women and performative for visually impaired players. The different game roles probably also influenced the outcomes regarding possible ameliorative proposals for a concrete female sport acknowledgment. In fact, visually impaired BXC players suggested the application of equal economic treatment to female and male athletes (74), while from sighted on-field subjects emerged the necessity of a greater female presence within the management and technical staff of sport clubs and federations (75). Despite these different perspectives, both groups stated to consider sport as an important sharing, comparison, and integration opportunity, therefore highlighting its educative potentialities on individual psychophysical development and community social growth. In line with such personal belief and the mission of the International Olympic and Paralympic Committee, most of the whole women sample adhered to the “red diamonds” event deeply believing that crucial anti-discrimination social messages can be spread through sport (61, 76, 77). Furthermore, they also stated to have joined this distinctive women-only BXC match considering it as an opportunity of giving to female sport its due importance/visibility (78). The majority of the involved women declared to still perceive many rooted prejudices concerning the suitability of particular sports for female practice and to feel being often portrayed by media more through esthetic than athletic features. Peculiarly referring to the visually impaired players, such perception reaffirmed the widespread gender- and disability-related double discrimination of this vulnerable social target (79). Finally, survey questions that investigated the sensitive topic of perceived psychological violence in female sport showed a weak knowledge or experience of the issue since most of the women choose the “I don’t know” option. This finding could be attributed to a real no direct experience of the respondents, as well as to a cultural legacy of silence or to the common devious way of performing prevarication and psychological pressure (80, 81). Among the women who declared to have experienced this kind of violence during their sport practice, the most responsibility was held by coaches. The audience was considered responsible only by sighted subjects, and this could be due to the specific BXC rules imposing it to maintain silence during the match to allow players to hear the auxiliary sound input (20). Consequently, since sight-impaired athletes do not have access to visual feedback, they perceive audience presence and reactions only at the end of each attack/defense action while playing the game.

Given the limits of a self-administered qualitative survey, such speculative hypotheses suggest that further studies on larger samples and different disability categories are needed not only to provide specific knowledge in the field of female adapted sport but, above all, to identify effective tools for preventing and counteracting gender and disability-related discrimination (82–84).

In conclusion, based on our survey results revealing no statistically significant differences in almost all the inquired variables between visually impaired and sighted women involved in the “red diamonds” event, the psychophysical and social benefits of adapted sport have been further deepened and remarked. Specifically, it is to underline that the “dual embodiment” and empowerment phenomenon were investigated, for the first time, in a sociological perspective purpose-tailored for the variegated female component of Italian BXC practitioners. Since the “dual embodiment” process through sport is a crucial dimension in terms of empowerment, gaps reduction, and fight against anti-female and anti-disability prejudice (85, 86), we are confident that our research might help spread interest, knowledge, and awareness of the still under-investigated field of gender and disability disparities in sport. Hopefully, it might also suggest cues for further investigations aimed at deepening and designing educative tools and methodologies to promote a concrete society growth against any form of discrimination through the practice of sport.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

Ethical approval was not required for the studies involving humans because this anonymous online survey did not require an ethics committee approval. All subjects participated voluntarily and anonymously and gave their informed consent. Study procedures were carried out following the rules of the 1975 Declaration of Helsinki, revised in 2013. The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study.

Author contributions

GC: Conceptualization, Data curation, Formal Analysis, Investigation, Methodology, Visualization, Writing – original draft, Writing – review & editing. PR: Formal Analysis, Investigation, Methodology, Visualization, Writing – review & editing. MMan: Formal Analysis, Visualization, Writing – original draft, Writing – review & editing. MMar: Conceptualization, Data curation, Formal Analysis, Investigation, Methodology, Visualization, Resources, Supervision, Writing – original draft, Writing – review & editing.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Supplementary material

The Supplementary Material for this article can be found online at: <https://www.frontiersin.org/articles/10.3389/fspor.2024.1362664/full#supplementary-material>

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Factors influencing sport development among women with disabilities: a case study of a visually impaired Spanish Paralympic woman

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Introduction: Women with disabilities may experience particular difficulties in starting and developing in sport, also in the Paralympic context. Although a great deal of research has been conducted with high-performance athletes, relatively few studies have focused on athletes with disabilities, especially Paralympic women using person-first approaches. Thus, the main objective of this study is to understand, through the experience and opinion of a Paralympian female athlete, how these athletes reach their full potential, identifying the elements and initiatives that can influence (whether positively or negatively) their sporting trajectory and developmental milestones.

Methodology: This study analyzes the case of a quadruple Paralympic medalist in blind Judo, who has competed in Paralympic Games from Athens 2004 to Paris 2024. Information was gathered from a semi-structured interview, a book chapter she had written, and her participation in a forum.

Results: The athlete differentiated between two key stages in the sports career of people with disabilities: (1) the beginning of sports practice; and (2) development processes and the search for future Paralympic athletes. Women with disabilities face particular difficulties in accessing sport, with foundations for people with disabilities and coaches playing a fundamental role. It is crucial to give visibility and have sports references in these areas, highlighting initiatives such as Paralympic School Days and inclusive competitions. There are conditioning factors in the identification and development of talent, such as the rules and the nature of each Paralympic sport, and the level of inclusion that the athletes have experienced in their environment.

Conclusions: This case study presents the perceptions of a female athlete with regard to the beginnings and development of sport in the Paralympic framework, underlining the need to promote actions that help and encourage the development and participation of women with disabilities in sport.

KEYWORDS

Paralympic sport, talent identification, initiation, barriers, facilitators, initiatives

1 Introduction

It is currently estimated that 16% of the global population lives with a significant disability. This percentage is expected to increase in the coming years (1). Physical exercise is a crucial pillar for achieving and sustaining an optimal state of health, as it plays an essential role in the maintenance and improvement of overall well-being (2). However, many people with disabilities face significant barriers that hinder their participation in physical activities (3). In this regard, it has been observed that people with disabilities are between 16% and 62% less likely to meet the recommended levels of physical activity than general population (4).

At both the international and national levels, various strategies are being developed to increase inclusion and achieve the Sustainable Development Goals for people with disabilities. Internationally, the United Nations Charter stands out because it lays the foundations for the inclusion of people with disabilities (5). In Spain, Article 6 of the current Sports Law 19/2022 establishes policies that seek to guarantee social inclusion and implement programs through sports federations and entities to raise awareness and promote inclusive sports activities (6).

In Spain, 58.6% of people with disabilities are women (7). Generally, women with disabilities perceive greater difficulties in engaging in sports than their male counterparts (8), leading to lower participation rates and levels of physical activity compared to men with disabilities (9). These limitations can be observed in the number of federative licenses among people with disabilities in Spain, where for every three male licenses, there is only one female license (10).

Participation in various physical and sports activities does not depend solely on women with disabilities themselves; it is also necessary to analyze the contextual factors (both barriers and facilitators) they face. Through the International Classification of Functioning, Disability, and Health (ICF), disability can be understood as a dynamic and psychosocial concept resulting from the interaction between impairments, activity limitations, participation restrictions, and the influence of environmental and personal factors (11). Women with disabilities have to contend with various social, physical, or psychological adversities to a disproportionate extent (12). Such a situation has necessitated the adoption of actions to mitigate this issue, as reflected in the current Sports Law 19/2022, which states:

According to Article 49 of the Spanish Constitution, the General Administration of the State, in collaboration with other Public Administrations, will promote the necessary policies to guarantee the full autonomy, social inclusion, and equal opportunities of people with disabilities in the field of sports, paying particular attention to the specific needs of women and girls with disabilities and eliminating obstacles that hinder their full integration. (Boletín Oficial del Estado, 2022, p. 193324)

These measures also aim to affect sports and competitive fields. Accordingly, many researchers have long examined the identification and development of sports talents across a range of

contexts. As previous research has shown, identifying the qualities at an early age that predict future performance has proven challenging (13). Talent identification research has tended to select athletes based on their physical and psychological characteristics (14). Through considering all the possible components that most significantly influence athletes' trajectories, a series of factors known as primary factors have been established, although some may have greater relevance than others. According to Baker and Horton, the most important elements are psychological factors, genetics, and training (15).

This research has mainly addressed athletes without disabilities. The existing lack of studies in Paralympic contexts poses a significant obstacle in the identification and development of Paralympic athletes. Although there may be some similarities between athletes with and without disabilities, there are also certain distinguishing elements between the two sport developmental processes (16). Studies related to disability incorporate differentiating aspects in these fields: Paralympic athletes' initiation into their sport can vary depending on when they acquired their disability, which, in turn, becomes a key element in their career (17). Some research has highlighted the type and severity of the athlete's impairment and their potential functional classification in competition as a key indicator for identifying and predicting their level of success in their sport (18), as variations in the type of impairment seem to influence performance (16). A paucity of resources in Paralympic sports due to relatively lower funding can have a significant impact on these athletes, too (18).

Recently, efforts have been made to explore the factors influencing the training processes of Paralympic women in Spain, identifying different key elements in their development, including their coach, their immediate social environment, and psychological, physical, and technical-tactical aspects (19). However, the relevant literature remains scarce, with a lack of proposals for practical transfer. It is essential to understand the opinions and experiences of Paralympic athletes themselves through first-person studies to better understand the key components associated with their initial sports practice, talent identification, and development in Paralympic contexts. This research is based on the need to involve athletes with disabilities in order to elaborate and develop policies and proposals for improvement in these areas. To achieve this, it is essential to incorporate their experiences and perspectives, valuing the experiences of those who are directly involved in these realities (20).

Given the above, the primary objective of this study is to understand how a female Paralympic athlete reaches her maximum potential, and to identify the elements that can influence (whether positively or negatively) her sports trajectory from her first-person perspective. Having analyzed these perceptions, the study's secondary objectives are to: (a) identify the main barriers and facilitators that condition the initiation and development of sports among women with disabilities; and (b) to analyze what factors and initiatives can influence the development of sport for women with disabilities and the development of talent in Paralympic contexts, as is the case of the participant in this case study.

2 Materials and methods

2.1 Participant

Presented here is a case study centered on a quadruple Paralympic medalist. The athlete was born with a severe visual impairment due to complete oculocutaneous albinism and competes in the B3 functional classification for judo. She has won two silver medals and one bronze medal at the Paralympic Games, in addition to several medals at world and European championships. At the time of the research, the participant was 45 years old, had 26 years of experience in her sport, and was still active, aiming to qualify for the Paris 2024 Paralympic Games, where she ultimately achieved a bronze medal.

The participant was selected for several reasons. First, she has extensive insight into the Paralympic context due to her substantial experience in this field as an athlete. As a woman with a disability, she is fully familiar with the difficulties and obstacles that this group faces in initiating and developing sports practice. Additionally, her active commitment to promoting inclusion reinforces her suitability for this selection. Through more than 40 conferences at educational centers to date, she has shared her experiences and lessons to raise awareness about inclusion. All experimental procedures were communicated to the participant and applied in accordance with the Declaration of Helsinki.

2.2 Data collection and analysis

The information collected for this study was obtained from various sources to achieve a complete understanding of the topic in question. The first source of information consisted of a semi-structured interview to explore the participant's experience and perspective on the barriers, facilitators and initiatives that influence the development of Paralympic athletes. The interview topics were based on previous research in this area (21). The script was organized into four sections: the first was an introduction and warm-up questions; the second section collected the athlete's experiences throughout her career; the third addressed what the participant considered indicators of talent in the identification and development of athletes; and the final section asked the athlete to evaluate the current talent identification and detection program for Paralympic athletes and outline her ideal program in this field.

The interview was conducted online through the Zoom platform and lasted 47 min. Prior to the interview, the participant received an oral explanation of the study's purpose and was reminded of the voluntary nature of the research, with the assurance that she could withdraw at any time without any consequences. Permission to record the interview was requested subsequently.

To complement the study, participant contributions to the First Forum on Women, Sports, and Disability—MUDIDI (22) were collected. One of the forum's purposes is to analyze the barriers hindering the sports participation of women with disabilities, and

thereby promote specific actions to foster their inclusion on equal terms. The athlete under study attended the forum as a representative of the Spanish Paralympic Committee, addressing these issues from her perspective and experience as an athlete and educator. Additionally, information was obtained from the book *Deporte inclusivo: aplicaciones prácticas (Inclusive Sport: Practical Applications)* (23), in which the participant had written a chapter on competition and inclusive judo. This document provided insights into the relevance of sport, specifically judo, as a tool for inclusion and sports practice.

For the data analysis from the three sources of information, first the interview and the forum were transcribed into a Word® document. Once transcribed, the same process of analysis was carried out with the three sources of information: the interview, the forum and the book chapter. Firstly, the coding process, a comprehensive reading was performed to gain familiarity with the data and determine the units of analysis from the interview and forum transcriptions, as well as the text extracted from the book chapter. Subsequently, preliminary labeling was performed, locating all units of analysis obtained through an open and inductive coding system. The total number of coded units of analysis was 89. Next, a branching node or axial coding system was developed using the constant comparison method (24), until stability was achieved and consensus was reached on all themes and dimensions. To mitigate any potential bias and ensure the validity of the results, the research team held multiple meetings using the triangulation or validation method (25). The verbatim is labeled according to the source of information from which it was obtained, differentiating between the book (B), the forum (F) and the interview (I). The coding and categorization process was carried out using the Word®.

3 Results and discussion

This research aimed to explore the factors that can influence an athlete's journey from the beginning of their sports career to becoming a Paralympic athlete. One of the secondary objectives was to analyze the various actions and initiatives currently being developed to support the processes of talent identification and detection, as well as these athletes' development.

The research was designed as a case study due to the distinctive characteristics of the selected athlete, in order to explore and understand her opinions and insights on this topic in particular depth. It is important to highlight the uniqueness and attributes of the interviewee: (1) an athlete who has participated in multiple Paralympic Games; (2) currently active; (3) a coach; (4) pursuing an academic career parallel to her sports development (dual career); (5) involved in promoting Paralympic sports and inclusion.

The main results show the impact of the environment and various factors (for instance, lack of female role models, the coach's role, the role of foundations) on the initiation of sports practice. Additionally, from the participant's perspective, several initiatives aimed at detecting potential sports talents can be identified. Thus, the results can broadly be divided into two

TABLE 1 Grouping of the obtained results.

Beginnings and determinants of sports practice	The development and search for future Paralympic athletes
<ul style="list-style-type: none"> - Environment (16) - Gender (4) - Clubs, federations and foundations (6) - Family (3) - Coach (9) 	<ul style="list-style-type: none"> - Challenges (10) - External Factors (23) - Strategies (18)

The recording units are listed in parentheses to the right of each grouping.

groups: (a) the beginnings and determinants of sports practice for people with disabilities; and (b) the development and search for future Paralympic athletes (see Table 1). This thematic structure will be followed below in order to present and discuss the results.

3.1 The beginnings and determinants of sports practice for people with disabilities

3.1.1 The environment

People with disabilities face numerous barriers to accessing environments that might facilitate their entry into sports practice. These obstacles are very diverse, comprising accessibility, economic, political, caregiving and social factors (26). Previous research has highlighted a lack of support and disapproval by others as a significant limitation (27), which can shape individuals' participation in sports and social activities and in turn greatly affect emotional factors (28), harming their self-esteem and motivation (29), as the athlete describes:

All of this inevitably led me to a group of people with disabilities who are excluded, with low self-esteem, and assuming that this situation is the reality that applies to everything. In simple terms, it is what it is. (I).

3.1.2 Gender

It is important to differentiate types of barriers according to sex. As highlighted previously, having a disability can hinder access to sports practice, and being a woman with a disability can complicate these processes further (30). In fact, in Spain, the number of sports licenses for women in federations for people with disabilities is three times lower than that for men (10). The results of this research confirm these data, clearly revealing the disproportionate difficulty women with disabilities face in participating in sports activities.

The social difficulties and limitations for women in accessing sports are quite evident. When these women have a disability, everything becomes much more complicated. (F).

Psychological factors such as motivation and fear can act as barriers to sports practice among this group (31). For this reason, social support plays a fundamental role in this area (32). Women often receive less support from family and peers than

their male counterparts (33), which, combined with female athletes with disabilities' lack of visibility, renders sports practice particularly challenging:

There is always a lack of role models. As I mentioned before, they are still lacking, and it is not that they do not exist, it is that we don't see them. Occasionally, one appears; of course, there are many phenomenal women, but you don't hear about them until you get into the Paralympic sphere. (F).

3.1.3 The role of clubs, federations, and foundations

Clubs and federations play a crucial role in both the initiation and development of athletes. According to DeLuca's multidisciplinary inclusion framework, four approaches to inclusivity can be distinguished: normative, integrative, dialogical, and transgressive. Based on the history and references provided by the interviewed athlete, the model that most closely aligns with the current context in Spain is the normative approach, according to which minority groups are accepted only so long as they conform to the prevailing norms (34).

In some cases, clubs have implemented changes to accommodate diversity, but a predominant cultural norm persists that continues to exclude young people with disabilities. These findings are consistent with Jeanes et al.'s study in Australia, which noted that young people with disabilities remain excluded from community sports due to various reasons at club level and differing perceptions of inclusion (35). Nevertheless, some federations are currently undertaking initiatives and organizing events aimed at advancing an integrative or dialogical approach, which involves formal modifications (34). An example of this is the Spanish Federation of Judo (FEDC):

FEDC has organized adapted competitions in which athletes with and without disabilities compete together. It was the sighted judokas who adapted to the rules of judo for the blind and visually impaired. (B).

Other studies have highlighted the challenges in promoting inclusion policies, emphasizing the need for people who are willing to invest time and effort in managing and implementing these changes (35, 36). In this context, the new Law 39/2022 on Sports in Spain is noteworthy, as it stresses both the role of federations in promoting sports for people with disabilities, particularly women, and the importance of inclusive environments in sports.

At this point, foundations play a significant role. These organizations provide substantial support for people with disabilities, especially in the early stages of sports practice. Through these entities, it is possible to more efficiently promote sports disciplines and adapt them to the specific needs of each person with a disability. An example in Spain is the ONCE Foundation, the disability service provider and representative for the visual impaired and an organization that promotes social inclusion for people with disabilities, predominantly those with

visual impairments. As reflected by the participant, who, prior to committing to judo, had explored various sports practices but was compelled to abandon them due to a lack of resources for adaptation:

At that time, I was not affiliated with ONCE, so we did not have a clear understanding of the exact problem to solve. (I).

3.1.4 Family involvement

The role of the family is a significant topic in talent development research. According to the stages of expertise development defined by Bloom and Côté, family involvement is evident throughout the sport development process, although it is particularly important in the initial stage, the beginnings (37, 38). The same is true in the Paralympic context, as the family plays a critical role in the early years of an athlete's development (17), especially in the case of Paralympic athletes:

I believe that the family is fundamental because people—and especially children with disabilities—often depend on their parents to participate in sports due to accessibility issues. (I).

On the other hand, overprotectiveness from parents or caregivers can limit athletes' opportunities to develop their autonomy and can lead to a loss of decision-making ability, potentially resulting in sports abandonment (39). Therefore, coaches have highlighted the importance of independence so that athletes can undergo optimal development in the Paralympic context (40).

It should be noted that many athletes, including the athlete interviewed, have not had significant positive experiences in physical education. For this reason, some athletes are forced to seek other environments to develop their sports skills, rendering family support crucial (41). A family sports history, where parents and siblings participate in sports, can spark an interest in sports participation for people with disabilities (42).

When I started college, I met people who did judo. I had always been attracted to that sport because my brother had practiced it and I knew it existed. (I).

As the athlete develops, the role of the parents also evolves. Parental influence can vary depending on the age at which the athlete begins sport practice. Although this aspect has been extensively researched and is considered highly important in athletes' growth (36, 37), some athletes progress without being significantly affected by this factor.

Well, my family experience has not really been any, because I started as an adult and was already independent from my family. (I).

3.1.5 Coach

The relationship between a coach and their athlete can be described as one that is continuously evolving and transforming,

dynamic and changing. Similarly to the family context, Bloom and Côté have observed that the coach's role varies depending on the stage of the athlete (37, 38). In the initial stage (the beginning of sports practice), the climate created by the coach is crucial for the athlete's continued development in the sport. Therefore, the creation of an appropriate motivational environment is essential in promoting commitment to sport (43). The environment perceived by peers and the coach's support in building autonomy significantly affect sports motivation (44). In the Paralympic context, the influence of the environment and interaction with people with disabilities can prove particularly important in the early stages.

(He (my coach) did not assume that you would perform better or worse due to your disability, and with a level of performance demand, without being condescending, which is very typical. (I).

According to the interviewee, during the second phase (the specialization phase; (37, 38), having a supportive environment remains crucial for the athlete's development. In addition, coaches play a crucial role in supporting and developing athletes. These coaches need specific knowledge about disabilities so that they can offer training programs that are suitable and adapted to their athletes' needs (18). To fulfill this role, coaches require a support structure that provides opportunities for specialized training, learning, and development in the field of disability (45), which they often lack. The athlete evaluated the coach's role in these early stages as follows:

I think the coach has vital, enormous importance. Let's say capital. On a scale from 1 to 10, an 8.5, leaving some room for others to be important too. (I).

3.2 The development and search for future Paralympic athletes

Currently, multiple programs have been developed with the primary goal of identifying and detecting talents, especially among athletes without disabilities. These initiatives encounter a significant challenge, as athlete development often does not follow a linear path and is subject to variations (46). Numerous factors affect these processes, which are unique to each individual's sports development.

3.2.1 Challenges

The search for future Paralympic athletes is a complex and challenging process. Sociocultural barriers imposed on people with disabilities can influence their participation in sports (47). A lack of fully accessible environments and the limited availability of inclusive activities or Paralympic sports pose significant obstacles to this group's participation in sports. A scarcity of information on the whereabouts of individuals with disabilities, combined with a lack of awareness about their sports options, are major issues that can limit opportunities to

participate in Paralympic sports. It has been observed that relatively low levels of physical activity may correlate with a lack of awareness of sports opportunities (32):

It is important to reach people with disabilities to let them know that there is a possibility to participate in sports, because when I started judo, I did not know that judo for the blind existed. (I).

One of the main difficulties in this respect is a lack of funding (48). Media coverage is an associated issue as Paralympic athletes enjoy only limited visibility (49). Women face particular challenges in obtaining sponsorships (50), making it essential to improve the dissemination of information to increase female participation in Paralympic disciplines (51):

It is important that these structures work in a coordinated way, that the media supports us by providing an equal view of sport, and that there are role models for women with disabilities, as they are currently scarce. (F).

Regarding sports and competitive arenas, women encounter more obstacles than men (52). One of the most common challenges is the existing disparity in access to resources and opportunities, whereby women with disabilities are underrepresented in high-performance sports:

At the moment, it (the opportunities for women with disabilities in high performance) is scarce, insufficient and limiting. It is only when they reach high-performance sports, at the elite level, that the Paralympic Committee takes notice of these women and realizes that they are not reaching the level. The percentage of women (in high performance) is very small, the sports modalities are fewer, and although gender equality perspective has been adopted within the Paralympic Committee is complete, the path is not. (F).

3.2.2 External factors

Eligibility and classification systems in disability sports are essential for the development of Paralympic sports. These systems have been identified as a decisive factor in the development and progression of athletes at all stages of their sporting careers, particularly during the initiation phase. It has been observed that athletes' trajectories can vary depending on their sport class (45). Consequently, classification can have a significant impact on athletes' success. As a result, the potential classification of athletes has been established as a key indicator in the identification and development of athletes (16).

In addition to athletes' potential classification, the present research has identified a new factor that may be crucial in determining whether an athlete can compete at a high-performance level: the specific rules of each sport. It has previously been pointed out how the Paralympic movement itself, despite having emerged as a response to exclusion, can perpetuate forms of exclusion. Some athletes, such as those with

intellectual disabilities, may be left out of the participation system due to the established classification criteria (53). However, paradoxically, some athletes may be excluded from a competition even if they have an appropriate classification, creating even a greater exclusion:

If you have a hypotonic paralyzed arm, you might not be able to swim. Your impairment will condition you, and regardless of your classification, that sport may already be barred for you as a competitor. (I).

In the Paralympic context, a significant factor is the timing of when athletes acquire their disability. It has been noted that athletes with congenital or early-acquired disabilities tend to achieve superior results more quickly, while those who acquire disabilities later progress at a faster rate (21). Thus, a clear distinction is often made based on when the disability was acquired or developed, differentiating between early and late onset.

One of the main findings of this study is the consideration of the level of inclusion experienced by athletes, in addition to the time when the disability was acquired. The participant highlighted the inclusion and support athletes with congenital or early-acquired disabilities receive in social and educational settings:

There are people who have been 'native inclusives'.. and then there are those who have not; I am not a 'native inclusive'; I have had to integrate myself instead. (I).

In this way, two types of athletes with early-acquired disabilities can be differentiated: those who have been included and those who have not, a distinction that can prove crucial for their progress. The resources that athletes can draw upon to address challenges such as traumas—that is, moments in life that have negative consequences—may be decisive in their development (54). Indeed, traumas can serve as a means to acquire new skills or perspectives, or simply to develop resilience (55):

And what if I had had a different character? Perhaps we would not be talking now, and I would be a mess and a miserable person. (I).

For athletes with early-acquired disabilities, the interviewee distinguished and their previous experience with the disability in relation to potential performance. It has been noted that individuals with prior contact with sports may view the future with greater optimism than those with no previous connection, who, having recovered, need to start from scratch. Given that disabilities can be acquired over time, age is not considered a determining factor for sports success (45). It has been observed that prior sports experience is an essential component for athletes who acquire a disability later in life (21).

On the other hand, the type of sport practiced can influence an athlete's development and skill acquisition, and it may prove decisive in their sports trajectory. The nature of sport can enhance the creation of appropriate development environments for athletes, thereby affecting talent detection processes. In this

regard, these environments should be as inclusive as possible (6). It has been observed how participation in sports, as in the case of blind tennis, can help people with disabilities to build a competent identity that could be transferred to their daily life (56).

I do not know if it was because they were judokas, who know that there is a learning process that takes time, and everyone assumes it is a process that takes time, which helps with not being impatient with someone's talent. (I).

3.2.3 Development strategies and recruitment of Paralympic athletes

A wide range of strategies have been implemented to attract and recruit athletes with disabilities (21). It is important to highlight the initiatives currently being developed in this area, such as sports events and competitions organized by various federations, as well as educational programs aimed at primary and secondary school students. One of the main strategies being carried out at the regional level in Spain is the program known as *Relevo Paralímpico* ("Paralympic Relay") (57). This initiative aims to identify and locate young people with disabilities and introduce them to sports, with the goal of fostering their development to become Paralympic athletes. The program includes actions such as training technicians who provide equipment to clubs and organize sports promotion and talent detection events. According to Balyi et al., promoting Paralympic sports through the development of sports events for people with disabilities is crucial in this initial stage, as it serves a dual purpose: first, it raises awareness of sports opportunities through awareness actions (e.g., practicing a disability sport in physical education classes); and second, it provides people with disabilities with a positive initial experience in sports, which can encourage them to continue participating (58). Other initiatives are being undertaken by sports structures such as clubs and federations, as demonstrated by the events organized by the Spanish Federation of Judo previously mentioned. Foundations, as previously evidenced, also play a crucial role in this regard.

Additionally, these awareness actions are starting to be developed in the educational context, across different educational stages. A clear example is the Paralympic Day of the "Inclusive Sports in Schools" (DIE) program (59), in which the interviewee participates as a speaker. In this program, Paralympic Day is held in primary and secondary schools and is divided into two phases: (1) a disabled sports athlete visits the educational center to share their experiences and insights and exchange opinions and questions with students; and (2) a practical part where students participate in Paralympic and inclusive sports (60):

I collaborate with CEDI in primary and secondary education, offering a different perspective to all these children and removing stereotypes that affect everyone. (F); (...) I also collaborate with the DIE program so that children do not experience what I went through, to try to make the situation a little easier, to smooth the path, even though what I went through, unfortunately, still happens. (F).

Another possible entry point into sports is rehabilitation. Rehabilitation is not limited to treating injuries but can also generate interest in sports, especially for those with acquired disabilities (61):

Many athletes start doing Paralympic sports because they begin with a rehabilitation process. (I).

Significant variations exist in the methods used to detect and identify talent in the Paralympic sports field, as well as in the factors that may have a disproportionate impact on the trajectory of athletes with disabilities. One of the main differences in talent identification is that Paralympic athletes tend to be older than those without disabilities. Age is a less determining factor for sports success in this context (62), as many athletes may have faced difficulties in accessing a particular sport or have acquired a disability later in life. A clear example is the athlete interviewed, who started practicing judo at 19 and was 47 at the time of the interview. In talent identification, sports events that focus on athletes with disabilities who are already involved in sports are crucial. Thus, the Paralympic Relay program organizes two types of sports events: those aimed at sports promotion (as previously mentioned) and those focused on talent detection (57):

There were other concentrations for older athletes that were more focused on whether you like to train, on seeing where more could be extracted. (I).

However, it is equally (or even more) relevant to have the support of experts with a deep understanding of disabilities and classification systems during these events in order to support selection processes (17, 21).

At the same time, there have been attempts to implement talent detection or "talent transfer" programs between sports, where athletes have an increased opportunity to progress in a different sport (54). Coaches play a crucial role in implementing these strategies:

I think they manage among themselves because they see them, know them, call them, and maybe a kid who was playing football tells the judo coach to invite him to judo because he thinks he will do better and like it more. (I).

A lack of funding is a common factor that affects the identification and development of athletes, and sports organizations often lack the capacity to maintain effective systems due to political and financial limitations (17). Historically, Paralympic sports have received less funding compared to non-Paralympic sports, leading to a scarcity of resources and support for the development of these athletes (18, 63). This deficiency can limit the potential of Paralympic athletes to achieve their peak performance and succeed in competition. Social, economic and research limitations negatively affect the development of athletes with disabilities, restricting their opportunities to access essential resources such as coach training programs and wider sports offers, among others. On the other hand, further research in this embryonic field is necessary to offer alternative approaches to addressing these limitations:

I think scientific research could perhaps help more in terms of securing funding, obtaining laws, and achieving more tangible outcomes. (I).

It is essential to highlight the limitations of this study for a better understanding of the results obtained. The research has been conducted around a Spanish athlete, so generalizing the results and proposed strategies should be done with prudence. The choice to conduct a case study to delve deeper into this topic means that the results should be taken with caution, as they do not represent all women athletes with disabilities. Furthermore, due to the limited literature in this area, future studies should explore the various factors that influence the development of athletes with different disabilities through studies that capture the first-hand perspectives of athletes and the influence of their environment. A topic not addressed in this study is the end of the sports career of athletes with disabilities, which should be considered in future research.

4 Practical recommendations

It is essential to analyze the factors involved in the process of identifying athletes with disabilities who have high performance potential, as well as these individuals' adherence to sports development programs that ensure the necessary conditions for their athletic progression in their respective sport. This case study highlights the need to treat each individual athlete independently, paying attention to their unique developmental path. Assuming that there is no single model for athletes, it is necessary to develop an environment that allows athletes to remain within the system. Therefore, the primary focus should be on facilitating the initiation and development of sports practice.

As this study has observed, the initial stages of sports participation for women with disabilities can be hampered by various barriers, most notably, a lack of role models and a lack of visibility. Due to the current scarcity of initiatives and support from sports organizations and federations, foundations play a crucial role in supporting these athletes throughout their careers. Particularly in the early and developmental stages, the coach also plays a fundamental role in retaining the athlete and addressing their progression needs.

There are several factors that can affect athletes' performance and progress. The results of this research underscore one especially important aspect in the development of athletes with congenital or early-onset disabilities: the degree of inclusion they experienced during their early stages. Those who were not included (or whose participation was not promoted) may have developed significant resilience, which can be crucial in high-level competition; however, it is likely that many others dropped out along the way. Furthermore, the nature of the sport itself can facilitate the athlete's development, as is often seen in sports such as judo, which involves a growth process and which may promote the creation of suitable developmental environments. It is also important not to overlook the relevance of the regulations

and functional classifications of each sport and specialty in athletic progress.

In these recommendations, it is pertinent to address the two specific phases of the Canadian long-term athlete development model for athletes with disabilities (64): "first involvement", understood as the critical moment for coaches to inform, motivate, and retain potential athletes; and "awareness" of the entire sports system in favor of active participation of athletes with disabilities, by informing them of sports opportunities. Thus, education and awareness programs are essential tools in the sports development process for athletes with disabilities.

The search for athletes is a complex process influenced by various factors, including but not limited to social, economic, and political considerations. Promoting and facilitating access to sports practice from school age is crucial for this group. Initiatives such as the Paralympic Relay and Paralympic Day are highly relevant in this regard. It is necessary to implement additional activities that continue to promote sports practice and help identify potential talents. Examples include inclusive competitions organized by sports federations—where athletes with and without disabilities participate—and sports days.

5 Conclusions

This case study has examined the sports development of athletes with disabilities, particularly women, through the perspective of a visually impaired Paralympic athlete. First, the research has highlighted various aspects that can significantly affect these athletes' performance, including the level of inclusion received and the specific rules of each sport. Second, it has identified different barriers that shape this group's initial stages of sports participation, notably the substantial support provided by foundations and the importance of the coach. Lastly, it has emphasized various initiatives for promoting sports in school stages (such as the Paralympic Relay and Paralympic Day) and actions aimed at fostering development and talent identification (including inclusive competitions and sports days). Nevertheless, further initiatives and increased resources are still needed in this area, particularly for women's Paralympic sports.

Data availability statement

The original contributions presented in the study are included in the article/Supplementary Material, further inquiries can be directed to the corresponding author.

Ethics statement

The studies involving humans were approved by Ethical Committee of Universidad Politécnica de Madrid. The studies were conducted in accordance with the local legislation and institutional requirements. Written informed consent for participation in this study was provided by the participants' legal guardians/next of kin. Written informed

consent was obtained from the individual(s) for the publication of any potentially identifiable images or data included in this article.

Author contributions

AB-G: Writing – original draft, Conceptualization, Data curation, Formal Analysis, Investigation, Methodology, Software, Validation, Visualization. AR-F: Writing – review & editing, Formal analysis, Resources. JP-T: Writing – review & editing, Conceptualization, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Supervision, Validation, Visualization.

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Conflict of interest

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"...it's so funny to just throw off the blind girl" subjective experiences of barriers in physical education with visually impaired students—an emancipatory bad practice approach

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The objective of this study is to examine the subjective barriers experienced by blind and visually impaired students in general physical education (PE) using qualitative research methods. A total of 10 students, comprising six females and four males, between the ages of 17 and 19 (with an average age of 18.5 years) were interviewed. The students had been enrolled in mainstream schools at the International Standard Classification of Education (ISCED) level 2 and had elected to transfer to a boarding school for the visually impaired at the transition to ISCED level 3. In order to gain insight into the reasons behind the decisions to leave general education schooling and attend a boarding school, an emancipatory bad practice approach was employed. The findings indicate that physical education (PE) is a particularly challenging subject area. The assumption that general education practices and placements yield positive outcomes is contradicted by the interviews, which predominantly document negative experiences. In light of these findings, it is imperative that we examine the reasons for exclusion as experienced by marginalized groups in physical education.

KEYWORDS

barriers, physical education, ableism, visual impairment, bad practice approach

1 Introduction

The ratification of the UN Convention on the Rights of Persons with Disabilities (CRPD), enacted in May 2008, obligated educational systems to play a crucial role in overcoming the exclusion of marginalized and discriminated-against societal groups. In this context, the subjective experiences of disabled students regarding barriers to participation in mainstream schooling are of particular interest. In this brief research report, we narrow the focus to the subjectively perceived barriers to participation in physical education (PE) among blind and visually impaired students (BVIS), where students with and without disabilities are enrolled together. The objective is to identify subjective barriers within the school system that explicitly pertain to physical education (PE). The term inclusion is based on an intersubjective conceptualization (1, 2), which models inclusion as *belonging*, *acceptance* and *value* from the perspective of the marginalized persons. This understanding of inclusion is intended to enable an empirical approach to inclusive experiences in order to examine the subjective inclusiveness from the perspective of disabled persons (3).

This exploratory study employs an emancipatory bad practice approach predicated on the assumption that an exclusive focus on best-practice settings is inadequate for developing a comprehensive understanding of the inclusive experience. To gain further insight into the barriers BVIS encounter, and what we consider a gap in the research in general school settings, it is essential to conduct interviews with individuals who may have experienced significant barriers and negative experiences. Interviews were conducted with students who, after nine years enrolled in a general education school, elected to attend a special needs residential school, thereby leaving their parents and the social environment to do so. In light of the significant nature of this decision, this study aims to elucidate the underlying reasons for the students' decision. To achieve this emancipatory goal, it is necessary to amplify the voices of the BVIS, whose school school-careers are characterized by discontinuities. Hence, the exploratory study addresses BVIS reasons for continuing their education in favor of segregated education. This transition period appears to be of particular significance, as research findings indicate an elevated risk of exclusion from the school system, particularly at the transition to ISCED 3 (4, p. 179).¹

The empirical basis for teaching students with and without disabilities in PE is wide-ranging (5). Previous research is restricted to the perspectives of parents (6), peers without disabilities (7) or of teachers of students in physical education (8). The results demonstrate positive outcomes of inclusive sports lessons (9) and show that these groups tend to have a positive attitude towards inclusive PE (10). It should be noted however, that the perspective of disabled students receives little attention and unquestionable that research from the disabled student's point of view has its own relevance in order to understand whether inclusive practices are considered beneficial or not (11). Accordingly, studies that explicitly look at disabled students' perspective draw a more differentiated picture (12). A considerable proportion of disabled students report unfavorable experiences. As a result, disabled students often strive for recognition as individuals with disabilities, rather than as individuals with unique, undesired, or imperfect bodies (13, 14). These experiences contribute to bullying, social isolation, and other forms of discrimination from teachers and peers. The outcome of these negative experiences can impact a student's attitude regarding their performative skills in sports and physical education leading to a self-selected withdrawal from future sports activities (15).

2 Method

The data presented here were derived from a research project whose aim was to identify barriers related to educational

decisions that BVIS perceives in general education settings. The project was not focused on a particular school subject; rather, it aimed to identify general barriers in a school for BVIS. However, given that in nearly all interviews, physical education (PE) was explicitly identified as a particularly problematic area, this brief research report focuses specifically on the subjective constructions of sport-related participation in PE. Therefore, the original data, which has already been published (16), were reanalyzed with a particular emphasis on identifying the factors that hinder participation in physical education.

In the light of the preliminary considerations outlined, two research questions informed the re-analysis:

- How do BVIS reflect on their sports lessons with peers without disabilities?
- What barriers to participation are visible in these constructions?

2.1 Sampling

The data were collected at a state-recognized special school for visual impaired students. The school follows the aim of general university entrance qualification. The school has a boarding school attended by most of the students. A total of nine pupils between ages 17 and 19 (average: 18.1 years) of the upper secondary school (Grade 12) took part in the research (Table 1). According to the social law classification in Germany, they were visually impaired and had no additional disabilities. All interviewees have agreed to participate in the study on the basis of detailed study information. IRB approval with pseudonyms were used when reporting the data. According to the bad-practice approach, only students enrolled in general education schools close to their place of residence during the entire ISCED 2 who explicitly opted for switching to a special school and the associated boarding school in the transition to ISCED 3 participated in the research. The interviewees were asked to explicitly talk about their experiences in general education.

2.2 Data collection and analysis

Based on Rabenstein and Gerlach (17), educational decisions are seen as optimisation processes that last through one's entire school career. For the reconstruction of these processes, episodic interviews were used (18, p. 278), which aim at "changes from the point of view of respondents, but without placing a clear and exclusive focus on biographical processes". The episodic interview targets situational narratives of interviewees (18). All interviews were digitally recorded and transcribed. Data analysis was performed with the software MAXQDA 2024 which structures qualitative content analysis into deductive-inductive category formation recommended for the evaluation of episodic interviews (19). In the upper category *general statements on PE* barriers and resources were recorded, which can be seen in the subjective constructions of the subjects. The other four upper categories *body and performance*, *didactics*, *special educational services*, and *social relationships* were formed deductively based on the state of

¹Developed by UNESCO in the mid-1970s, ISCED is the reference international classification for organizing educational programs and related qualifications by level and field.

TABLE 1 Characteristics of the respondents (on the date of the interview).

Name	Age	Gender	Degree of VI
Tim	19	Male	Blind
Kian	19	Male	Visually impaired
Susanne	19	Female	Blind
Anna	17	Female	Visually impaired
Larissa	17	Female	Visually impaired
Katharina	17	Female	Visually impaired
Julius	18	Male	Visually impaired
Franziska	18	Female	Visually impaired
Sarah	19	Female	Visually impaired

research as well as the everyday knowledge of the researchers. The differentiation of the category system with the subcategories was carried out inductively. Two independent encoders were involved in the coding process, with parts of the material being independently coded twice at the beginning of the process. Consensual encoding was selected as a procedural method to ensure consistent coding (20).

3 Results

To facilitate a structured discussion of the results and to focus on the context of PE, three thematic foci have been selected and used in the results section. Given the nature of the brief research report, the results are presented in an exemplary manner. The thematic foci are: (a) general statements on general education, (b) social relationships, and (c) body, performance, and didactic understanding.

3.1 General statements on general physical education

In general, most pupils reported that the perceived barriers in general education increased over the course of their time at school.

Yes, everything used to be normal in elementary school. Everything was still fine then. I got on really well with everyone, I got on well with everyone. And it was the same the other way around. And then the tide turned in secondary school. (Tim #81)

While general education schooling was described as unproblematic in Years 5 and 6, it is worth noting that the perceived barriers gradually increased from Year 7, with the greatest challenges emerging at the end of ISCED 2 (Year 10). Support from parents or friends is seen as the most important resource in overcoming barriers. As reported by Kian, for example, who described an interaction with a friend: “Come on, we’ll train a bit after school too, so you won’t be so disadvantaged in PE lessons” (Kian #41). The emotional stress experiences and correlated with physical stress, including in sports lessons:

So the main reason was always that I, I always did everything myself, so after school. At some point, it got to the point

where I was doing fitness in PE, so I also did fitness privately and so on, that at some point I really broke down and I was completely exhausted, especially because of the visual impairment, dealing with the whole situation and then all the stress at school. (Kian #135)

Seven out of nine interviewees indicated a correlation between the degree of visual impairment and the perceived level of personal suffering. In particular, the pressure of distress increased when there was a deterioration in vision.

And the fact that my vision got worse made it even worse. And above all, when I was playing ball, for example, it was very often the case that because my field of vision is also quite small, I was basically constantly flying over [...] these little hats or I couldn’t see the basket. (Susanne #59)

Physical education appeared to be a catalyst in which problems were centered on the body and was repeatedly cited as a key barrier at school:

So, I found the main barriers were the structure of the lessons. And the sports lessons. And reading aloud. Well, those were three things that I really noticed. At some point, I gradually became less able to recognize balls and that naturally had an impact on my classmates. (Anna #23)

The experiences cause Susanne (#27) to have a chronic fear of physical education.

3.2 Social relationships

In addition to the general statements, social interaction with teachers, peers and special education services played a central role in the interviews. Forms of perceived otherness were described as particularly negative in physical education. The feeling of otherness was triggered, for example, by the teacher assigning special roles or by the explicit exclusion from group activities.

And then my personal assistant somehow threw me a ball on the side, a big one or something. That was just kind of stupid. (Larissa #47)

Katharina reported that she perceived her teacher’s actions to be characterized by intolerance, indifference and active exclusion when she “mostly never took part in PE lessons. Because the teacher said, yes, you can’t see anyway, then you’d better not join in” (Katharina #25). Franziska (#124) reported a lack of recognition of her visual impairment by her PE teacher, who “didn’t quite realize that I have a visual impairment”. Tim was also not allowed to take part in PE lessons because “the time was used for subjects in which I had problems” (Tim #73). In addition, the special educational support systems also proved to be barriers to participation. The expertise of the special education service teams was minimal in physical education. As

Julius (#59) asked rhetorically: “Yes, but what can they say about physical education?” Moreso, peer relationships in particular proved to be massive barriers. In almost all interviews, rejection by peers and active acts of bullying were reported. For example Sarah reported (#123) “I was often thrown off in sports, simply because it’s so funny to just throw off the blind girl who can’t defend herself anyway, who didn’t have any friends anymore.” In several cases, the teachers knew about the bullying and did not intervene or were perceived as reinforcing the situation:

A blind man with a walking stick can see that. And of course, in front of my classmates. They immediately realized: Aha, now we have a teacher who sees things the same way we do! Can we somehow get together with him or, yes, cooperate somehow? (Tim #97)

Overall, it can be seen that the social inclusion of visually impaired students degraded as the grade level increased. Julius (#55) laconically summarized that “the not so great understanding of my classmates [...] „just wasn’t so practical” and Anna (#61) noted with resignation that she “was always the one who was like: Oh, now we have to have them on the team”. Katharina also justified her own withdrawal from PE lessons with the perceived rejection by her non-visually impaired peers, “that’s why I was like..they just didn’t fancy me. Yes, I was a burden” (Katharina #41).

3.3 Body, performance, and didactics

The third set of issues proven to be problematic was the focus on traditional ball games and individual sports: “Yes, then of course the classic PE lessons” (Julius #45), which correlate with ableist ideas of performance and the body and are strongly oriented towards competitive sports (21).

... because we played ball games very often. And I felt like I had a target on my face. And either I didn’t see where I was actually throwing and didn’t see my teammates or I didn’t see when a ball was flying towards me, things like that. (Susanne #27)

It is noteworthy that Katharina described the impression that teachers tried to compensate for their situation by giving positive grades. “Like in PE, because of badminton and everything. There’s just a three, because a three is a three. You can’t complain about that.” (Katharina #95).

I always found it negative that many people didn’t want to learn to understand it. We had PE where at some point it was clear, okay, I can’t catch the ball. Someone could have said, okay, then I’ll go into the goal or something. Or at badminton. I told my teacher that I wasn’t able playing. It would have been great if they had been a bit more understanding. (Anna #61)

Regarding efforts towards an inclusive sports pedagogy, interviewee excerpts show that it seemed necessary to further

analyze the complex relationships between immanent subject-didactic convictions of teachers, basic educational-theoretical assumptions in sports pedagogy and subjective constructions of (marginalized) learners in order to identify exclusive potentials as precisely as possible.

4 Discussion

In alignment with the conclusions presented by Haegele and Kirk (22), a synopsis of the results indicates that physical education (PE) is perceived as a highly challenging subject. The physical, bodily, performance-oriented, and content-related barriers to participation in PE are evident. Forms of perceived otherness are described as being particularly negative (14). Such exclusionary tendencies are reinforced by the fact that the socialization of teachers in the context of sports, which has often taken place in club and competitive sports (21), obviously hinders the recognition of different bodies. In contrast with the assumption that effectively implemented inclusive practices typically result in positive experiences for disabled students in general physical education (23), negative experiences were pervasive in the interviews. Consequently, it is imperative to prioritize a more rigorous examination of the exclusionary potential of physical education, particularly from the perspective of marginalized groups (24). With regard to visually impaired students, the degree of visual impairment and phases of visual deterioration serve as additional catalysts for exclusionary processes.

It also appears fundamental that the perception of barriers increases over the years of the attending school, and at the same time, the specific needs of the respondents received less and less attention (25). As Jessup et al. (26) also show, engagement with pupils can function as an important resource but can also be ruinous. As a result of increasing overload and personal devaluation by peers and teachers, psychosocial problems and eroding self-esteem arise. If, in addition, special education services fail or have a counterproductive effect, a multicausal system of failure occurs (16). As Jessup et al. (27) also report, in almost all cases, rejection by peers as well as active bullying behavior was reported (28). Paradoxically, it should be noted that these experiences of exclusion are also said to have an ambivalent learning potential because, as Anna (#85) puts it, they help to “get through real life somehow.”

The study results confirm theoretical and empirical findings that the needs of visually impaired students are simply omitted and that ableist body and performance norms have a potential for exclusion (29, 30). In a constructivist turn, addressing and negotiating these norms in physical education in more individualized ways would be an important step in promoting the inclusivity of physical education.

In terms of limitations, it should be mentioned that the bad practice approach was used to interview only subjects who had left inclusive schooling and had deliberately switched to a special institution with residential accommodation. Due to this pre-selection, there are no voices of subjects who consider their inclusive schooling a success, which also suggests that the results are particularly concentrated here. This results in further research

desiderata. For example, students with additional disabilities and/or other marginalized groups should also be interviewed in the context of intersectionality to clarify whether something like collective experiences of exclusion can be reconstructed beyond isolated observations of individual forms of disability.

Data availability statement

The data analyzed in this study is subject to the following licenses/restrictions: It will be deleted in three years and it is strictly restricted to the authors. Requests to access these datasets should be directed to Martin Giese.

Ethics statement

The data set does not include any personally identifiable or intimate information and is exclusively associated with the subjective experiences of students in physical education (PE) within the context of traditional, mainstream educational institutions. All participants provided informed written consent in accordance with the study information provided.

Author contributions

MG: Writing – original draft, Writing – review & editing. MG: Writing – original draft, Writing – review & editing.

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"I have a personal claim to myself": a visually impaired student's perspective on her participation in physical activity and physical education settings

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In our daily lives, we often come across ideas and approaches that are intended to support and enhance our well-being, with the aim of achieving positive results, such as resilience and health, if implemented effectively. This trend can be understood as part of the long history of disciplining and normalizing the body in Western societies. Functioning, keeping up, and being resilient in our fast-paced society now appear to be the social norm. This status quo creates a link to physical education (PE) as a body-related school subject, where the focus is on the body and its performance. Several recent studies have explored the experiences of people with visual impairment (VI) in PE. For young people with blindness and visual impairment (BVI), sports and physical activity (PA) are deemed beneficial as they promote physical and mental health while increasing well-being and life satisfaction. These factors—well-being and life satisfaction—are closely intertwined with the concept of resilience. However, resilience cannot be conceived without acknowledging vulnerability, which people embody to different degrees. Vulnerability represents a human condition, as all people are potentially vulnerable. What can this concept mean for adolescents who are assigned to a so-called vulnerable group? This article aims to explore this question from a biography-oriented perspective. By adopting a critical perspective of Ableism within the context of Disability Studies, we reclassified societal attributions of abilities. This article focuses on a semi-narrative guided interview conducted with a 15-year-old teenager with BVI who had recently transitioned from inclusive mainstream schools to a state-approved special school for the visually impaired. Thus, she has had diverse experiences in both segregated and inclusive educational settings. This study highlights the extent to which empowering personal and non-personal factors are perceived as such and examines their interaction with participation in sports contexts. The findings critically reflect on the teachers' role in either enabling or hindering participation in PE, emphasizing the need for inclusion-sensitive approaches in teacher education.

KEYWORDS

inclusion, narrative interview, sports, teacher—education, vulnerability

1 Introduction

In our daily lives, we often come across ideas and approaches that are intended to support and enhance our well-being, with the aim of achieving positive results, such as resilience and health, if implemented effectively. This “trend” can be understood as an additional step in the long history of disciplining and normalizing the body in the West, referred to by Brinkmann in 2018 (1). Functioning, keeping up, and being resilient in our fast-paced society now appear to be the social norm or idea of reality (2). This status quo creates a link to physical education (PE) as a body-related school subject [“Körperfach” (3)], where the focus is on the body and its performance (4, 5).

Several recent studies have explored the experiences of people with visual impairment (VI) in PE (6–9). For young people with blindness and visual impairment (BVI), sports and physical activity (PA) are deemed beneficial, as they promote physical and mental health along with improved well-being and life satisfaction (10).

These factors—well-being and life satisfaction—are closely intertwined with the concept of resilience (11). However, resilience can be better understood after first acknowledging the concept of vulnerability, which people embody to different degrees. Hirschberg and Valentin (12), for example, spoke of vulnerability as a human condition, as all people are potentially vulnerable. According to Klein (13), it appears to be particularly challenging to recognize and accept one’s own vulnerability in performance-oriented societies. On the contrary, the fact that vulnerability and dependency are indispensable parts of human existence is often rejected, avoided, and considered taboo (13). Contrary to the authors who focus on Disability Studies, social or (educational) political perspectives on disability attribute a vulnerability to certain groups, thereby singling them out as individuals or groups. What can this concept mean for adolescents who are assigned to a so-called vulnerable group? In this article, we explored this question in a biography-oriented way. As part of the evaluations that are typically conducted in Disability Studies, we adopted a critical perspective of ableism, that is, we critically classified attributions of abilities (14). In this article, we focused on a semi-narrative guided interview with a 15-year-old teenager with BVI named Kai. Kai had been attending a state-approved special school for the visually impaired at the time of the interview for only 3 months, after attending an inclusive working regular school for over 9 years. Thus, she had different experiences from attending both segregated and inclusive schools.

We demonstrated the extent to which personal and non-personal factors that are generally described as empowering [e.g., positive experiences of self-efficacy, self-perception, the belief that one is able to influence one’s own life, social skills, understanding and recognition by adults or friendly relationships with peers, cf. (15, 16)] are also perceived as such. We achieved this aim by examining the ways in which different forms of participation and stress appear in the context of sport. In the following section, we provide a brief overview of the general

research project (Section 2)¹ before we analyze the interview excerpts (Section 3). In the final step in the process, we discuss how the forms of (pedagogical) support described above are critically categorized in the context of reflexive, inclusion-sensitive teacher education (Section 4). We pay particular attention to the importance of teachers’ emotions or affective resonance [in the context of disability (18)], which can be partly responsible for participation or barriers in PE, and which need to be recognized.

2 Methods/analysis

As part of the project [“Jugend—Schule—Dis/ability: Rekonstruktion institutioneller, peer- und familiärer Erfahrungen von Förderschüler*innen mit Sehbeeinträchtigung”, (17)], eight semi-narrative guided interviews were conducted with young people between the ages of 15 and 19 who were attending a state-approved special school for the visually impaired at the time of the interview. The unique feature of this school was that all standard German school-leaving qualifications up to the highest German school diploma could be completed there. From the perspective of regular school careers, it should be noted that all these young people had repeated at least one school year and had changed schools (and school types) frequently (19),² although they had different previous experiences in both segregated and inclusive schools. All participants and their parents gave informed consent, and pseudonyms were used to protect participants’ privacy.

Although the topic of sport was not the primary focus of the study, this topic was explicitly addressed by one person. For this reason, we focused on Kai’s perspective in more detail, as the importance of sport and PE was a central topic for her in the context of her identity-related discussions.

2.1 Methods

On the basis of a culturally construed understanding of disability, we claim that the difference between blind and partially sighted is irrelevant in this study. Kai had been diagnosed as blind. However, the results showed that no matter which diagnosis was applied to the students, once they were ascribed as students with VI, all of them had to cope with disability ascriptions.³

¹For a comprehensive presentation of the study, in which Kai, along with two additional adolescents with VI, Felix and Jannik, recount their educational experiences, refer to Bödicker (17).

²The aspects enumerated in Section 2 can be found in a different form in Bödicker and Akbaba (19).

³In the present case, there are diverging self- and other-attributions, as Kai described herself as “sighted, but without eyesight.”

As part of evaluations within Disability Studies, we adopted a critical perspective of ableism (i.e., attributions of abilities are critically classified). This perspective is based on Campbell's (14) understanding of ableism as a network of beliefs, processes, and practices, which create a particular kind of self and body as perfect. From this understanding, disability is seen as an inferior state of being human. Zinsmeister specified: "In terms of the ableist norm, normal or natural means that people can see, hear and communicate verbally and in writing without restriction, that they are mobile without restriction and as productive as possible." Linked to this definition are expectations of a certain social behavior, an outward appearance, and a general ability to function (20).

Hirschberg and Köbsell (21) noted that, within this paradigm, the cultural depth of ableist thinking is inextricably intertwined with the fabric of social dominance. The pervasiveness of this cognitive framework, which is ingrained through socialization, makes it a subject that is rarely called into question. Adopting a critical research perspective enables the examination and interrogation of social and institutional norms, normalities, values, and (il)legitimate attributions of ability, as well as traditional representations of disability. This critical scrutiny is particularly pertinent in the context of PE teachers in schools, where (a lack of) ability can become particularly evident during PE. The significance of PE in this context is underscored by its "elementary reference to the body," which enables "diversity to be experienced here in the flesh" (5). To become aware of their particular significance and scope as teachers in this field, it is useful to work with case vignettes or interview excerpts. For instance, the attribution processes in Kai's descriptions inherently refer to attributions of (dis)ability that are "ascribed as 'not normal,' as 'not capable,' or as not or only partially capable" (22). This example underscores the significant influence teachers wield over self-concepts [see (19)]. In this respect, the case can be used with Schierz and Thiele's ideas (23) as a "model case" in the context of casuistic casework by referring to the antinomies in PE teacher behavior from Kai's perspective. The reflective consideration and processing of the case with respect to ableist constructs and the associated concealments [see (24)] facilitates the identification of alternative interpretations to facilitate the identification of "useful answers" for inclusion-sensitive action, among other things.

2.2 Analysis

We employed a methodological triangulation in our analysis of the material, with the "reconstruction of narrative identity" serving as the fundamental basis of the study, as outlined by Lucius-Hoene and Deppermann (25). The methodological approach is rooted in the narration analysis pioneered by Schütze (26) and incorporates foundational principles of Discursive Psychology (27) and Grounded Theory (28). A manual analysis comprises several steps. Initially, a narrative-structural, sequential analysis is conducted to identify passages that are particularly "dense," defined as those with a pronounced performative structure,

restaging of key narratives, negotiation processes, or even self-presentations. Subsequently, a detailed analysis is carried out at the micro-linguistic level, depending on the research interest. Depending on the content of the discourse and the degree of interest in acquiring knowledge, the following text aspects, for example, are examined in the analysis: agency, categorizations, perspectives, other people's voices, stance indicators and footing, restaging, interviewer orientation, and interactions in the interview. For the main study, the physical positioning of the interviewed individuals in relation to the interviewer was also given consideration. To this end, the model of lived body-(objectified) body-related identity constructions ("Leib-Körper-fundierte Identitätskonstruktion") according to Gugutzer (29) was used as a methodological extension. This extension is predicated on the assumption that physicality and emotions, operating on an unconscious level, exert a significant influence on the systematically controlled procedure, in both the interview and evaluation phases.⁴

On the one hand, the utilization of the body as an instrument for analysis and investigation enables conscious perception of bodily-affective resonance. Concurrently, this approach facilitates reflection on when one is "touched, repelled, annoyed, turned on, tied up, etc." (30).⁵ Conversely, this triangulation also offers the opportunity to consider the significance of bodies in their (im)perfection and in their (im)perfection when analyzing narrative interviews. The basis for this triangulation is Dederich's assumption that emotional resonance is particularly important in the context of disability, although it has not played a significant role in the discourse to date. Dederich advocated for "research into feelings and their symbolisation," as they can provide information about general social "ideas, conventions and practices" (31). This emotional experience plays a role in the interview situation, for example, when body language or paralinguistic elements are changed by emotions.⁶ Dederich sees the physical dialogue that arises in a direct interview situation as an expression of emotions as "exposure to external influences and appeals, which unavoidably precedes any reflexive differentiation between self and other, between self and other" (17). Consequently, this expression of emotions influences both the interviewer and the interviewee and, thus, the entire course of the interview. This point appears to be important for evaluation and interpretation. As a result, the interview,

⁴Over the course of conducting the detailed analysis and interpretation, the results were regularly presented for discussion in qualitative research workshops. These workshops were conducted with the objective of eliminating subsumption logic and establishing consensus regarding the statements.

⁵In line with this methodological approach, we would also like to invite readers to make use of any feelings of irritation as a means of identifying their own afflictions.

⁶In line with Schierz and Thiele (23), we see a similar potential from working with cases for PE teachers (see Chapter 4).

understood as a social practice (32), transcends the confines of the linguistic transcript. In their study, Breuer, Muckel, and Dieris (33) posited that personal affinities can serve as a means to focus attention on emergent phenomena during the research process.⁷ This approach unveiled a novel domain that conceals and harbors “sensitising concepts about the object” (34). This approach has the potential to illuminate the “black box” (34) in qualitative interpretation methods by addressing subjectivity and potential influences on interview progression. This potential is particularly significant given that the interviews were conducted in person, thereby facilitating a physical encounter in which a dysfunctional part of the body—the eyes—was made the subject of discussion. In this methodological approach, we saw a valuable opportunity to recognize and address potential limitations in our own research, including inclusivity.⁸

The evaluation process drew upon the “dignity of the individual case” (35), recognizing the case as a source of knowledge, thereby facilitating an understanding of subjective theories. These theories are shaped by self-images and world views, which are in turn influenced by factors such as self-perception, cultural influences, and historical context [cf. (36)]. For the following analysis, we selected interview sequences on Kai’s experiences in PE and extracurricular sports.⁹ We focused our evaluation on the extent to which speeches by professionals shaped the teenager’s narratives as a (non)capable actor or on the extent to which normative attributions were adopted and what effects they had. Furthermore, we analyzed the facets of psychological resistance that emerged in the narratives and the extent to which factors for resilience were effective or counterproductive. This analysis was undertaken against the backdrop of enhancing awareness of the pivotal role that educators play in fostering inclusive education, thereby facilitating effective participation.¹⁰

⁷In the analysis, this procedure entailed, for instance, that after the thematic analysis had been completed, the material was reviewed once more, with other passages that had affected us also being incorporated into the analysis. This methodological approach was also employed to elucidate the subjectivity and preconceptions of the researchers.

⁸For the challenges of the chosen methodological approach, see the Discussion.

⁹The following subjects were examined in the main study: school experiences in general, the transition to an educational institution for students with special needs, confrontations with what is considered to be normal, ableist attributions in relation to school performance, the relationship between visual ability and academic achievement, peer group experiences and dealing with visual impairment in the family.

¹⁰We also interpreted selected interview passages in various scientific community groups. The results we present are the essential points of all these steps and were determined from the analysis of example sequences presented below as well as others. We use the following passages as characteristic examples of the interviews.

3 Results

Kai, a 15-year-old student, was selected for the following presentation because she had attended a regular school for a longer period of time than the other interviewees, that is, for more than 10 years. In addition, the topic of sports played a central role in her interview.

In her interview, we reconstructed her ambivalence between a strong self-claim and self-doubt that emerged where she tended to have internalized the ascription of her lack of abilities. In the following discussion, we first focus on Kai’s recreational sporting activities, specifically football (3.1), followed by an examination of her experiences in both exclusive and inclusive PE (3.2). The following excerpt illustrates our analysis:

3.1 More than a hobby: football

In response to the question about her hobbies, which was posed before the interview’s narrative segment (01:50–01:54), Kai articulated her enthusiasm for football with a light-hearted laugh: “*I definitely play football.*” Initially, this response elicited surprise from the interviewer (me), yet it simultaneously prompted a heightened awareness of my own preconceived notions of ability. Consequently, I made a conscious effort to distance myself from these assumptions in the subsequent discourse. It is noteworthy that Kai did not discuss blind football, a sport where the goalkeeper is the sole sighted player on the pitch and all others wear blindfolds. Her use of the term “*definitely*” underscored the significance and naturalness of playing football in her life. Subsequent sections of the interview further highlighted the profound significance of conventional football in Kai’s self-image as a typical, non-impaired individual:

Well, I can’t imagine playing blind football because I’ve organized my life in such a way that I don’t necessarily need my eyes. [...] I live like a sighted person. Without sight. That’s why I could only play goalkeeper in blind football. (24:41–25:03)

In this act of speech, Kai changed her posture, adopting a seated position that emphasized her statement with a straight back. This statement, which appeared to be in direct contradiction to her previous assertion, “*Sighted. But without eyesight,*” and Kai’s self-presentation as an active individual who organizes her life, revealed a strong desire to perceive herself as a sighted person and to be perceived as such by others. In the interview situation, this statement puzzled me because, on the one hand, it testified to unwavering self-will, but on the other hand, I could not help but think of her description of her visual impairment at the beginning of the interview and I could sense the feat of strength that this behavior entailed for Kai. At the same time, this statement, with its defiant, carefree tone of voice and its *positioning* beyond blind football, illustrated a self-description that emphasized Kai’s struggle to accept her

impairment, which could be interpreted as an identity-threatening moment and was reinforced by the causal adverb “*that’s why*,” which introduced the last statement. In Lucius-Hoene’s terms, the excerpt unveiled the discursive activities that are in constant flux, whereby individuals construct and present themselves in interactions through the attributes, characteristics, motives, or roles that render them discursively relevant to themselves (self-positioning). Conversely, they concomitantly and complementarily allocate a position to their interaction partners (external positioning) (37).

To provide support for her argument, Kai then stated that she attended a training session for blind football, although she did not specify the time period. However, they were “*only 30-year-old men and then I was always knocked over and then I didn’t want to go there anymore*” (25:23–25:31). Nevertheless, she could certainly imagine taking part in the Paralympics, a statement that could be interpreted as in strong contrast with what was previously said and as providing an indication of her narrative identity work in tension between normal vs. (visually) impaired.¹¹ Notwithstanding, Kai stated several times that being “*normal*” despite her impairment was very important to her. Another interpretation could be that Kai perceived the Paralympics are noticeably different from the disabled sports previously described by Kai due to their exclusive, highly competitive nature and that she was therefore more willing to accept the Paralympics as a “*real*” sport.

In the interview with Kai, the topic of football occupied a significant portion of the discussion. In relation to her friendships during her primary school years, she stated, “*I frequently encountered garbage cans from that perspective*.” (I, the interviewer, laughed). Kai continued, “*However, I engaged in outdoor football activities with them [these friends, AB/SE]*” (06:16–06:26). She made a potentially confusing-sounding statement when she stated that despite running into garbage cans, she was still able to play football, which provided insight into the extent of her visual impairment. Despite the tragedy in her story, Kai’s intonation inserted a certain level of comedy into the situation, and I (as the interviewer) had to laugh briefly. At the same time, this use of comedy made it clear how much effort it must take for Kai to take part in these football games and to what extent the joint ball games represented an enormous compensatory effort for her to be able to keep up with her sighted classmates in view of her visual impairment. Apparently, however, overlooking the garbage cans was not a problem for Kai or her fellow players on the playground or a situation that would have led to exclusion because she still played football “*with them*,” as outlined by the conjunction “*but*,” which introduced the subordinate clause. This positive, empowering experience of self-efficacy through Kai’s participation in social interactions (15) in the sense of personal skills also enabled her

to integrate her impairment into the narrative with positive connotations. At the same time, it was noticeable that at this point in the interview, as in many others, Kai emphasized the difference between “*them*” (i.e., the children without disabilities) and her. She verbally articulated this distinction only in this instance; the act of playing together in the scenario under discussion united all the participating children. Consequently, Kai did not permit herself to be impeded and did not appear to be deterred from participating by her peers. In Kai’s perception, her adaptation to the normally sighted environment was rewarded through the friendships she developed with unimpaired peers: “*Maybe it was different for other blind people or something, they didn’t have any friends or anything, but it actually worked well for me*” (06:33–06:41), although the use of the disjunctive “*actually*” served to temper her assertion, leaving room for the interpretation of occasional challenges concerning friendships in the setting of her primary school education. A parallel reading of these two passages revealed the tension within which Kai operated: On the one hand, she differentiated between “*them*,” the normal people, and herself, the “*others*”; on the other hand, she did not present herself. In her narration, she positioned herself as a natural part of the “*other blind people*,” a concept previously highlighted in her assertion that she lives like a sighted person without sight, a notion that we elaborate upon further in the context of her participation in PE at the special school.

In Kai’s discourse on her transition from primary school to an inclusive working regular school, football once again assumed a significant role because she ran into a prior acquaintance at a trial training session in her new place of residence before the new school year began. She recounted, “*And then we knew about each other, that we both play football, and then we somehow got together or something*” (11:55–12:03). Kai expressed this coming together without a specific explanation at this point, as shown by her words “*somehow [...] or something*.” In terms of a perspective of ableism, Kai’s narrative can be reconstructed as a movement within a normal matrix inherent to school logic because it is “*normal*” to have friends. This new friendship with an unimpaired classmate that developed through sport has lasted throughout her time at the school there and offered a sense of stability, especially in some situations in the hallway in the fifth and sixth grades, in which she was confronted with “*stupid comments*” (12:14–12:15) from other students. “*That’s why [because of the friendship, AB SE] [...] I somehow don’t mind things like that*” (12:09–12:18). This friendship seemed to be helpful for Kai’s arrival at the new school, but she talked about first having to find a place in the class because “*I moved here*” (11:24–11:27). She went on to explain that some of the other children already knew each other from primary school or through parents who were friends. Kai added a second characteristic that she also found difficult when starting at the new school: “*Just my eyes*” (11:27–11:29).

This quote revealed something that could be found in several places in the interview: Kai focused on her eyes as a part of her that was detached from the rest of her healthy functioning body and found a reason in them when things did not go the way she

¹¹The use of terms such as (not) normal and (not) able was based on Kai’s choice of words or the Disability Studies literature and ableist discourses.

wanted or hoped. Another example could be found in her narrative when she was invited to a scouting training session with a national sports organization. At the beginning of the sequence, Kai said that her chance to turn her football hobby into a career “*was ruined because of my eyes*” (22:52–22:58). This formulation revealed her own innocence or passivity. The interpretation of the entire interview led to the conclusion that Kai experienced herself as a victim in this context, which implied active obstruction by others. When asked by the interviewer, Kai went on to talk about an invitation to a trial training session with the same organization:

And then they actually had a really good impression of me. You could tell. But then, unfortunately, there was also a girl who had already played against me. And she knew, because there aren't that many people in football who don't see that well, so she knew that I didn't see well. And for her it was all about progressing. And my place would have become hers. And then she ran to her father and said 'we know her.' And then her father went to the coach and said, 'Look there. The one with the cap, she can't see anything.' Yes, and then the coach came to me and said that my performance was quite good and all that, but unfortunately it wasn't enough. But you could tell it was because of my eyes. (23:14–24:09)¹²

In this narrative passage, Kai allowed other individuals to express their perspectives. This *re-enactment*, in the sense of the evaluation method, was facilitated by the utilization of indirect speech reproduction. According to Lucius-Hoene and Deppermann (25), this approach enables the interviewee to more effectively identify with the narrator's viewpoint within the interview context. The dramatic climax of the narrative was marked by Kai's switch to the present tense, in which she conveyed her father's derogatory words with the same intonation. Furthermore, the use of the conjunctive adverb “*then*” several times in the passage evoked a high degree of narrative resolution; as a listener, I was given a concrete figurative impression. The pejorative depiction of her own person in the literal speech as “[*t*]he one with the cap” marked Kai as a nameless, anonymous

person, so to speak, who was reduced to her cap and her visual impairment. It appeared that Kai had previously recounted this narrative on multiple occasions, effectively coming to terms with it in order to cope with the challenging circumstances, which had a detrimental effect on the otherwise positive and identity-forming sport, by creating a psychological distance. This social experience has had a profound and lasting impact on Kai's life, as evidenced by her physical response during the interview, where she slumped down figuratively and gazed down at the table. In terms of resilience strategies, Kai's behavior could be interpreted as seeking to disassociate her sporting failure from her identity. By contrast, she presented her visual impairment objectively and neutrally, simply stating that she cannot see well. This statement highlights Kai's unique approach to managing her visual impairment, with her eyes being cited, in a manner reminiscent of the opening of the narrative, as a testament to her being accepted as a selector, independent of her sporting performance. The interpretation of the entire narration within this context suggests that Kai perceives herself as powerless and subject to the circumstances she has encountered.

Furthermore, Kai expressed anger toward those who do not conform to her ableist-coded understanding of ability. This “*entanglement*” in a paradox of resisting assigned ability attributions on the one hand and reproducing them on the other (18) is presented in the following section of the text, in which excerpts from the subject of PE at special schools and inclusive working regular schools are interpreted.

Her affinity for ball sports has enabled Kai to participate in a wide range of regular PE lessons without the need for specific adaptations. However, due to her severe visual impairment, it was not possible for her to actively participate in PE in some disciplines without adaptation (40). Contrary to what Tanure Alves et al. (6) found, her sports teacher enabled Kai to participate in real life, even though he did not coordinate the adaptations with her in advance and therefore did not actively involve her as a person in the adaptation process. However, the adaptations, for example in speedminton, which Kai initially rejected, possibly due to the teacher's lack of involvement in the sense of paternalism on the one hand and the visible segregation within the class on the other, ultimately led to participation and even “*fun*” (40:27). The PE teacher thus revealed an attitude toward inclusion that sees the participation of all as a matter of course, whereby every person in the class is perceived and valued.

3.2 PE at the inclusive school and at the special school

In the subsequent part of the interview, Kai expounded on her impressions of the special school she recently began attending after a period of over nine years in an inclusive working regular school. In this passage, Kai's—normatively influenced—astonishment at the motor insecurity of some people and their physical behavior, such as fidgeting, was so evident that she asked herself the question: “*Hm, are you only visually impaired or are there other things?*” (37:51–37:55). Again, this narration used the words “*are*

¹²Regarding the analysis and interpretation of this passage in various university or interdisciplinary interpretation groups, it is interesting to note how much we as scientists/teachers are also caught up in the “*great divide*” (38), as statements along the lines of “*that can't be right*” were immediately made. At the same time, such statements mark the scientific/institutional reproduction mechanisms of ableist ability norms, which Buchner et al. (39) pointed out: “*In the course of these demarcations [between disabled/not able and able, AB], an explicit knowledge of who is able emerges. This knowledge is the subject of the description of regimes of ableism and manifests itself as scientific knowledge, as a promise and as coercion: with the 'great divide,' in which a hierarchy is inscribed in favor of those who appear to fulfil certain body norms, a pull is created toward the normal as 'the desirable.'*”

you” to make it clear that Kai did not feel that she was part of this group, as she described the others as outsiders, and at the same time, a negative view of her classmates could be seen in the verbalization “*only visually impaired or are there other things*” She disliked the physical abnormalities, found this behavior strange, and questioned whether the others were not “*disabled*” in more ways than one. She thus established a difference through physical heterogeneity or special behavior within the group of visually impaired people, from which she simultaneously excluded herself by using “*are you.*” This statement can be interpreted as an expression of her own demarcation between “normal” and “abnormal,” as well as the underlying “able” and “non-able” (22). She elaborated on this distinction further in the subsequent interview segment, wherein Kai recounted an experience from PE at a specialized educational institution:

Any normal class with sighted students would now say, if we have a free period, dodgeball or something. And the class would like to (...) do you know ball over the mat? That’s what we played today. (38:25–38:41)

Her indignation at the voluntarily chosen and, in her opinion, “*non-normal*” game was clearly audible in her tone of voice. Her linguistically deft positioning of her class as not “*normal*,” and the generalization of sighted students against this lack of normality reinforced the expressiveness of the content. Her confrontation with “normal” attributions of ability became clear again when she talked about the rest of the sports lesson because, despite the didactic adaptation with the gymnastics ball, she injured her finger, “*even though it wasn’t hard. Because it just came up so strangely. Because I couldn’t/because I couldn’t grip it with my hands. It was really big*” (38:41–38:56). This interview excerpt illustrates the tension that Kai feels: On the one hand, her own aspirations are reflected in the real-life implementation possibilities that she recognizes at the level of the didactic adaptations of PE. However, these ability-oriented didactic adaptations of PE also point to immanent attributions of “able” and “not able” on the part of the PE teachers and are recognized and evaluated as such by Kai, as the following quote illustrates: “*And then we wanted to take a smaller one, which was also twice as big as a normal football, and then other people were b/blubbering about it, so to say*” (38:57–39:04). In the interview situation, I realized how her choice of words confused me in that I perceived it as harsh, and the narrated scene became vivid in my mind for a brief moment. With some distance from the interview, I can interpret Kai’s statement more neutrally and empathize with her tension more easily. Initially, Kai positioned herself as part of a capable group that wanted to make the game more challenging, marked by the pronoun “*we.*” However, when this implication was not realized, the linguistic difference reappeared through her negatively connoted choice of words “*b/blubbering about it, seen that way*” in combination with the “*others.*” Kai wants to play “normal” games, she rejects blindness-specific sports and thus the special role ascribed to her by the PE teacher and her classmates as a non-capable player. The severity of her statement alludes to the experience of a

“double vulnerability” (41) between the physically perceptible physical injury and her experience of psychological injury. The psychological injury also occurred on two levels: first, in Kai’s assessment of the “non-normal” game, and second, through the injury that nevertheless happened to her “of all people” in the adapted game.

She then went beyond physical education to discuss “blind-specific” sports, which hold a particular significance at her institution and represent a boundary between normality and non-normality.

Judo/eh judo, horse riding and swimming and so on, and rowing, these are, I don’t know, blind-specific sports. A lot of blind and visually impaired people do them, I think. Especially horse riding and stuff like that. And that’s just not the norm, I think. (41:04–41:22)

This generalizing statement once again established what normality means to her, and that “*a lot of blind and visually impaired people*” do not correspond with her image of herself. Concurrently, she presented herself as a self-assured individual, exhibiting unwavering determination, and articulating her discontent with the prevailing circumstances, which were novel to her and which Kai, having attended the special school for a mere three months, distinguished from the inclusive PE she was accustomed to at the inclusive working regular school: “*[...] that’s what bothers me the most, these sports that don’t exist here*” (41:23–41:26). Thus, Kai expressed not wanting to experience adapted PE but instead desired “normal” PE. Her own aspiration is to be treated “normally” (i.e., like a sighted person) and to take on sporting challenges, as she explained in the interview. To achieve these goals, Kai acknowledged that she occasionally experiences physical discomfort or limitations in her performance during sports, or that she “*sometimes gets hit in the face with a ball*” (39:30–39:34) in inclusive PE due to her delayed reaction time, as she elaborated on at another point.

Another sequence, in which she talked about inclusive PE at her inclusive working regular school, illustrated how difficult it is for her to take on a special role. She discussed her class’s participation in a badminton match, but Kai opted to play speedminton with a selected student due to the distinct ball and its trajectory characteristics, as well as enhanced visibility. The playing surface was also simplified. She could not cope well with these adaptations, as the following statement shows: “*But these are all things that I didn’t want myself, adapted, but it could never have worked any other way*” (39:56–40:05). Kai’s insight could be reconstructed linguistically, despite her struggles with accepting the adaptation, as evidenced by her use of “*but*” twice, her use of the subjunctive to emphasize the non-real other possibility “*could never have worked differently,*” and her words “*didn’t want, adapted.*” Finally, Kai commented on the scene—surprisingly for me as the interviewer in this situation, as the previous narrative conveyed a different attitude—as follows: “*And in the end, it was also fun, and so on, but accepting this change myself, having to accept it, is difficult for me*” (40:25–40:33), with which she expressed her tension in dealing with otherness,

reinforced by the verbal climax “*accepting, having to accept.*” This passage was particularly pertinent in the context of the interview, as it offered rare insight into Kai’s emotional confrontation with her visual impairment and the everyday challenges she encountered in school as a result.

Other experiences in the sense of ableist attributions of ability, such as being sorted out due to her visual impairment during a selection training course (42, 43) seemed to have a lasting effect on her, so that uncertainty and struggle are her constant companions, which tend to override and overwrite her positive experiences, as can be seen in the reconstruction of the entire interview.

4 Discussion/conclusion

Below, we use the analyses to inform a detailed discussion of the methodological approach, followed by an examination of the content-related aspects. Subsequently, we categorize the results within the context of resilience and inclusion-sensitive teacher education.

4.1 Methodological discussion

Given the emphasis placed on the emotional involvement of the researchers, it can be posited that this project constituted an “open methodological endeavour” (34), which is currently to be understood as experimental. This approach prompted the question of the most suitable form for presenting the results. In the present study, a challenge that arose was how to balance the analytical presentation of case descriptions with the incorporation of personal emotions and affinities during the interview and analysis process without compromising the reader’s focus on the case descriptions. This question was particularly pertinent given the study’s objective to prioritize the experiences of young people in school. A question that arose was how can young people continue to share their experiences if their own emotions become interwoven with the analysis process? A further challenge pertained to the objective of the study, namely, to determine the intended recipient of the findings. To avoid the pitfalls of subsumption logic, it was imperative to analyze the material meticulously and to subject it to rigorous scrutiny in research workshops. The transcription process also presented challenges, including how to alternate the perspective from the analyst to the interviewee during the transcription. This shift in viewpoint was employed to convey the interviewee’s emotional state, which can be a source of sensitivity when reviewing case descriptions.

The approach of understanding the interview not solely as a linguistic interaction but also as a socio-linguistic phenomenon still appears to be fundamentally important. This claim can be linked to the field of critical phenomenology, for example. Dickel observed:

The currently emerging field of critical phenomenology looks at how culture affects the body in diverse and difference-

sensitive ways. From this perspective, social constructivism and lived experience are not regarded as contradictory; rather, critical phenomenology is understood as an extension of post-structuralist approaches and not as essentialist. (44)

In the future, it will be necessary to look for suitable ways of presentation in order to do justice to this demanding methodological approach.

4.2 Content discussion

The evaluations showed that there are barriers to participation and to Kai’s acceptance of adaptive participation in both inclusive and exclusive PE but also in PA. These experiences are to be understood as influential and identity-marking (16) and show that she is stuck between her self-assertion and her desire to be normal.

Kai is hindered in her adolescent identity work. She wants to test herself to find out who she is, but the answer from the outside is always “visually impaired,” so to speak, which makes it difficult or even impossible for her to find her own identity.

The analyses showed the opportunities that PE offers as well as PE’s potential but also the risks that lie in teachers’ attitudes. The body is a pivotal criterion for (performance) assessment in PE (4). Giese and Meier posited the following argument:

Anyone who does not have this [the normal, fit body, AB & SE], appears “unfit” or does not or only partially correspond to the described phantasms of autonomous, constantly optimisable bodies, is threatened with marginalisation and exclusion. The fit body as an unquestioned norm and the normalities produced by it are also reflected [...] in subject-specific didactic concepts in sports education and the associated curricular requirements. (22)

Finally, we discuss the implications for the professional development of teachers in the context of inclusion and resilience, emphasizing the importance of developing a reflexive attitude that is sensitive to paradoxes and ambivalence in inclusive sports education.

The following observations can be made: Kai has friends, and through these social relationships, she feels recognized and integrated into communities, which ultimately strengthens her resilience.

However, when evaluated comparatively, Kai’s resilience is less pronounced in the interview than that observed in other interviewees (19). Instead, the interviewer is presented with an individual who is insecure and vulnerable, as evidenced by the numerous queries posed throughout the interview. Furthermore, other adverse environmental factors, such as sporting failures (42), appear to have a persistent impact on her, resulting in a state of perpetual insecurity and struggle that overshadows her positive experiences.

In relation to extra-personal or environmental factors that promote resilience, it is important to consider the challenges

faced by individuals with visual impairments, such as Kai, in their adolescent identity development. Kai's desire to explore and understand her identity is hindered by external perceptions of her visual impairment, perceptions that serve as a constant reminder of her limitations. This external validation creates significant obstacles for her in navigating her own identity formation. The notion of resilience as being intricately linked with vulnerability as a universal human condition is not only a rational perspective but also one that is of paramount importance. However, it is crucial to identify the extent to which models of resilience promotion, as articulated in the current discourse of responsibility, do not inherently imply that failures are self-inflicted, as Schulz (45) cautioned. This awareness would necessitate a comprehensive realignment of perspectives within educational institutions when formulating resilience promotion strategies.

4.3 Conclusion: a resilience-strengthening role for teachers in inclusion-sensitive teaching

Nittel (46) highlighted the significant contributions of teachers, which are often unacknowledged by the teachers themselves. In their roles as biographical custodians, counselors, and, from Mead's perspective, significant others in everyday life, teachers possess a certain scope for pedagogical interventions that are both positively and negatively relevant to life history.

In the logic of Disability Studies, Windisch (47) sees disability as a “process of interaction between physical, psychological, cultural, social and political aspects—and a process that should essentially be (co-)shaped by people with disabilities,” which can be done indirectly by analyzing their perspectives, for example by means of interview excerpts (48–50).

Engagement with Disability Studies by (prospective) educators, coupled with the adoption of a critical perspective, is conducive to the cultivation of an awareness that interrogates standardization, exclusion, and discrimination practices and barriers. Consequently, professionals can prioritize the promotion of student empowerment and participation, shifting away from an institutionally entrenched deficit-oriented perspective (51).

In the context of professionalization in collaborative teaching, Boger and Brinkmann also referred to different approaches:

The experience of inclusion is not additive or cumulative to something but shifts the ways in which the self and the world are perceived. It also makes a difference whether one speaks of making teachers “competent” for inclusive teaching or of practising a different way of dealing with disability, of changing one's attitude towards one's own (still) non-disabled self, one's own vulnerability and one's attitude towards others as well as towards a world that is historically trapped in cultures of exclusion. In contrast to the illusion of sovereignty of “competent” behaviour, we are talking here about allowing oneself to be irritated and changed [...]. (52)

With reference to Schierz and Thiele from the perspective of sports didactics (23, with reference to 53), it can be explained why it is so relevant to question one's own attitude with the help of a systematic heuristic for one's own (ableist) ideas of normality: “The professionalised practitioner thus proves to be a natural objective hermeneut with regard to the diagnostic parts of his professional practice, without ever having had to learn anything about this methodology.” According to Boger and Brinkmann (52), aspects such as one's own vulnerability and the only temporary non-disability are just as much at the center as aspects of allowing oneself to be irritated (emotionally and in terms of content) by casuistic work, which can subsequently trigger a possible change in personal attitude.

In line with the “inclusive physical education” model, Tiemann (54)¹³ emphasized the inclusion of students: the needs and requirements of students can be seen as important factors for the acceptance of support in the sense of stigma management (56) and successful participation. Also, in line with Goffman, Kolaschinsky (57) pointed to an ableist challenge: “the perception of ‘disabled roles’ from the perspective of ‘non-disabled people.’” According to Kolaschinsky, the consequence of this perception in interactions is that all the personality traits of a disabled interaction partner are affected by the characteristic that deviates negatively from the usual expectations (57). It is possible that sensitization in this area can be achieved through an examination of Kai's story by enabling a reflective perception and processing of the case from a distance. The “model case” of Kai thus reveals various diversity-sensitive readings that contribute to the expansion of teachers' competence to act, without presenting a “correct” solution, but instead by presenting various “usable” solutions (23).

Kolaschinsky also pointed out that sensitizing teachers to such mechanisms beyond the classroom can also be valuable for the students in question by pointing out the distorted self-image of people with visual impairments due to social, dismissive notions of normality, which may be corrected by careful institutional handling:

Since unrealistic admiration for ‘normal’ performance or expectations of “magical” abilities can be reflected in a false perception of one's own performance, adequate feedback regarding the student's performance is particularly important.

¹³Tiemann is considered to be one of the first to advance modelling on the basis of integration theories and sport didactic concepts for dealing with diversity (55). At the level of modifications, she developed the *6 + 1 model of adaptive physical education* (54), which is based on the *TREE* and *CHANGE IT* models and includes practical modifications for sports and exercise programs. The model can certainly be criticized for considering only the teacher as the authority who can make adaptations possible or not, thereby revealing a considerable power imbalance or relationship of dependency in this respect that should be made the subject of a critical reflection.

Otherwise, there is a danger that, in line with the distorted image of others, one's own social acceptance can now be attributed either to an underwhelming compassionate and helpful response from others or to one's own overstraining efforts to appear "as normal as possible" or "very special." (57)

The social aspect is also fundamental to creating successful conditions for the school as a place of empowerment, participation, and self-determination. The interviews all emphasized the central importance of the circle of friends, especially for children/young people without disabilities, which Kai did not take for granted. Understanding diversity as something to be valued and not limiting friendships from the outset through certain characteristics of heterogeneity requires more than just bringing children together in classes (57). Rather, it is about the ability to relate to one's fellow human beings and requires a shared learning process between affected and non-affected people through mutual interaction. Ambiguity tolerance is the ability to tolerate discrepancies between one's own perceptions and the perceptions of others to a certain extent. In a first step, this ability can take place in a casuistic discussion before this experience is transferred to the classroom in a second step. It also seems promising to identify and, ideally, to promote factors that contribute to resilience. Some of the factors that have a positive effect on resilience [self-perception, self-control, self-efficacy, social skills, appropriate stress management, problem-solving skills, self-awareness; (15)] can be consciously addressed by teachers in PE through different teaching settings and tasks, so that not only children with VIs but all children in a class can work on their self-esteem. This approach opens potential from the perspective of recognition theory, as illustrated by Grimminger and Gieß-Stüber and (58) for the relevance of the experience of belonging in PE. By analyzing processes of exclusion, the authors showed that students draw on and reinforce established notions of normality when they form groups. The "sensitivity of sports teachers and the didactic staging seem to play an important role" (58).

In the (inclusive) school context, both teachers and students can benefit from this sensitivity in terms of a mutual experience of self-efficacy. Teachers benefit because they realize that their actions can be effective, empowering, and formative for students, or their actions can result in long-term damage to students, thus having a direct influence on school biographies. In a positive sense, this discussion can initiate change, for example, by promoting participation and empowerment for all through a critical and difference-sensitive view of ableism and thus a different attitude.¹⁴ As a result, situations of limitation are minimized. In this kind of interaction, students can feel that they are accepted and recognized as individuals and that they have the right to have a say and participate (60) in the design of

lessons (e.g., at the level of assistive technologies or other adaptations). Such realizations can strengthen the relationship level and ultimately have a positive impact on the classroom atmosphere—whether in an inclusive working regular school or special school context—through mutual recognition, appreciation, and self-image, and sustainably empower individuals in their identity construction.

Data availability statement

The datasets presented in this article are not readily available because the participants have released the data for use in this study only. Requests to access the datasets should be directed to Anne Bödicker, anne.boedicker@ph-karlsruhe.de.

Ethics statement

The dataset contains no personally identifiable or intimate information and relates solely to the subjective experiences of students in traditional, general and special education settings. All participants and their participants' legal guardians/next of kin gave their written informed consent according to the study information provided.

Author contributions

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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The author(s) declare that no Generative AI was used in the creation of this manuscript.

¹⁴See person-orientation as an anthropological basis for a school that promotes giftedness (59).

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Dealing with diversity—blind and visually impaired ski guiding in physical education teacher education

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A positive attitude towards diversity seems to be crucial for successful inclusion in physical education (PE). However, some previous studies point to counterproductive attitudes of PE teachers in general and towards children with blindness or visual impairments (BVI) in particular. The present study examines how a seminar focusing on BVI ski guiding influences PE teacher education (PETE) students' attitudes towards diversity. The seminar includes the experience of guiding a fellow student, who in turn experiences simulated BVI skiing. Subsequently, students have the option to participate in a project guiding people with actual BVI. To explore the influence of the seminar on students' attitudes, a qualitative interview study was conducted. The findings suggest that the positive experiences go beyond the specific activity of BVI ski guiding. The seminar appears to foster the development of favourable attitudes towards diversity in general. Participants noted reduced feelings of uncertainty and an increase in self-efficacy. Nevertheless, some uncertainties persist due to the unique nature of each person and situation. The results demonstrate the benefits of purposefully designed PETE seminars that enable students to interact with people with disabilities and in this case especially those with BVI. Participation in such teaching-learning concepts entails embracing new experiences, encountering different learning environments, and overall, engaging in intense and demanding work on one's own (professional) biography, which could lead to a deeper understanding of people's needs and an open-minded attitude more generally.

KEYWORDS

visual impairment, blindness, diversity, physical education teacher education, professionalisation, ski guiding

1 Introduction

The UN CRPD emphasises that no pupil should be excluded from a mainstream school due to a disability [CRPD (1)]. From the perspective of future physical education (PE) teachers, these circumstances highlight the necessity of learning how to deal with diversity in PE. It opens up a research field of how to empower future PE teachers for dealing with diversity, understood as a broad concept that encompasses various diversity categories (2),

that can be interrelated and can lead to a feeling of otherness (3) but also in specific fields like PE with blind and visually impaired (BVI) children and adolescents.

People with BVI have been intensively examined in the context of PE [e.g., (4)] and elite sport (5). A broad picture of subjective reconstructions of experiences opens up, also pointing to negative experiences such as bullying by classmates, exclusionary potential or tendencies to discriminate evinced by teachers, for example by attributing a lack of motor skills to students due to their BVI [e.g., (6, 7)]. Furthermore, PE as a subject appears to amplify the differences between people with BVI and their non-visually impaired peers more than do other subjects (6, 8). As a consequence, people with BVI tend to develop a more negative self-perception in sports, which in turn decreases their levels of physical activity later in life (7, 9).

Learning to be a teacher is multidimensional in nature, with attention needing to be paid not merely to cognitive but also to embodied, affective and motivational aspects of learning, including a shift in focus from the curriculum to what becomes meaningful to the PE teacher education (PETE) students during their PETE courses (10–13). A positive attitude towards diversity as well as being open-minded are essential for successful inclusion in PE [e.g., (14)]. However, some previous studies have highlighted the prevalence of counterproductive attitudes among PE teachers (15). One main objective of PETE programmes is to cultivate an open attitude towards diversity among prospective teachers (16). Nevertheless, in our point of view this goal often conflicts with the socialisation experiences of future teachers, shaped within a sports system that predominantly emphasises homogeneity through the segregation of athletes by presented gender, age, or performance level (17, 18).

In contrast, future PE teachers are expected to teach in a variety of classes, where students are attributed with diverse dimensions of diversity, such as varying interests, or special needs related to sports and physical activity. Addressing this diversity is a critical challenge for prospective PE teachers. Higher education in PE operates within this grey area. Consequently, the role of university teaching needs to involve encouraging PETE students to critically reflect on and deconstruct their own socialisation processes, along with the experiences and attitudes formed therein. In this context, an attitude can be understood as a predisposed mental and neural condition, shaped by prior experiences, which actively guides and influences an individual's responses to related objects and situations (19). In addition to theoretical coursework, practical experiences in diverse contexts are a crucial component of professional development. Experience with people with disabilities does not directly lead to positive attitudes. According to the contact hypothesis, positive contact leads to positive attitudes (20, 21). Pettigrew and Tropp (21) argue for avoiding anxiety and excessive demands in the contact situation to develop positive affective attitudes in particular.

According to Bandura (22) direct, personal experiences are also important for developing self-efficacy which “is defined as people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives.” (p. 71). To sum up experiences that affect professional

development have been shown to positively influence attitudes and self-efficacy regarding inclusive teaching practices in PE, enhancing teachers' perceived competence in managing PE settings (23–26).

In Germany, PETE is organised federally and differs depending on the federal state (or *Land*). In principle, PETE is divided into two phases. The two-stage university education, which concludes with a Master of Education, and a preparatory service, which leads to a professional qualification. The university programme includes theoretical coursework as well as practical courses and internships to support professional development. With regard to diversity, the Standing Conference of Ministers of Education and Cultural Affairs in the Federal Republic of Germany (KMK) calls for a university-wide discourse on adapting the curricula of PETE programmes, including in the subject areas, as well as the networking of universities with different cooperation partners or non-school fields (27). All those involved are called upon to fulfil their responsibility to prepare future teachers to teach in heterogeneous classes.

In general, university studies in PE should influence the construction or reconstruction of perspectives on PE teaching and learning (28). It is important to consider the dual functions of PE lessons as outlined in the German curriculum (29). Firstly, the knowledge and skills acquired in PE lessons should extend beyond the classroom, promoting transferability to and practical integration in everyday life. Secondly, PE should contribute to the development of the individual's personality. Accordingly, a key aim in PETE is to foster a teaching style that is not only performance-focused but also competence-oriented (28). While a deep interest in sports and the ability to navigate performance-based assessments are essential in PETE, PE university programmes also offer opportunities to create new experiences. These experiences can encourage openness to diversity and broaden PETE students' perspectives, aligning with inclusivity-oriented and holistic educational goals.

This task was fulfilled in this project. As part of an outdoor excursion integrated into the curriculum, the programme cooperated with an association for the training of ski guides for BVI skiers. Ski guiding seems suitable insofar as the skills of a guide are important prerequisites for being able to work with people with disabilities, and an outdoor setting comes very close to the requirements profile of a teacher. In addition, the athlete-guide partnership in BVI ski guiding offers the potential for prospective PE teachers to reflect on their “[...] normative notions of ability and athleticism” [(30), p. 143]. Reconstructing these concepts through personal experience as a guide and as a BVI person offers potential to positively influence attitudes towards diversity in PE. The present study explores the impact of a seminar on BVI ski guiding on future PE teachers and the attitudes they articulated about dealing with diversity. The seminar included the experience of guiding a fellow student, who in turn experienced simulated BVI skiing. Subsequently, students were offered the opportunity to engage in a project that involves guiding people with actual BVI.

Alpine skiing offers people with BVI a wide range of opportunities to orient themselves on the ski slope. They receive tactile and kinaesthetic information about their position in

relation to the slope, the curve angles and the surface structure through the constantly changing and specifically structured acceleration and edge pressure forces (31). However, this orientation-generating information is tied to the immediate surrounding space. To ensure that BVI skiers can still participate safely in public skiing, in international practice they are led by a sighted skier, the so-called guide (32). The commands and frequency are defined in advance so that they can guide BVI skiers safely through other skiers, even at higher speeds and on full slopes (33). In popular sports, there are different ways of positioning the guide in relation to the BVI skier and different ways of using technical devices (like loudspeakers or headsets). Besides this, positioning and technical devices also depend on the preferences of the BVI person. In addition to tactile solutions, which are used for example for long inclined runs or heavily frequented passages without a significant slope gradient, the most common variants are with the guide skiing behind or in front of the BVI skier without tactile assistance (see Figure 1).

It is essential that the guide has a high level of skiing ability so that they can safely lead the BVI skiers down the slope. Furthermore their movements on the ski should be so routine and automated that they can concentrate fully on guiding and their surroundings. It is also crucial that the guide has a higher level of skiing ability than the BVI skiers so that they are not restricted in their speed and flow (34).

From other sports, such as running and tandem cycling, we know that trust, communication and responsibility are essential factors for well-coordinated guiding (35, 36). The same applies to alpine skiing. Therefore, in addition to a high level of skiing ability, strong empathy and a great sense of responsibility are essential prerequisites for a good guide (32). This is because both the guides and the BVI skiers must coordinate their needs and consider each other at all times. In addition, the guides must be willing to accept and take on the responsibility of guiding, while the BVI skiers must be willing to place their trust in the guides. For this reason, there are training courses for guides that cover

not only the correct guiding techniques but also the gradual process of assuming responsibility. Furthermore, the fact that BVI skiers practice alpine skiing together with a guide transforms this sport—originally seen as an individual sport—into a team event that is “dependent on communication, trust and rapport” [(30), p. 143]. Developing a sense of responsibility and the ability to communicate seems essential in preparing PETE students to work with people with BVI and respond to their needs.

To sum up, it is long been argued that, counter to the common goal of the UN CRPD, there are proven tendencies of discrimination against people with BVI by teachers due to the (lack of) attribution of motor skills [e.g., (37)] as well as the students’ negative basic attitudes towards sport and movement resulting from these negative experiences (7). In the project of BVI ski guiding investigated here, prospective PE teachers can use their own high skiing abilities and motor skills to help them serve as guides as well as being assistants in general for people with disabilities. This provides an opportunity to create an experiential space in which prospective PE teachers can engage with and experience the abilities of children, young people and adults with BVI. They also have the opportunity to broaden their perspective on PE from a primarily performance-oriented view to a more participatory one.

Such learning contexts could open up attitudes towards diversity in general. The previous considerations lead to the following research question: How do (extra-)university experiences of PETE students in BVI ski guiding influence their articulated attitudes when it comes to dealing with diversity?

2 Material and methods

The following section outlines the materials and methods. First the teaching-learning concept of the seminar is explained, followed



Photo: Steineck

Guide in front of a blind skier



Photo: Steineck

Guide behind a blind skier

FIGURE 1
Position of the guide. © Iris Steineck.

by a detailed description of the study design, including data collection and data analysis.

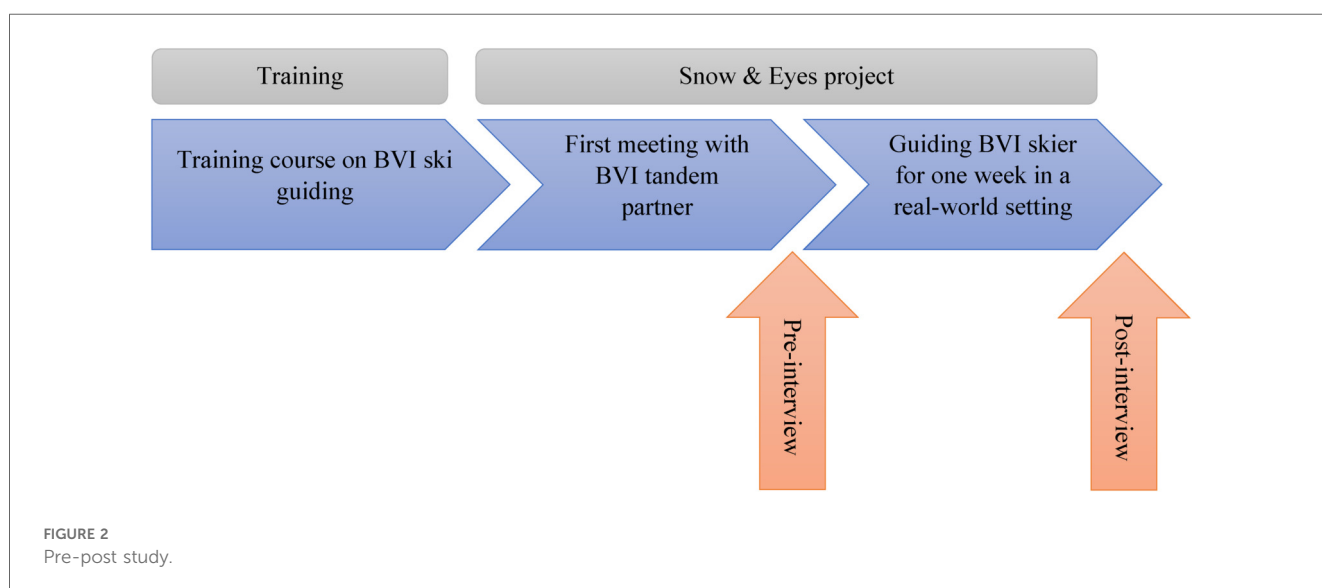
2.1 Teaching-learning concept

The teaching-learning concept of the seminar focuses on contact experiences in the context of BVI ski guiding and is designed to foster the development of diversity-specific attitudes among PETE students. The seminar is an elective within the PETE program, meaning it is part of a pool of courses from which students are required to choose one. In this sense, it is not a mandatory part of the curriculum and is therefore not attended by all PETE students. The teaching-learning concept of the seminar is divided into two phases: the first phase emphasises training, while the second phase focuses on applying the acquired skills in a real-world setting. Both phases are designed to provide PETE students with new experiences in the context of diversity, using the specific example of BVI ski guiding. In the first phase, all PETE students participating in the seminar take part in a training course on BVI ski guiding, conducted in collaboration with the external partner SV Sportsgeist e.V. During the training, students alternate between the roles of guide and person with BVI, facilitating a shift in perspective. This dual role-playing allows students to experience BVI ski guiding both as the sighted person responsible for guiding and ensuring the safety of the partner, and as a person with simulated BVI (achieved through special glasses which for example simulate having blind spots/scotoma) who must rely entirely on the guide while skiing. After completing the training course, students can voluntarily participate in the Snow & Eyes project organised by SV Sportsgeist e.V. In this project, students take on the role of a ski guide for an entire week, paired with a tandem partner who is either blind or visually impaired. This second phase takes the guiding experience beyond the protected environment of the training into a real-world setting. To provide students with

greater confidence in guiding, the Snow & Eyes project is framed by regular guide meetings and continuous support from designated contact persons of SV Sportsgeist e.V. These guide meetings also provided a stimulus for reflection. As part of the study, the first phase took place during the winter semester of 2021/22, and the second phase occurred in March 2023.

2.2 Study design

To explore the influence of the seminar on PETE students' attitudes towards diversity, a qualitative interview study was conducted. In an initial study, two students were interviewed once after participating in the Snow & Eyes project using a semi-structured interview guide. Building on this, the study design and interview guide were adjusted. In the main study, a pre-post design was applied. Students were interviewed after the first meeting with their tandem partner but before the guiding experience within the Snow & Eyes project (pre), and again approximately six weeks after the participation in the Snow & Eyes project (post), as shown in Figure 2. All pre-interviews were conducted in person. Of the post-interviews, one was conducted in person, while the remaining two were held via Zoom due to organizational constraints. The pre-interviews lasted an average of 17 min, whereas the post-interviews had an average duration of 26 min. Written informed consent was obtained from all participants prior to the start of the interviews. Semi-structured interview guides were developed based on the study's research interest and the theoretical framework. Both interviews focused on the training course and the guiding experience, with the questions aiming to encourage reflection on the participants' experiences. The interview guidelines included questions such as: What motivated you to choose the seminar? What are you looking forward to in guiding? Is there anything that makes you feel uncertain? How did you experience the guiding? Are any uncertainties still remaining? A necessary sampling criterion for



the interview study was participation in both the training course and the Snow & Eyes project. Due to this specific requirement, only three students met the sampling criteria as participants. The interviews were recorded and transcribed verbatim, and then analysed by qualitative content analysis (38). Based on the research focus and the interview guides, a category system was initially developed deductively, and then tested and further refined using the data material. The category system comprises three main categories: *reasons for participation*, *expectations/prior attitudes*, and *attitude development*. The two categories *expectations/prior attitudes* and *attitude development* were derived deductively and are of prime importance for the results. These categories are further subdivided into the subcategories *positive expectations/prior attitudes* and *positive attitude development*, as well as *prior uncertainties* and *persistent uncertainties*. The main category, *reasons for participation*, with its subcategories *reasons for selecting/attending the seminar* and *reasons for participating in the Snow & Eyes project*, is intended to provide a clearer contextualising of the results. The category system, including descriptions, is presented in Table 1. The data were coded consensually according to the category system by two independent researchers. Disagreements between coders were discussed in joint sessions until consensus was reached. The analysis was conducted using MAXQDA software.

3 Results

The following results are presented along the main categories *reasons for participation*, *expectations/prior attitudes*, and *attitude*

TABLE 1 Category system.

Category Level 1	Category Level 2	Description
Reasons for participation	Reasons for selecting/attending the seminar	Any statements in which the students provide reasons for choosing the seminar, which is not a mandatory course in PETE.
	Reasons for participating in the Snow & Eyes project	Any statements in which the students explain their motivation for participating in the Snow & Eyes project.
Expectations/prior attitudes	Positive expectations/prior attitudes	Any statements by the students that reflect positive expectations or positive attitudes prior to the Snow & Eyes project.
	Prior uncertainties	Any statements by the students that reflect uncertainties prior to the Snow & Eyes project.
Attitude development	Positive attitude development	Any statements by the students that reflect a positive attitude development concerning BVI ski guiding or inclusion or diversity in general due to the Snow & Eyes project or the seminar in general.
	Persistent uncertainties	Any statements by the students that reflect remaining uncertainties concerning BVI ski guiding or inclusion or diversity in general after the Snow & Eyes project.

development. Each section is illustrated with representative quotes from the interviewed students to support and contextualize the findings.

3.1 Reasons for participation

The findings reveal that, from the students’ perspective, personal interest in inclusion was a significant criterion for selecting the seminar. One participant explains her interest in inclusion as follows:

“I’m a track and field coach and have always had a boy with Down’s Syndrome in my group. I just think it’s great that they can participate in these things too, and that it should become something completely normal.” (S&E Pre 01, 18)

Accordingly, it can be posited that the participants already had a fundamental openness towards inclusion. However, openness towards inclusion and a desire to learn more about it were not decisive factors for all participants when choosing the seminar. One student explained their decision to enroll as follows:

“That’s a difficult question because, to be honest, I chose the seminar mainly because the timing suited me well. I didn’t really know what it was about and hadn’t looked into it beforehand. So I didn’t have any specific motivation in that regard. But I quickly realized that the topic is actually very important for my future profession, because you’re confronted with it again and again. The seminar really showed me what you can take away from it and how you can apply it in a school context.” (S&E Pre 03, 26)

In this case, the topic of the seminar did not play any role in the participant’s decision to take part—it was solely the convenient timing. Nevertheless, the student later expressed interest in the topic and recognized its professional relevance. None of the interviewed students reported being disinterested in inclusion, lacking openness toward the topic, or considering it unimportant.

Participation in the Snow & Eyes project can primarily be attributed to the students’ positive experiences during the initial training course as part of the seminar. As one student put it:

“Yeah, without the seminar, I would’ve never done it. I wouldn’t have gone through the training either. I just think the seminar was really well structured and kind of fun.” (S&E Pre 02, 62)

In addition to the positive experiences during the training course, further reasons mentioned for participating as a guide in the Snow & Eyes project include the desire to gain new experiences, to apply the previously acquired skills, and to support a project they perceived as meaningful and worthwhile:

“Well, because I did the training and found it really fascinating, and in my last ski vacation, I saw a tandem pair again. I thought to myself, I don’t want to have done the training for nothing, I really want to try it out now. I just found it really exciting, and I’m super curious.” (S&E Pre 01, 68–70)

3.2 Expectations and prior attitudes

In line with the reasons outlined above—particularly the positive experiences during the training course as a key criterion for the participation in the Snow & Eyes project, and the openness and positive attitudes toward inclusion expressed in participants’ reflections—the students formulated several positive expectations in advance and conveyed a generally positive and open attitude in the pre-interviews. One student expressed these expectations as follows:

“I’m really looking forward to it. I’m super curious and really excited to see how the guiding will go [...] What I’m most excited about is the sense of togetherness—being able to make skiing possible for a blind person and just having a lot of fun together, sharing the experience. And also the exchange, and skiing in Norway, since I’ve never been there. But above all, I think it’s about sharing those moments of success—like when you manage to make some really nice turns together.” (S&E Pre 01, 56–58)

Positive expectations included anticipation of the shared skiing experience, the expected enjoyment, and the opportunities for interaction. Moreover, the students demonstrated a sense of self-efficacy regarding their ability to guide; they felt confident in their capacity to take on this responsibility, as reflected in the following quote:

“The confidence comes from the fact that I’ve been skiing since I was a child, so I feel at least secure in that regard. During the training course, I also realized that it was actually going really well, and I felt more and more confident. In the end, it was just a lot of fun, and I no longer had that uncertainty on the slopes, so I feel confident enough to do it.” (S&E Pre 03, 80)

However, uncertainties were also evident in the students’ interviews. These concerns revolved, on the one hand, around uncertainties specifically related to the act of guiding individuals with BVI in the ski area, such as recalling knowledge from the training course, managing the responsibility for another person’s safety, and related fears or worries about potential mishaps. Above all, the great responsibility for another person appeared to be a source of anxiety for the students:

“I’d say I’m pretty nervous, I have some fears and concerns that something might happen, because you really do have a lot of responsibility for the other person.” (S&E Pre 02, 56)

Nevertheless, these uncertainties regarding the guiding conclude on a positive tone, with the students conveying confidence that everything will work out, as evidenced by the following statement:

“I have already thought a lot beforehand, and I am [...] especially really nervous [...] when it comes to guiding for the first time, but I actually had a really good feeling [...] while guiding [...] and felt really comfortable there, so I’m not even afraid that I won’t manage it or anything, I’m just nervous because it’s simply a new experience and it’s the first time that I really guide someone through a ski resort and have the responsibility for someone solely on me. That’s why there’s a bit of nervousness, but I think once I get into it and find my flow, especially with my tandem partner, then I believe everything will go well.” (S&E Pre 03, 68)

On the other hand, students also expressed uncertainties regarding their general interaction with individuals with BVI, reflecting concerns beyond the specific aspects of skiing and guiding:

“Beforehand, we were all sitting on the train, thinking, ‘What can we ask them, and what might not be appropriate?’ You really realize that you get a bit anxious and sometimes aren’t sure how to approach them.” (S&E Pre 01, 46)

3.3 Attitude development

The cautiously optimistic tone evident in the students’ earlier expectations and uncertainties continued and was reaffirmed in their attitude development. The development of attitudes described in the interviews highlights that students were able to gain many positive experiences, contributing to a substantial shift in their perspectives. In the pre-interviews, uncertainties were more prominent, with students expressing a range of concerns about their abilities and responsibilities. Positive aspects, while present, were less frequently emphasised at this stage. After the seminar and the guiding experience, the interviews reflected a clear shift toward a more positive outlook. Positive aspects, such as increased empathy and ability to take another’s perspective, a greater openness toward inclusion, a stronger sense of self-efficacy, and reduced uncertainties and fears, were far more prominent, while uncertainties and concerns were mentioned much less frequently. One student described it as follows:

“I think the uncertainty disappeared completely after the very first day and was really unfounded. Of course, there was a bit of nervousness—partly about the guiding itself, and partly, at least for me, about how to interact with the BVI participants. Like, what can you ask, what might not be okay, because I don’t really know any blind people in my everyday life. So yeah, I was a bit unsure at first. But that feeling went away pretty much right on day one—already when we got off the boat, you could

just tell how relaxed the atmosphere was. The blind participants really helped take away that nervousness too—they were super open, and you could ask anything. And the exchanges with the other guides also helped a lot. We talked every evening about how things went, if there were any problems or challenges. So yeah, all those uncertainties and barriers were kind of just cleared away. I always had a really good feeling, and I think it's actually good to be a little nervous at first—but that nervousness really didn't last long." (S&E Post 01, 10)

Thus, uncertainties were resolved both in relation to the guiding itself and to the general interaction with individuals with BVI. The students' statements further indicate that the positive experiences extended beyond the specific setting of BVI ski guiding. For them, the successful implementation of inclusion in any context and of any inclusion criterion now appears much more realistic:

"We just had an intense experience, and I think it has changed us in a way or given us a different perspective on things." (S&E Post 02, 64)

Nevertheless, a certain degree of uncertainty remains from the students' perspective. Since every person and situation is unique, taking on the responsibility of being a guide remains a challenge to some extent each time:

"I think uncertainties are always there. This was just one part we got to know, and I think it really depends on the type of disability. Even if I imagine having a blind person in my class, they're not all the same; some might be able to manage on their own better than others. So I think you always have to approach it with a certain basic respect and make it dependent on the individual. A certain level of uncertainty is probably always present and, at first, it might even be okay and healthy to act a bit more cautiously." (S&E Post 01, 40)

Both the experiences and reflective learning opportunities during the seminar and the Snow & Eyes project contributed to the positive development of attitudes. The seminar provided a smaller-scale environment to practise and experience guiding and perspective-taking, while the active guiding of someone with BVI during the project offered valuable contact experiences.

4 Discussion

This section discusses the findings of the study in light of the research questions and relevant literature. The structure follows the main categories: reasons for participation, prior expectations and attitudes, and attitude development. This is followed by a reflection on study limitations and the design of the teaching-learning concept of the seminar, as well as an outlook on future research. The final paragraph offers a short conclusion.

As the results show, participation in the seminar—consisting of the BVI ski guiding training course and the Snow & Eyes project—was motivated by different factors. The seminar is an elective

course in the PETE program. Participation in the training course is a mandatory component of the seminar, whereas participation in the Snow & Eyes project is voluntary. As a reason for participation in the Snow & Eyes project, the training course served as a key moment for students that fostered confidence and sparked enthusiasm for the project. The decision to participate in the seminar was often motivated by a genuine interest in inclusion, but also pragmatic factors such as scheduling convenience played a role. This raises the question of whether the developed teaching-learning concept also reaches students who initially consider inclusion to be of little importance or approach the topic with less openness. This limitation is closely tied to the structure of the seminar itself. As an elective within the PETE program, students are free to choose from a range of seminars based on personal interest, motivation, or other practical considerations. It is precisely the specific focus on skiing—and the fact that skiing is not a mandatory component of the PETE curriculum at this university—that justifies the seminar's elective status. Moreover, the BVI ski guiding experience requires a certain level of skiing competence, further supporting the decision not to make it compulsory. Nevertheless, this raises an important implication for curriculum design (39). In order to prevent students with less interest or openness toward inclusion from avoiding such experiences entirely, mandatory courses could lay a foundation for open-minded attitudes. Required courses can play a crucial role in fostering awareness and openness toward diversity. Elective seminars like the seminar discussed in this paper then, can serve as in-depth, interest-based learning environments that build upon this foundation according to personal strengths and motivations. Furthermore, the concept described here aligns with the perspective of Schierz and Miethling (28), who emphasise the importance of PETE programmes that open up new ways of thinking about teaching and learning in PE. The experience of guiding enables students to use their advanced motor skills in skiing not solely for personal achievement but also to support others in their sporting interests, preferences and needs. This process can contribute to the development of new ways of assigning relevance in PE, moving beyond a purely performance- or training-oriented approach. In this sense, it fosters a didactic orientation that integrates cognitive reflection, informed decision-making, and communicative mediation (28).

The analysis of the prior expectations and attitudes reveal that students entered the project with a cautiously positive attitude and a strong willingness to learn, despite expressing a number of uncertainties. On the one hand, these uncertainties concerned the specific practice of guiding a person with BVI in an unfamiliar alpine environment. On the other hand, students also expressed insecurities about how to interact with individuals with BVI in general—particularly due to a lack of prior experience. This is especially evident in the pre-interviews, where students reflected on their nervousness about saying or doing the wrong thing, and about taking on full responsibility for another person's safety in the ski area. Nevertheless, these concerns are accompanied by confidence in their own competencies and a general openness to the new role. These mixed feelings reflect the ambiguity often

experienced by (future) teachers in unfamiliar inclusive contexts (40). They also highlight the potential of structured, supportive learning environments to address such concerns productively (41).

The cautiously positive tone evident in the students' expectations and uncertainties was confirmed and reinforced over the course of the Snow & Eyes project. As the study shows, participation in such teaching-learning concepts involves embracing new experiences, encountering different learning environments, and overall, engaging in profound and demanding work on one's own (professional) biography. The results indicate that the participating PETE students have positively changed their initial attitudes, which were in some cases hesitant and/or marked by uncertainty or fear. It seems possible that tendencies toward discrimination against individuals with BVI—often based on incorrect or entirely absent attributions of motor skills [e.g., (37)]—can be counteracted. A normative perception of ability and athleticism appears to be challenged within the framework of the guide-athlete relationship within the BVI ski guiding (30). During the training course on BVI ski guiding, the PETE students take on the role of a BVI person by simulating BVI with special glasses. They immerse themselves in a personal experience and learn about the challenges of snow sports from this perspective. This experience deviates significantly from their usual perception of their own abilities and athleticism as sighted individuals. Familiar skills and personal athletic performance in skiing are directly influenced by the absence of visual information. This first-hand experience offers valuable moments for self-reflection. The students emphasised not only the opportunity for perspective-taking, increased openness, and reduced uncertainty but also a heightened sense of empathy and strengthened self-efficacy. The setting presented here has led students to consciously choose to work with people with BVI. Remarkably, the findings suggest that this specific setting, within a particular sport, appears to foster a more open attitude among students—one that extends beyond ski guiding, encouraging a broader receptiveness to diversity, including those with BVI in other contexts. This aligns with the findings of Foley et al. (24), who observed an increased sense of self-efficacy in those working with individuals with physical or intellectual disabilities after running a sports camp for adolescents with visual impairments. Further studies indicate that such experiences can enhance teachers' perceived competence in managing diverse PE settings and positively influence their attitudes and expectations of self-efficacy regarding inclusive PE (23, 25, 26).

Despite the promising findings, methodological limitations must also be acknowledged. The small sample size limits the generalisability of the results. Beyond the small sample size, it must be considered that social desirability may have influenced the students' responses, and thereby the study results. In addition, the results do not necessarily allow for conclusions regarding the long-term effects of the seminar or the future practical actions of prospective PE teachers in diverse or inclusive settings. According to Schierz and Miethling (28) there are indications that the transition from university to school life is challenging for prospective teachers. It should be examined whether the developed open attitude towards diversity is sustainable and is reflected in inclusion-orientated PE lessons. When reflecting on the teaching-

learning concept of the seminar, the specific focus on BVI ski guiding comes to the fore. A seminar on BVI ski guiding cannot fully represent the complex nature of diversity as a whole. However, the evaluation results suggest that learning through a specific example may be beneficial, possibly by reducing complexity in a meaningful way. Moreover, the chosen learning setting provides an opportunity to highlight diversity both within and between individuals, even within what might initially appear to be a homogeneous group of people with BVI (42). "They're not all the same; some might be able to manage on their own better than others. So I think you always have to [...] make it dependent on the individual." (S&E Post 01, 40) suggests that PETE students shift their perspective to the individual. Nevertheless "some might be able to manage on their own better than others" (S&E Post 01, 40) should also be used as an example to critically examine the extent to which the focus is still on (dis-)abilities rather than preferences and interests in sport and movement.

Looking ahead, further research approaches appear warranted. The findings of this study should be verified and expanded through larger sample sizes. Additionally, it remains open whether the observed changes in attitudes toward diversity extend to other dimensions of diversity, allowing for similar effects to be demonstrated in different contexts. From a temporal perspective, a follow-up study would be valuable to determine whether the reported confidence in handling diversity persists over time. Furthermore, it should be examined whether these attitudinal changes translate into altered practical behaviour in diverse settings or whether this transfer—particularly from a snow sports context to general PE—poses further challenges.

This study represents a small but meaningful contribution to evaluating implemented practical elements to assess the effectiveness of such course offerings in teacher education. The findings highlight that intentionally designed teaching-learning concepts can be valuable and contribute to more positive attitudes towards diversity and inclusivity among students.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors upon reasonable request.

Ethics statement

Written informed consent was obtained from the individual(s) for the publication of any potentially identifiable images or data included in this article.

Author contributions

HS: Writing – original draft, Writing – review & editing. FH: Writing – original draft, Writing – review & editing. IS: Writing – original draft, Writing – review & editing. A-KL:

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The importance of abilities in inclusive experiences from the perspective of people with visual impairments: the example of alpine skiing

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Background: Alpine skiing offers both opportunities and challenges for individuals with visual impairments. Despite its potential for inclusion, barriers persist that limit participation. Using an ableism-critical and interpretivist perspective, this study explores inclusion as a subjective experience from the perspective of alpine skiers with visual impairments, focusing on how sport-related abilities influence inclusive processes. The aim is to derive implications for the development of more inclusive sports practices.

Methods: A qualitative approach was used, drawing on episodic interviews with six adult skiers (five women, one man) with visual impairment from Germany, including both recreational to competitive athletes. A qualitative content analysis identified key themes related to skiing, abilities, and inclusion.

Results: A synthesis of the interview results revealed four key themes: (1) skiing as a booster for self-confidence, (2) skiing as proof of expertise and competence, (3) skiing under the radar, (4) skiing as a pathway to accessibility and inclusion. Participants reported increased self-confidence, improved motor and social skills, and enhanced advocacy for accessibility. While skiing itself was seen as inclusive, structural barriers including a lack of guides, a limited awareness of para-skiing, and segregated competitions restricted full participation. Conversations with sighted individuals revealed admiration for skiers' abilities while but also exposed gaps in their understanding of adaptive skiing.

Conclusions: Skiing fosters independence, competence, and inclusion for individuals with visual impairment by enhancing skills and challenging ableist perceptions. However, systemic barriers, limited coverage and separate competitive structures, hinder full inclusion—as defined by the United Nations Convention on the Rights of Persons with Disabilities (UN CRPD)—and influence the subjective feeling of inclusion. Addressing these challenges requires greater awareness, improved access to guiding and policy changes to ensure equal participation. This study contributes to the discussion on ability, ableism, and the role of sports in inclusive practices.

KEYWORDS

ableism, disability sport, inclusion, para-skiing, visual impairment and blindness

1 Introduction

The United Nations (1), the International Paralympic Committee (2) or Special Olympics (3) see sport as a means of successfully including individuals with disabilities. Abilities are often seen as a decisive characteristic for successful inclusion, through the demonstration of sporting abilities (4). The term inclusion often refers to a space in which individuals with disabilities are included (5). However, the term remains largely vague (6) and focused on education (7). In school sport research, one approach characterizing inclusion is through one's subjective experience (6, 8). According to Haegele and Maher (9, p. 390), subjective experiences are “dynamic, spatial, and in flux”. Although these authors primarily discuss inclusion as an intersubjective phenomenon, we apply the notion of dynamic and evolving experiences. As such, inclusion is not an absolute state that can be replicated in different spaces. In spaces designated as inclusive, feelings of inclusion may or may not occur depending on context and subjective experience (5, 10). In this research, we seek to understand inclusion as a subjective experience which complements the structural and institutional level of inclusion, in line with the United Nations Convention on the Rights of Persons with Disabilities (CRPD) (11). This level is expanded to understand how structural inclusion can be experienced subjectively through the perspectives of individuals with disabilities (12).

In this research, we seek to understand inclusion as a subjective experience. While our analytical focus lies on individual perceptions, we understand these experiences as socially situated and relational. Following Haegele and Maher (9), we acknowledge that subjective experiences are shaped through intersubjective processes—e.g., interactions with others or power relations. This individual level complements the structural level of inclusion as the systemic conditions enabling equal participation. By focusing on the subjective level, we aim to explore how structural inclusion is experienced by individuals with disabilities—identifying both supportive and limiting factors within inclusive environments.

Despite the testimony of the positive benefits of inclusion of sport by national and international sports organisations, individuals with visual impairment (VI) demonstrate a lower level of sport participation than their non-disabled peers (13). Moreover, they encounter specific barriers that hinder their participation in sport (14, 15). The reduced physical activity of individuals with VI in comparison to their sighted peers is attributed to a combination of factors (16). Largely, it turns out that barriers are often associated with “an inaccessible environment that is generally designed with only those who most closely embody normative values in mind” (17, p. 212). A lack of accessibility can be interpreted as an expression of ableism, a concept derived from disability studies that can be understood as an analytical tool.

Ableism refers to the process of both appreciation and devaluation of certain abilities. While abilities are viewed in an individualised way, the evaluation of abilities is often associated with the upvaluation and devaluation of entire groups of

individuals (18, 19). As Nario-Redmond (20, p. 6) points out, “Ableism can operate at multiple levels affecting personal self-perceptions, interpersonal interactions, and intergroup relations”. Consequently, ableism can have an impact on the sporting participation of individuals with disabilities (17, 21), also among individuals with VI (14, 22). Challenges of this nature can be observed in a variety of sports, including skiing. Such challenges may be encountered at the organisational, physical and social levels, and are often faced by individuals living with disabilities (23).

The history of para-skiing dates from the Second World War where veteran amputees revived skiing in Germany and Austria. These were individuals experienced in skiing who developed methods to resume and continue skiing. In 1953, the first international competitions were held in Bavaria, Germany, but no blind skiers participated. The skiing movement developed rapidly and culminated in the first Paralympic Winter Games in 1976 (24, 25). Three starting categories are included at the Paralympic Winter Games: standing, sitting and since 1998 visually impaired. In para-skiing for athletes with VI, there are different categories for women and men: alpine skiing, cross-country skiing, biathlon (26). Skiers with VI usually ski with a sighted companion (guide) who provides perceptual and orientation aids (27). The organisation of guiding is subject to different guidelines, depending on whether the sport is recreational or competitive.

In addition to a sporting activity, skiing is seen as a meaningful leisure experience that focuses on health and social experiences (27–29). Winter sports have been shown to offer inclusive potential through their various opportunities for participation in the context of private excursions, club sports or commercial providers, as well as through a “high social and communicative density” (27, p. 417).

Despite the potential for inclusivity in skiing, the participation of individuals with VI remains under-researched. Current studies focus on the classification system in Paralympic sport (30, 31) and injury prevention (32). Mavritsakis et al. (33) investigated the factors that impact participation in adaptive snow sports for persons with disabilities, concluding that snow sports can provide opportunities for the acquisition of new skills and socialisation.

However, inclusion as a subjective experience for individuals with VI in skiing and the skills learned and integrated into their everyday lives is questionable. Ableism is understood as both a theory and a research perspective to tap into explicit and implicit potentials for exclusion from the perspective of individuals with disabilities (14). We chose the ableism-critical perspective to identify ability assumptions towards individuals with VI and to recognize the influence of abilities from the perspective of individuals with VI on their everyday activities. In this study, abilities are understood as subjective and socially constructed characteristics, whose value and meaning are shaped in the context of and in relation to disability (18). Ableism is complex and is interpreted in different ways. In our work, we view ableism as “those social, socio-technical and technical processes that attribute abilities and talents to individuals, groups or things, whether in an appreciative or devaluing manner” (18).

Using an ableism-critical and interpretivist perspective (34), this study explored the perceptions of adult skiers with VI regarding their own inclusion with a focus on abilities and the impact of alpine skiing on the experience of inclusion. Interviews were conducted, and an ableist-critical lens was used to identify implicit exclusive potentials.

2 Materials and methods

This study follows a qualitative, interpretivist epistemology and a constructivist ontology. We assume that experiences of inclusion are socially constructed and understood through the subjective meanings attributed by individuals with VI. Reality is multiple and constructed through social interactions and individual experiences (34). Our aim is therefore not to find objective truths, but to understand how individuals with VI make sense of their experiences of inclusion in specific contexts. In doing so, we are interested in the influence of sporting abilities. The open conceptualization of abilities allowed participants to express their own interpretations of ability without being confined to predefined categories. This is in line with our qualitative design and the use of episodic interviews to capture subjective meaning. It also shaped the interpretation of the findings.

This study is part of a broader research initiative on abilities and inclusion, and it aims to address questions that emerged from a study with blind tennis players (35). The central research question of this study is: How do abilities inform the experience of inclusion for individuals with VI? In addition, the study examines the following subquestions: (a) What experiences do alpine skiers with VI have in conversations about skiing with sighted individuals? (b) What skills do skiers with VI take away from participating in alpine skiing? (c) Do alpine skiers with VI experience their sport as inclusive?

2.1 Sample and data collection

To achieve this, episodic interviews (36) were conducted. The episodic interview makes it possible to access “knowledge, experiences and changes from the perspective of the interviewees” (36, p. 278). Episodic interviews are designed to access both episodic (situation-specific) and semantic (generalized) knowledge from participants. The interviewees are free to decide which experiences they wish to report. This creates different perspectives on how individuals subjectively interpret their experiences. In this way, the skiers’ perspectives on the role of abilities in inclusive processes are made visible.

The first recruitment of participants took place through a trainer during a training course on “skiing with handicap”. No strict inclusion or exclusion criteria were applied during sampling; the main objective was to recruit individuals with VI who had personal experience in alpine skiing, regardless of their performance level. Interested persons contacted the second author on the basis of the study information provided. Further two contacts were found via the interviewees. Six individuals

(five women, one man; average age 35) from six different German federal states volunteered to participate in the interviews. The participants provided electronic informed consent. The interviewees were both amateur and competitive athletes. Four interviewees had a competitive sports background. Of the four interviewees, two were no longer active in competitive sports at the time of the interview but were still skiing. All interviewees were experienced skiers, each had accumulated a substantial number of hours on skis during the years. **Supplementary Table S1** in the appendix summarizes further information on the interviewees.

Interviews were conducted in German via Zoom in November 2024 by the first and second author and audio was digitally recorded after obtaining the participants’ consent. The interviews lasted between 30 and 64 min (average time 43 min). The questions were asked in accordance with the established guidelines. The semi-structured interview guide based on the conceptual framework of the study was initially developed by the first author and subsequently revised in collaboration with the second author. The final version was the result of joint discussion and agreement between both authors. The interview guide contains these sample questions, among others:

- Can you describe situations in your everyday life where you apply skills you acquired through skiing?
- Thinking back to the time before you started skiing—how has skiing changed you as a person?

The sequence of questions was maintained, however, there was flexibility in the form, with questions excluded, rephrased or expanded upon as the interview progressed (36). All interviews were conducted and analyzed in German. After the interviews, all audio files were fully transcribed using the transcription software *sonixx*. All interviewees were assigned pseudonyms. The data was anonymized after transcription (e. g. cities, clubs, names). Selected sample questions and quotes were translated into English by the first author for the purpose of publication, with careful attention preserving the original meaning and context.

2.2 Data analysis

The data were analyzed using a content-structuring qualitative content analysis (37), to identify key themes and patterns relevant to the research question. The method of analysis is considered appropriate for episodic interviews (37) and has been used repeatedly in similar thematic contexts (8). The coding was carried out in a deductive-inductive hybrid form (37). Categorization was based on the approach of first defining *a priori* categories according to the interview guide. The material was initially coded deductively to obtain a structure. *a priori* categories (*Para*)Skiing, Abilities, and Inclusion functioned as a structuring framework and were further developed and differentiated in the analysis process. The three main categories were retained in the analysis process, whereby the category (*Para*)Skiing was renamed Skiing in line with the interviewees’

use of the term. Subsequently, these categories were expanded to include subcategories in a multi-step inductive process.

In the *Inclusion* category, the subcategories *Understanding of inclusion*, *Inclusive potential of skiing*, and *Accessibility* were formed. Following the initial coding process and the inductive determination of the subcategories, thematic overlaps were identified in the *Skiing* and *Abilities* categories. With the objective of addressing the research question—How do abilities inform the experience of inclusion for individuals with VI?—the subcategories were systematized and defined. In a subsequent coding process, the differentiated category system was applied to the six interviews, resulting in the combination of two subcategories: *Abilities for guiding* was subsumed under the subcategory *Abilities in skiing*, and the subcategory *Perception of abilities* was further differentiated into *Reconstructed external perception* and *Self-perception*. The complete and final category system (see [Figure 1](#)) was created by the first author and reviewed independently by the second.

In the final step of the analysis, the subcategories were not only grouped, but analytically synthesized across the cases to identify recurring patterns and shared meanings. Common experiences and underlying structures in the interviewees' narratives could thus be abstracted and thematically categorized. The interpretation was supported by case summaries, comparisons

between the interviews and discussions between the first and second author. While participants at times reflected on how others may perceive them, the analysis focuses on the subjective experiences and interpretations of the interviewees. Thus, all findings are based on participants' individual reconstructions rather than on intersubjectively negotiated meanings.

A synthesis of the interview results revealed four key themes, which are presented in Chapter 3 Findings.

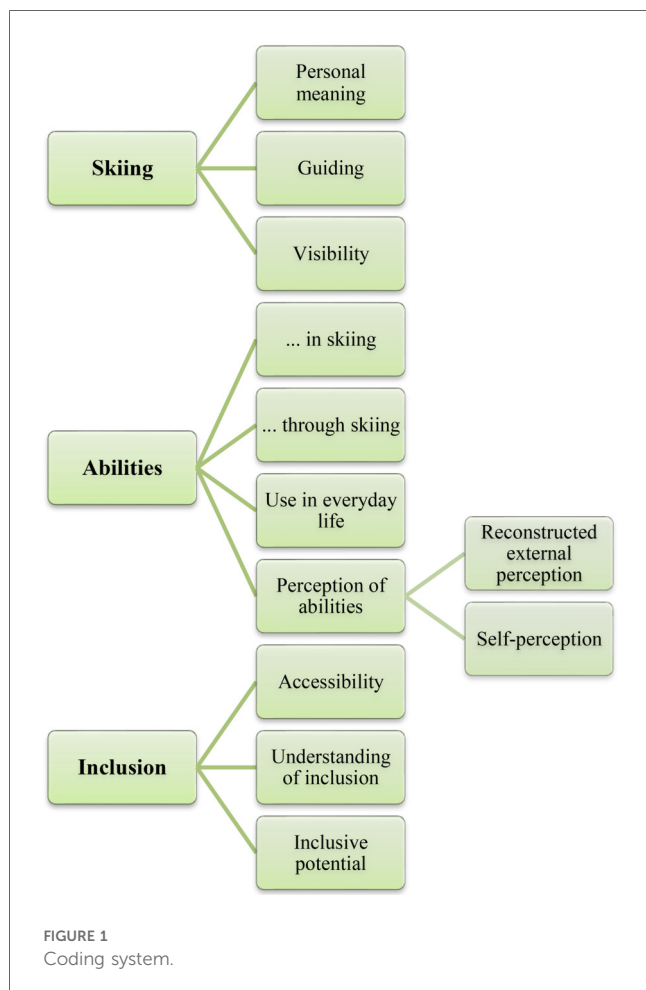
2.3 Trustworthiness

We have considered aspects of trustworthiness in the different phases of the research process (38). All authors have experience in dealing with individuals with VI through professional and private contacts. The first author works as a physical education teacher with children and adolescents with VI and also works in teacher education. The second author is a qualified ski instructor and works with children and adolescents with VI. Prior to the interviews, the first author was not familiar with the interviewees, while the second author had a previous academic connection with one participant. We acknowledge that this background may influence the research process and the interpretation of data. To enhance reflexivity and confirmability, we made our positionalities transparent and reflected on our roles throughout the process.

To support the rigor and quality of the study, we used various strategies. To support the internal quality of the study and to establish credibility, dependability and comprehensibility (37), the methodological procedure was set out in the methods section and additional material was provided in the form of figures and tables. To enhance authenticity of the study, we gave background information on the authors in relation to the study. Moreover, we have included a large number of quotes from the interviewees and aimed to reflect their language where appropriate. For example, identity-based language was frequently used by participants. To reflect the linguistic tone of the interviews and remain close to participants' terminology, we adopted the term "sighted persons" in the manuscript. At the same time, we consistently applied person-first language for individuals with visual impairments. To assess generalizability, [Supplementary Table S1](#) provides additional information on the interviewees in order to assess the transferability of the data to other contexts. Further limitations are discussed in detail in the Limitation section.

3 Findings

The results of this study provide insights into the subjective experiences of athletes with VI in alpine skiing, with a focus on their perceptions of inclusion and abilities. A detailed analysis of the interviews revealed that the six interviewees exhibited notable parallels in their experiences, challenges, and perspectives on alpine skiing despite their varied backgrounds and life paths. The focus of the interviewees was primarily on skiing with social aspects being discussed marginally. The primary focus of the



analysis was the *Abilities* category, which has a close connection to the subcategories *Visibility*, *Inclusive potential* and *Accessibility*. These subcategories were also included in the analysis.

A synthesis of the interview results revealed four key themes: skiing as a booster for self-confidence; skiing as proof of expertise and competence for oneself and others; skiing under the radar; skiing as a pathway to accessibility and inclusion. The findings are presented in detail below.

3.1 Skiing as a booster for self-confidence

All interviewees emphasized that skiing enabled them to enhance their self-confidence. Through skiing, they developed personal competencies such as adaptability, self-confidence, organizational skills, and problem-solving strategies in their daily lives. For instance, Lara and Lilli described how they applied their gained self-confidence in everyday life when dealing with their visual impairment:

“But skiing was just a big part of me just dealing with my visual impairment really confidently and just openly saying what I need.” (Lara)

“And that gave me a bit of courage to think that I can and should try everything, even if you think in advance: can it work?” (Lilli)

Karin and Peter emphasized the flexibility they had gained in dealing with challenges or unforeseen circumstances:

“Because you are always in the situation, which of course happens to you in everyday life, that something goes completely differently than you imagined and then you have to see how you can get on.” (Karin)

“So I’d say the phrase would be: ‘There’s always another way’. If one thing doesn’t work, then we just have to try something else.” (Peter)

Parallels can be drawn to the research of Conroy (39) on recreational ski programs for children, in which skiing was found to contribute to building trust and self-esteem, developing self-confidence, and thereby overcoming everyday challenges. The interviewees in our study identified not only personal competencies but also additional skills they had acquired or further developed through skiing. They described an improved body awareness and enhanced coordination skills because of skiing. These terms were used by the interviewees in various contexts and were not always clearly distinguishable in meaning. Many interviewees perceived their improved body awareness as an advantage in practicing other sports, such as fitness, climbing, or cycling. Additionally, the motor and sensory skills they had acquired played a significant role in their orientation and mobility in everyday life:

“It’s very good training for balance. It may be a bit high, but it’s definitely also a bit of fall prevention.” (Karin)

“I’m now quicker on my feet, which also helps me in everyday life. I simply have more overall tension. I’m more stable. I have a better sense of balance. Even at a standstill.” (Peter)

“[...] that I walked through the city in a completely different way, that I, um, that my physical body perception changed a lot and I had much less orientation before and that gave me a lot.” (Nora)

Against the backdrop of altered orientation in snow and ice (40) improved skills through skiing can contribute to safer movement during the winter months (27). The significance of skiing fostering orientation and mobility has been demonstrated in studies conducted with children with VI or blindness (39). Other sporting activities have also been shown to contribute to the development of orientation and mobility skills, as evidenced by research conducted by Oldörp et al. (35) in adults.

In addition to sports motor skills and ski-specific techniques, the interviewees highlighted social and personal skills (e.g., organizational skills, reliability, teamwork, communication, courage, and fearlessness) as well as cognitive and sensory skills (e.g., mindfulness, cognitive flexibility, concentration, body awareness, visual and auditory perception) as the foundation for alpine skiing. The interviewees also identified specific skills for skiing with visual impairment or blindness:

“So right now, we also have to speak, listen and react at the same time and then we have to implement this in our bodies.” (Nora)

“[...] and then I can also combine the visual with what I can hear, so to speak. I get the commands acoustically and I can also see my guide quite well.” (Helena)

Guiding played a particularly significant role for all interviewees, with all six athletes describing specific skills required from both the skier and the guide: teamwork, communication skills, trust, and adaptability.

“The ability to build trust and, when you have it, to rely uncompromisingly on the command.” (Peter)

“And I believe that I can ride with almost anyone, because I can explain what I need in relatively simple terms.” (Nora)

Similar parallels can be drawn with the studies by Hiemstra and Rana (10) as well as Ball et al. (16) on runners with VI, and Macpherson (22) on blind hikers with their guides. In their studies, trust and communication were identified as key factors for a successful running or hiking experience.

3.2 Skiing as proof of expertise and competence for oneself and others

The categories of *Reconstructed external perception* and *Self-perception* distinguish between “the experience of abilities and the attribution of these abilities” (18). This theme will be explored in more depth in the following subthemes.

3.2.1 Reconstructed external perception of abilities

The *Reconstructed external perception* of abilities is based on the interviewees’ subjective descriptions of how they think they are perceived by sighted individuals in their sport or everyday life. This shows an interaction between the perception of one’s own ability and the assumed assessments by others.

“I want to be perceived as a human being and not as the blind one.” (Peter)

However, these assessments are not always based on direct feedback from sighted individuals, but on the experiences and interpretations of the interviewees. In some cases, interviewees reported being ascribed or denied abilities; however, these attributions were often made based on their own perceptions and not necessarily on the basis of explicit statements or assessments by sighted individuals. In this study, the category *Reconstructed external perception* does not refer to an objectively collected perspective, but rather a perception reconstructed from the interviewees’ stories. This reconstruction was achieved through an ableism-critical lens, and it does not necessarily reflect explicit statements by the interviewees. Rather, it reflects the social interpretation patterns that are recognizable in their descriptions.

In both skiing and in their everyday interactions at work, university or in their leisure time, the interviewees had experiences that they interpreted as reactions from others to their abilities. In the interviews, they described situations, experiences and conversations with sighted individuals. According to the interviewees’ accounts, they experienced a range of reactions that were interpreted in the coding process as (a) admiration and appreciation and (b) underestimation and surprise.

(a) Admiration and Appreciation

The interviewees reported positive feedback received for their achievements in skiing or other areas of their lives.

“And um, yes, then I remember a situation where I did a parallel slalom against a non-disabled person and um, yes, the times were really close. [...] And then you get to the finish and you also get the appreciation from the other person.” (Helena)

“That’s what the coach [from one sport] always says, too, that it’s really amazing how my body feeling is compared to the other athletes [...]” (Lara)

There are notable parallels with the supercrip motif, which is characterized by a specific perspective on individuals with disabilities, emphasizing their abilities and achievements in a manner that glorifies and idealizes their capabilities. This viewpoint is problematic, as it presents a stereotypical and distorted depiction of the abilities of individuals with disabilities (41). An opposite reaction was shown in subtheme (b) underestimation and surprise.

(b) Underestimation and Surprise

In contrast to admiration, the interviewees also described situations in which their abilities were doubted or met with disbelief. The interviewees shared how surprised observers were by their competence and performance on skis. For example, Helena recalled feedback she received after a competition:

“Wow, that run went really well for you. And your times are really close to non-disabled times, basically.” (Helena)

This demonstrates that certain normative concepts of skiing are not transferable to the ideas of skiing held by individuals with VI. This is also evident in the following question that was posed to Nora:

“If we can drive fast and things like that.” (Nora)

Ableist assumptions about the abilities of individuals with VI can lead to the underestimation of their capabilities. Closely linked to this are doubts about the abilities of individuals with VI, such as concerns regarding potential risks or dangers:

“So that’s the classic question: “How do you even see the slope?” or “Aren’t you overlooking people?” I think that’s also a bit of a fear with other people. Especially if they are skiers, as if I could drive over them.” (Lilli)

Karin expressed similar thoughts about her experiences. She emphasized afterward that individuals with VI are not only capable of skiing, but also possess knowledge of implicit rules:

“We are not a risk to the environment or to ourselves, we have learned it. We have learned the sport and we want to do the sport. And we know that we have to stick to certain rules.” (Karin)

Comparable experiences were also reported by interviewees in everyday situations:

“Then they want to practically shove a chair under my butt. Or they give me a fork and say: “This is a fork.’ Which makes me think: Hello!?” (Peter)

In the situation outlined by Peter, individuals with VI experienced a denial of certain abilities, which can be attributed to the social construct of disability and its subsequent influence on perceived visibility. “It is assumed that abilities are not

something that can be described ontologically, but rather a *relational* [italics in original, FO] variable that is tied to the social position of the observer and thus ideologically shaped.” (18). Peter described a situation in which his skiing abilities served as a primary source of information about his identity, leading to a misperception among sighted individuals regarding his disability status:

“And then we drove, swung off at the end and then I was standing next to someone who looked at me, looked at my glasses and said: ‘How can you see with these?’ And then I just pointed to my jersey and he just collapsed.” (Peter)

Similarly, the interviewees in the study by Ball and Haegele (14) reported that individuals did not believe that they were visually impaired.

3.2.2 Self-perception of one’s own abilities

Self-perception refers to how the interviewees perceived their own abilities and how this perception influenced their self-image and actions. The self-perception of the interviewed skiers is characterized by pride, self-confidence, and an active approach to their disability. Skiing is seen by the interviewees to strengthen self-confidence and experience themselves as capable. Strong interactions exist between the categories of *Reconstructed external perception* and *self-perception* of abilities. The enhancement of self-confidence through skiing is described by all six interviewees in different contexts. The perception of their own abilities and the associated achievements in skiing emerge as crucial elements in the development of self-confidence and pride for all six interviewees.

“I would say it boosted my self-confidence because I realized that I’m more athletic now and have some skills, I would say, and can keep up quite well with others who don’t have a disability. And that has really boosted my self-confidence.” (Helena)

“Well, I was self-confident before, I wasn’t hiding, but I just realized: Yes, I can do something here that others can’t, that others also think is kind of awesome. Um I’m certainly a bit proud of myself as a result.” (Peter)

This issue is also closely related to the management of one’s own visual impairment in both sporting activities and daily life. It encompasses more than simply demonstrating competence to others; it also involves navigating self-imposed limits, as Lilli and Karin articulated:

“And I think it [skiing] has made me more self-confident, because I know that a visual impairment doesn’t just have to mean limitations, but that somehow everything is possible.” (Lilli)

“For the disability itself, I think I’m just incredibly happy that it works, and I think it’s nice that there are ways and means of overcoming some of your own prejudices [..].” (Karin)

It is possible that Karin’s “own prejudices” may be attributed to internalized ableism (14). A similar interpretation can be applied to Lara’s statement:

“You often start to say, you’re often taught from the outside, ‘Okay, that’s not possible because of the disability’ [..].” (Lara)

These internalized prejudices can have a negative impact on self-perception and affect other areas, so that individuals do not feel confident doing certain sports or other activities in everyday life (17). Moreover, these prejudices can result in feelings of exclusion from inclusive environments, potentially due to perceived inadequacies caused by ascribed abilities (42).

Skiing seems to take on a special significance when abilities are negotiated with oneself and with sighted individuals.

“I think that’s always an ace up my sleeve [..] if I feel a bit smaller because of my visual impairment, I can still say —‘I’m skiing, maybe you’re not’. That gives me a lot, because I know that’s an ability you can be proud of and maybe even more so with my visual acuity. So yes, it does give me a little something that I can do that.” (Lilli)

“When I talk about my visual impairment, because then it’s not directly perceived as a weakness, but okay, she is still strong. Or in general, when I talk about everything else I do. So that really strengthens me.” (Lara)

Through skiing, the interviewees experienced a shift in how they were perceived by others. As May-West et al. stated (29, p. 362), having “an activity that any sighted person has the opportunity to do, is something that builds confidence and helps to challenge the perceptions of others to see those with significant visual impairment as equals”.

3.3 Skiing under the radar

All six interviewees reported on conversations with different individuals (colleagues, friends, fellow students) in different contexts (on the ski slopes, in everyday life) about skiing. The conversations with others revealed that para-skiing is often an unknown sport:

“Sometimes I get the feeling that people think: ‘Yeah, she’s taking the piss, as if she’s alpine skiing’. And then they look on the internet and see, yeah okay, she really does that.” (Nora)

“I think it’s more of a brief shock or surprise. But yes, it is. You get asked more because it’s something special.” (Lilli)

In their conversations about skiing, the interviewees expressed a lack of knowledge on the sport, but also a profound level of interest in learning more about the sport. On occasion, these conversations also revealed a high degree of appreciation for skiing in conversations:

“Yes, I also sometimes find it strange when someone celebrates skiing as incredible and I think: yes, basically I do the same as you, I just ski down there.” (Peter)

The athletes used the conversations to raise awareness of para-skiing and break down prejudices.

“Yes, mostly, because some of them have never heard of it or never seen it or something. [...] So, for example, they grew up somewhere in [town] or whatever and were skiing in their ski area and saw people with one jersey on, skiing behind each other and shouting at each other. Then they usually couldn't classify it beforehand and thought yes, they're having fun and then, when they talked to me and we talked about alpine para-skiing, they could just classify it [...].” (Helena)

Many of these conversations took place through an equal professional exchange (Karin) or to establish contact with other individuals (Helena).

“Now the season is starting again, at the moment it's all about gaining experience with protectors and recommendations and collecting a bit of information about what's available.” (Karin)

“So, it's just a normal conversation at the same level with people who don't have a disability. Especially at university now, [...].” (Helena)

The limited visibility of the sport was identified as a significant concern and could be attributed to the limited awareness among sighted individuals, and secondly, to the media's lack of interest, and the limited involvement of spectators. However, amidst these concerns, some interviewees also noted positive developments in visibility, though they did not provide specific examples.

“But apart from that, at the races it's really, really sad how few spectators there are. I also raced in the World Cup and even in the World Cup there's simply no one there. In fact, sometimes nobody. At most there are parents who come by, acquaintances who really know an athlete.” (Lara)

“And I think it's a shame that there is this threefold division [Olympics, Paralympics, Special Olympics]. And on the other hand, yes, visibility has increased significantly in recent years and that's important.” (Karin)

The skiers expressed their appreciation for sporting events held alongside non-disabled athletes, citing the increased presence of

spectators and the opportunity to compete against a wider range of skiers as key benefits.

“But this ski league is simply with non-disabled athletes. And um, yes, that's actually the most fun for me, to be honest. Because there are a lot more people taking part and the one or other spectator sometimes.” (Helena)

Separate structures not only prevent joint contacts, but also minimize visibility. Karin points out that without visibility, the achievements of individuals with VI cannot be adequately highlighted:

“[...] and the hope would of course be that it would then have a further impact on the general labor market and that you simply see that people have more potential than you think they have at first glance.” (Karin)

There are parallels here with the aims of the Special Olympics, which utilize sport as a means to draw attention to the potential of individuals with disabilities (4).

3.4 Skiing as a pathway to accessibility and inclusion

The skills and competencies learned and improved through skiing were used by the interviewees in their everyday lives, e.g., in other sports or in orientation and mobility, as described above, which gave them greater access to sports and exercise culture. The skills learned through skiing also played an important role in relation to the lack of accessibility in the interviewees' everyday lives. The interviewees experienced a lack of accessibility for individuals with VI primarily in the context of work and university, as well as in their school life or previous sporting activities:

“And then handball is still more about competition in the junior phase. Yes, and then it just wasn't so much fun for me anymore, because before that, for example, people were always calling my name or something so that I could pay attention and concentrate to catch the ball and then they weren't allowed to do that afterwards because it gave the opponent an advantage and stuff like that.” (Lara)

“I would very much like to see digital accessibility considered in all programs from the beginning and not to be presented with a program afterwards: Yes, we've decided on this, it's convenient for everyone. Oh, you can't use it?” (Karin)

“Yes, that all the documents are accessible to me and that's rarely the case. So yes, integration. Yes, I would say it's integration, because I'm allowed to study, but it's not inclusion, because I have to run to the front every time. There are-, I think now there were maybe two profs where I didn't have any problems.” (Lara)

Moreover, a significant number of interviewees identified a general lack of accessibility in their daily lives.

“Well, it would be nice to get to a point where you no longer have to request your rights [...]” (Karin)

“At the climbing center, for example. I don’t know if you’ve ever been there, but the numbers of the boulders are up there. [...] Yes, and then I always walk around there with my mobile phone and take photos of the routes and zoom in on the numbers. Little things like that. That’s the simple solution in itself, but it’s just something that happens so often.” (Lara)

The interviewees reported how they used the abilities they had acquired through skiing in everyday life to highlight exclusionary issues in their studies or work. For example, Helena points out a lack of accessible work documents to their teachers:

“That all materials are uploaded to the learning platform we use from the very beginning. That there is simply an extra folder. Accessible slides and a folder with normal slides, let’s put it that way, and that you don’t have to ask for it, it’s just there. That would be my ideal, my ideal vision.” (Helena)

They also used their experience and abilities to motivate their peers with VI:

“I’d just say do what you feel like doing and don’t let the fact that someone says it won’t work stop you. Go for it.” (Lara)

Standing up for their own interests sometimes required courage and tenacity from the interviewees. For many, the self-confidence gained through skiing proved to be the main driving force:

“[...] and in regular school I wouldn’t have had the courage to go to the front all the time and say yes, anyway, you have to do this on my laptop now.” (Lara)

“That some of my work is not accessible. And I don’t think that ten years ago I would have been so insistent and wouldn’t keep asking and asking and asking that it works and that I can do my work without obstacles.” (Nora)

Accessibility was an important topic in the interviewees’ everyday lives, and particularly in skiing. The interviewees reported no barriers in relation to skiing and generally saw skiing as inclusive. All six interviewees viewed it as positive “that skiing is actually really good even with a visual impairment if you have a guide” (Helena) and that shared experiences are constructed through “the same passion” (Peter). May-West et al. (29) also arrived at the conclusion that skiing can be regarded as inclusive due to the fact that the sport can be adapted to the differing needs of athletes. In the present study, the methodological adaptations and the practice of skiing with guides can also be regarded as an obstacle to inclusion, as evidenced by the

interviewees’ narratives, insofar as these symbolize deviations from the skiing of sighted individuals and label those individuals as visually impaired:

“Because it doesn’t matter whether you’re on the slopes with a speaker, with a guide or whether you’re on your own with a white cane. You never get lost in the crowd. [...] People are watching anyway, whether I’m on the slope or not.” (Karin)

A lack of guides, on the other hand, can be seen as an obstacle to participation and inclusion:

“And the first year I think I only went on two courses because I was looking for a guide and the structures weren’t there yet. I had to find a guide myself.” (Lara)

As Macpherson (22) and Ball et al. (16) also found, participants in their respective studies, identified the lack of availability of guides as a significant barrier to participation in hiking or running. The data in our study revealed that all interviewees were guided by family members at the beginning of their skiing careers—a practice which continues. Guide changes occurred when family members were unavailable or when the skiing skills between the skier and guide were great. As posited by Ball et al. (16) the investment of time required to find a new guide, and to establish a shared understanding of skiing was also a barrier. Another salient barrier on the slopes is the presence of other skiers who ski between the guide and the skier, despite being specially marked:

“We also have the problem that if, for whatever reason, the distance between us becomes too big or it gets too busy, then people drive between us.” (Peter)

The lack of joint events for individuals with and without disabilities was also an obstacle to inclusion, as described above in relation to competitions. This also applies to the organization of recreational skiing trips.

“But that’s something that is actually the responsibility of the organizers. Because if I organize it from the beginning so that the sighted and the blind are in two different accommodations, then it’s no longer inclusive.” (Karin)

Nevertheless, the interviewees’ conversations in their private lives also lead to contacts through skiing, e.g., at university:

“Especially at university now, because [the city] is a place where people ski, and that’s why a lot of people ski at university and then you talk about it and most of them think it’s really cool and then you go skiing together and can connect easily, I think.” (Helena)

To summarise, it can be posited that the interviewees developed a variety of sporting, social and cognitive skills through skiing, which play a central role for them both in their

everyday lives including their sporting experiences. These findings underscore the role of abilities in promoting inclusive processes and reflecting on the implications for practice. The following section is dedicated to the interpretation of the results in relation to our research questions and their placement in the existing research context.

4 Discussion

In consideration of the research question—How do abilities inform the experience of inclusion for individuals with VI?—it is evident that abilities played a significant role in the interviewees' narratives. On the one hand, the interviewees used their abilities in everyday life and to manage a lack of accessibility. On the other hand, the interviewees' narratives can be interpreted from an ableist perspective implying certain assumptions about the abilities of individuals with VI. There is a need for a critical reflection on ableist constructions of ability, derived from the interviewees' narratives and based on their subjective interpretations. These perceptions are often shaped by societal notions of individuals who are blind, not grounded in direct knowledge but rather in prejudices and assumptions. These prejudices are influenced by “purely visual perception and interpretation patterns” (43, p. 212). Communication styles can reinforce existing prejudices and conceptions of disability, but conscious communicative processes can also challenge and reshape conceptions of disability (20).

However, it is important to acknowledge that all participants were highly experienced and committed to skiing. As such, the positive effects described—particularly the boost in self-confidence—reflected the perspectives of those who are and remained engaged in this sport. The experiences of individuals who may have discontinued skiing due to challenges or exclusion were not captured in this study and warrant further exploration. This limitation also highlights the need for further research into the inclusion experiences of those who have faced difficulties accessing or continuing participation in alpine skiing.

With regard to subquestion (a)—What experiences do alpine skiers with VI have in conversations about skiing with sighted individuals?—it can be stated that the athletes used the opportunity in the conversations to make contacts and provide information about the sport. This can have the effect of changing external perceptions and increase visibility, especially if the conversations are mutually respectful and beneficial (20). The interviewees' experiences in the conversations are often positive but tend to be accompanied by admiration and a lack of knowledge about para-skiing. According to Nario-Redmond (20), frequently exaggerated positive assessments of the actions of individuals with disabilities arise from both benevolent attitudes and low expectations. The knowledge about alpine skiing consists of alpine skiing of sighted individuals, based “on normative, ableist structures, which set this specific sports context as the norm or “ideal” (10, p. 4). Interactions between individuals with and without VI can challenge certain everyday practices (43). In this context, skiing serves as a mediator, as the interviewees

shared their skiing experiences with others, demonstrating that individuals with VI can ski and engage in similar recreational activities as sighted individuals. In doing so, the skiers challenged ableist perspectives and contributed to both the normalization of the sport and the broader recognition of individuals with VI. Similar findings were reported by cross-country skiers with VI by May-West et al. (29).

However, the practice of using a sport as a means of demonstrating ability should be critically examined, as access to sports and physical activity for individuals with VI remains limited by various barriers (14, 15, 44–46) preventing some individuals from engaging in sports. Moreover, this perspective excludes individuals who, for various reasons, are unable to present themselves as capable (47). The notion of demonstrating abilities to replace the category of disability has been critically assessed by Oldörp et al. (48). Further research is needed, particularly involving individuals with disabilities (12).

Regarding subquestion (b)—What skills do skiers with VI take away from participating in alpine skiing?—two key areas can be identified: motor skills for sports and mobility, as well as personal competencies for everyday life. The interviewees increasingly advocated for their needs and rights, citing skiing as a source of their increased self-confidence. The significance of self-advocacy as an ability was confirmed in the research conducted by Ball et al. (16) and Rich et al. (45) with runners and rowers with VI. The ability to advocate for one's own interests is recognized in both studies as a crucial factor for participation in sports and competitions, particularly when inclusive structures are lacking or access to opportunities is restricted. Our study demonstrates that skiers primarily engaged in self-advocacy in the areas of work and education. Lieberman and Childs (49) advocate for teaching self-advocacy skills to children and adolescents to enhance their participation in school and recreational sports. However, this perspective appears problematic, as successful inclusive processes should not depend solely on the individual and their abilities. Framing inclusion in this way risks neglecting the need for broader societal change.

Nevertheless, improving sports participation among children and adolescents is a crucial measure, as access to physical education is often limited (46, 50) and inactive students are more likely to become inactive adults (5). In addition to the physical barriers, ableist body narratives (51), standardized performance expectations (52), and teacher behavior (5, 53) contribute to negative experiences in physical education. The findings of Sträter and Stegemann's study (54) on guiding of skiers with VI in sport teacher education highlight the importance of addressing inclusion-specific topics within teacher education programs. Through alpine para-skiing, students developed a positive attitude toward a specific aspect of diversity. Further research should examine whether this effect can be replicated in other sports contexts and with a broader concept of inclusion. These findings align with the recommendations of Grenier and Giese (55), who argue that university-based physical education teacher training must incorporate critical perspectives on ableism to reflect on exclusionary mechanisms within school sports. This perspective should be extended to the training of coaches across

all performance levels (56), instructors, and other professional groups to reduce disability-related biases (45, 57).

Dealing with the continued inaccessibility of sport opportunities and a lack of barrier-free environments can be exhausting. Coping strategies, personal competencies, or additional skills are necessary to address these challenges and maintain motivation for sports (14). Sports activities themselves (13, 58) or spending time in nature (59) are frequently used as coping strategies. “However, opportunities for these experiences, momentary or otherwise, were much harder to find due to the ableist conceptions of risk and vulnerability often encountered with sight impairment” (59, p. 318). This becomes particularly problematic when ableist conceptions and prejudices are internalized by individuals with VI. “Internalized ableism is defined as the process of projecting negative thoughts and feelings onto oneself based on societal stereotypes surrounding disability. In instances of internalized ableism, disabled people internalize society’s beliefs that being disabled is an inferior form of being [...]” (14, p. 2). Traces of internalized ableism were occasionally evident in the statements collected in our study which can influence competence (17). However, skiing helped the interviewees perceive themselves as competent and capable. Similar findings were observed in the study by Oldörp et al. (35), in which blind tennis players developed “competent identities” through their sport. Participation in sports thus emerges as a crucial factor, particularly given that individuals with VI engage in less physical activity than their sighted peers. The reasons for this lower level of physical activity are often linked to a lack of accessibility and internalized ableism. Diverse experiences of individuals with disabilities are essential for understanding and analyzing inclusion experiences and for drawing relevant conclusions for sports practice (10).

Regarding subquestion c)—Do alpine skiers with VI experience their sport as inclusive?—no definitive conclusions can be drawn. From the perspective of the interviewees, skiing is inclusive because it is accessible to individuals with VI, a finding supported by the study of May-West et al. (30). However, skiing is not perceived as inclusive when, as previously discussed, separate structures exist for athletes with and without disabilities in both competitive and recreational settings. Separate competitive structures were perceived by some athletes as non-inclusive and limiting the visibility of the sport. A lack of spectators and the sport’s low public recognition were also reported as negative experiences among blind tennis players (35).

For individuals with disabilities, ski trips often require additional planning efforts to find accessible services and routes (e.g., transportation, accommodation, and local facilities) and to secure limited spots in advance (60). Guiding was generally viewed positively in our study, which may be attributed to the fact that all interviewees had extensive skiing experience and were well-connected within the community. However, for beginners and occasional skiers, the lack of available guides could represent a barrier to participation. That missing guides can hinder sports participation was demonstrated in the work of Ball et al. (16) and Macpherson (22).

The connection between (lack of) accessibility and feeling inclusion—the presence of feelings of appreciation and belonging from the perspective of people with disabilities—is an important factor when evaluating spaces designated as inclusive. As Maher et al. (61) demonstrate in their qualitative study, subjective feelings of inclusion are often closely linked to environmental and structural conditions in sport. Based on our data, it is not possible to make a clear judgment on this matter. Further research is necessary to investigate the relationships of feelings of inclusion through acceptance, belonging, and value.

5 Limitations

This study has several limitations that must be considered when interpreting the results. First, the small number of participants limits the generalizability of the findings. Additionally, the study focused exclusively on the sport of skiing and individuals with visual impairments or blindness, which narrows its scope. Furthermore, it is important to recognize that statements about sighted individuals should be understood as subjective reconstructions. Since the study examines subjective perspectives, its results cannot be generalized. Future research should include larger and more diverse samples, explore additional sports, and consider the perspectives of individuals with different types of disabilities. Nevertheless, certain theoretical patterns can be recognized that could be transferable. This applies particularly to patterns concerning the role of abilities for oneself and others, visibility and the negotiation of accessibility. This aligns with results from other studies on individuals with VI in sport (see among others 16, 44, 45).

The chosen methodological approach also has limitations. The interpretation of the data through qualitative content analysis following Kuckartz (37) is shaped by the researchers’ perspectives and prior knowledge. This subjectivity is inherent to qualitative research. Reflexivity and discussion were used to ensure transparency and analytic rigor. A theory-driven categorization process can result in certain aspects of the data being emphasized while others are potentially overlooked (37). The methodological approach of episodic interviews also presents challenges, particularly when interviewees describe experiences they have not personally had but have heard about or assumed (36). Additionally, both competitive and recreational athletes were interviewed, which introduces differing perspectives on the sport and the broader sports system. This might influence the perspective on the inclusive potential of skiing.

Skiing is a seasonal sport, meaning that even for experienced skiers, the time spent on skis each year is often limited. The relatively short and sometimes irregular periods on skis can influence how skiing-related skills are reflected upon. All interviewees had extensive skiing experience and were well connected within the skiing community, even as recreational athletes. However, it remains unclear to what extent their experiences can be applied to beginners. A larger sample is

needed to capture a broader range of experiences. Furthermore, the deeper relationship between skiers and their guides was not explored in detail, presenting an additional avenue for future research.

Another important factor is the financial cost associated with skiing, as expenses for equipment, lift passes, transportation, and accommodation must be covered (39). This financial barrier may mean that access to the sport is predominantly available to individuals with higher socioeconomic status. Additionally, socio-cultural and ethical aspects must be considered, as access to skiing is often shaped by family traditions, societal structures, and regional factors. In many countries, skiing is a sport with specific traditions and access structures that are not equally available to all social groups. These factors may have influenced our research findings and should be more thoroughly considered in future studies.

Despite these limitations, the study provides valuable insights into the subjective experiences of skiers with VI and highlights how specific sports can help foster inclusive potential and challenge ableist structures. In particular, the combination of individual perspectives with critical reflections on normative assumptions about abilities offers practical insights for the further development of inclusive recreational and sports opportunities.

6 Conclusion

Using an ableism-critical and interpretivist perspective, this study explored how sport-related abilities influence inclusive processes from the perspective of skiers with visual impairments. The findings highlight the significance of sports participation for individuals with disabilities, both in physical, psychological, and social terms. To ensure equal participation, it is essential to eliminate existing barriers while simultaneously providing a broad range of inclusive and peer-group-specific (29) sports opportunities. This enables individuals to choose an option that best suits their individual needs and preferences (7, 22). However, inclusion is not solely about the spatial and structural availability of such opportunities. It also requires raising awareness among sighted athletes, coaches, and other staff members to ensure the sustainable implementation of inclusive and barrier-free sports programs.

This study highlights the role of alpine skiing in fostering confidence, competence, and inclusion for individuals with VI. Participants challenged ableist assumptions but faced barriers such as limited visibility, segregated competition, and inadequate guiding support. To improve experiences of inclusion, awareness must be raised, accessibility enhanced, and integration into mainstream skiing promoted. Shared experiences between disabled and non-disabled athletes can bridge gaps and foster a more inclusive sports culture. Future research should explore broader contexts and diverse sports to deepen the understanding of inclusive practices. Ultimately, this study underscores that abilities should be seen as assets rather than limitations,

advocating for inclusive approaches that ensure equal participation for individuals with disabilities in sports.

Data availability statement

The datasets presented in this article are not readily available because the dataset consists of qualitative interview transcripts that contain personal reflections of participants. Due to confidentiality agreements and ethical considerations, the full dataset cannot be shared to protect participant privacy. Requests to access the datasets should be directed to Felix Oldörp, oldoerpf@ph-heidelberg.de. Please note that the dataset itself is not available due to confidentiality restrictions.

Ethics statement

Ethical approval was not required for the studies involving humans because all participants were adults who voluntarily provided informed consent on the basis of a detailed study information. The study adhered to ethical research guidelines, ensuring participant autonomy, confidentiality, and full anonymization of the collected data. No sensitive personal information was recorded, and all responses were analyzed in a way that prevents identification. The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study.

Author contributions

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Supplementary material

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Sailing together: challenges for an inclusive team of visually impaired and sighted athletes at Kiel Week

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The BAT-Sailing project is a joint project of the Norddeutscher Regatta Verein and FC St. Pauli Segeln, which enables people with and without disabilities to pursue sailing together in a performance-oriented manner as part of training and regattas. The project originally started with the intention of realizing the joint sailing of sighted and blind athletes. This article presents the scientific monitoring that was carried out at the request of the BAT Sailing Team in order to scrutinize and optimize the practice of the BAT Sailing Team [The name is derived from the word “bat” and alludes the symbolic transfer: cannot see (well) but can fly (or sail)]. The evaluation was carried out according to the Patton approach of a utilization-focused evaluation, which places the needs and values of the users at the center of the evaluation. The evaluation took place over three consecutive years (2021, 2022, 2023) and included interviews with the athletes, coaches and organizers of the BAT Sailing Team. The results showed that communication between sighted and blind athletes plays a special role and that the athletes learn to understand and support each other. Within the process of the evaluation it was able to identify communication as a strength that has developed in the joint sailing of people with and without visual impairments and that benefits above all people without disabilities. The results of the evaluation show that the utilization-focused evaluation is an effective tool for improving the practice of an inclusive sailing team that wants to act in a performance-oriented manner but also wants to ensure the participation of all potentially interested parties, regardless of their dis/abilities. The results of the evaluation can also be transferred to other inclusive sports projects that face a similar challenge.

KEYWORDS

competitive sports, inclusion, adaptive sailing, communication, utilization-focused evaluation

1 Introduction

The inclusive sailing initiative BAT-Sailing started as a joint project between the Norddeutscher Regatta Verein and FC Sankt Pauli Segeln and is now primarily organized by the association Wir sind wir - Inclusion in Sailing. What is special about this project is that people with and without disabilities pursue sailing together in a performance-oriented manner as part of training and regattas. It is primarily about

sighted and blind people sailing together in the J/70 boat class. The J/70 is a planing keelboat officially recognized as a one-design class by the International Sailing Federation. It is typically raced in regattas with a crew of approximately four sailors. To date, there are only a few inclusive sailing sports on offer in Germany, and most of these have no explicit competitive character or deliberately negate this (1).

The research project IncluSail (Inclusion in and through sailing) is conducting scientific research to accompany BAT-Sailing. This evaluation research, initiated at the request of the BAT Sailing stakeholders, critically scrutinizes their approach in the context of the established and (previously) exclusive sailing event Kiel Week. Kiel Week is an internationally renowned sailing regatta held annually in Kiel, Germany. Recognized as one of the largest sailing events worldwide, it features competitions across 16 national and international boat classes, as well as all ten Olympic sailing classes. Each year, the event attracts approximately 5,000 sailors representing more than 50 countries, competing with around 2,000 boats. Those responsible of the BAT Sailing team wanted to question and optimize the actions within the team with professional scientific support, preferably in direct exchange. After examining possible alternative methods, the approach of a utilization-focused evaluation according to Patton (2, 3) was selected as suitable for this purpose and has been pursued since the start of the accompanying research in 2021. This article presents in particular the research process within the framework of the utilization-focused evaluation according to Patton and reports and reflects on the achievement of key results, which lie in the area of communication between the sailors. For this purpose, the central steps, analysis loops and exchange processes are described and shown with the help of the Utilization-Focused Evaluation Checklist according to Patton (4). In a subsequent section, the genesis of the knowledge process in relation to a selected topic area, namely that of joint communication in sailing practice, is examined in more detail as an example. Finally, a discussion is drawn with regard to the potential and limitations of the research methodological approach within the framework of the utilization-focused evaluation.

1.1 Sailing for people with disabilities – outline of the initial situation

Sailing has a relatively long tradition in sports practice as a sport for people with disabilities, which is attributed to the fact that participation in sailing can be ensured with relatively little physical effort and technical adaptations can be made to the sailing boat to meet individual requirements (5, 6). However, sailing received particular attention as an official Paralympic discipline between 2000 and 2016. As early as 1996, sailing competitions were held at the Paralympics for demonstration purposes, but were not officially listed and scored. In 2000 and 2004, the 2.4mR (single crew) and Sonar (triple crew) boat classes took part in the competitions. In 2008, the Skud18 (crew of two) was added. All three boats are keelboats, which guarantee

a greater or lesser degree of stability in the water (7). This way, adaptive sailing offers opportunities for participation for people with various disabilities. Essentially, this is generated by the fact that individual adaptations to the boat are possible rather than insisting on standardized and therefore potentially disabling norms in the equipment. The adaptation options primarily concern seating and support systems, communication systems and modifications to the boat itself, which can change the handling of the sails and steering (8).

Although the practice of adaptive sailing is highly diverse, international scientific engagement with this topic has so far been limited (9). This must also be noted for paralympic or competitive and regatta-oriented sailing, for which Prokopowicz et al. (10) state that joint and competitive sailing in particular provides an incentive for already active athletes with disabilities to practice sailing. In the last decade, however, there have been studies from various scientific fields, most of which have moved away from competitive sailing. One relatively strong strand of research focuses, for example, on the therapeutic or rehabilitative potential of adaptive sailing for people with disabilities (9, 11). In this regard, MacLachlan (12) state that sailing offers have recently been increasingly used as an intervention in the field of rehabilitative therapy measures for people with disabilities, partly because outdoor offers in this area are in greater demand. Isolated studies in this area outline various potentials for the development or rehabilitation of the mental and physical health and social skills of participants with disabilities (13, 14) or people with mental health problems (15). Such positive effects of adaptive sailing offers are also emphasized for therapeutic measures for children with disabilities (16, 17), as well as, apart from therapeutic measures, for recreational and joint sailing for adults with and without disabilities (18) and explicitly for people with tetraplegia (19). Sailing together by individuals with and without visual impairments is not only seen as a form of inclusive sports participation, but in some cases also explicitly recognized for its enhanced rehabilitative potential. According to Shumova et al. (20), such integrated sailing experiences can foster physical, psychological, and social benefits, including improved orientation skills, greater self-confidence, and a strengthened sense of community and mutual support among participants.

All of the studies outlined here differ from one another to a greater or lesser extent – this applies to core questions, target groups, sample size and research methodology, among other things (9). As a result, the positive effects and potential attributed to adaptive sailing must certainly be viewed critically and put into perspective. However, one thing the contributions have in common is that almost all of them implicitly or explicitly (13, 19) refer to the importance of the accessibility and usability of the boat used (21). This fact also suggests that previous research has placed a clear focus on people with physical disabilities and their participation in sailing. Likewise, less attention has been paid to the practical phenomena of inclusive sailing, i.e., people with and without disabilities sailing together. The latter also applies to the rare research studies that explicitly consider the participation of blind people and people with visual

impairments in sailing. Exemplary exceptions from the field of recreational touring sailing explicitly present results that suggest that both the material characteristics of the boat and teamwork, explicitly communication between sighted and blind or visually impaired athletes, harbor potential barriers (14, 22).

It should be noted that the field of competition-oriented or competitive and at the same time inclusive sailing represents a research desideratum and this also applies in particular to the constellation of joint regatta sailing by sighted and blind or visually impaired athletes, which is the focus of this article.

1.2 The approach of a utilization-focused evaluation according to Patton

A utilization-focused evaluation is to be understood as a client-oriented evaluation or actor-oriented evaluation: “*Utilization-focused Evaluation is a process of creatively and flexibly interacting with intended evaluation users about their information needs and alternative methodological options, taking into account the decision context in which an evaluation is undertaken*” [(2), p. 175]. At the core of utilization-focused evaluation is the question of how the results can be concretely used by the individuals for whom the evaluation is being conducted. These so-called intended users are expected to apply the evaluation findings in their practical work, decision-making processes, or program development. Compared to more traditional, summative forms of evaluation—which often focus on retrospective judgments and external accountability—utilization-focused evaluation proves more effective in dynamic and practice-oriented fields such as education, social work, or sport. In these contexts, where continuous development and adaptive learning are essential, the formative, flexible, and stakeholder-engaged nature of utilization-focused evaluation offers clear advantages. The constant and ongoing exchange about the evaluation process and (interim) results with the actors in the field under investigation is the most central element of evaluation. Therefore, the evaluation is designed as a communicative negotiation process between researchers and users. As a result, the process is very personal and situation dependent. For the researchers, this means that they enter into a commitment with the users through the evaluation in order to support them in clarifying the question of what kind of evaluation they need. Patton’s approach is criticized with regard to the question of the more precise definition of users. This often arises from the assumption that evaluation-related changes in the research field could only be negotiable with decision-makers on the user side. The result is that usually only a specific subgroup of users could be relevant for the evaluation approach (23).

Qualitative methods are considered particularly suitable for conducting a utilization-focused evaluation (24). This also applies to the evaluation of the BAT Sailing Team presented here. The insights gained and phenomena identified in the surveys cannot be translated into clearly defined and determinable variables or measured. This was also not the aim of the approach. The researchers wanted to reflect on the experiences made together

with the users openly and in a communicative process. This pursued the goal of discovering and systematically reconstructing the topics and situations relevant to the participants. The fundamental questions that continue to develop during the research process should also be negotiated between researchers and users on an equal footing. This was done in the sense of a responsive approach that incorporates the reactions of those being studied.

The specific survey and evaluation methods are not predetermined from the outset in a user-focused evaluation. They are selected based on the research object and field of research. Interviews are often selected, as in the case described (24). The researchers opted for guided and episodic interviews (25, 26). The evaluation was based on a pragmatic use (27, 28) of the strategies and (coding) procedures of “grounded theory” (29). This approach is established in qualitative research and is frequently used for evaluation processes (24). The practical research procedure is described in central steps, which must, however, be adapted to the subject area and the specific project. Patton has summarized the important topics in a checklist [(4); see Table 1]:

The researchers moderate the evaluation. The users must be involved in such a way that they are very likely to use the results of the evaluations. This requires that they understand the evaluation process and the results and that they take ownership of the process. Since evaluation cannot be free of values, an essential aspect is that the users and their values, with which they identify, are actively involved in the evaluation process. Only through this active involvement is it possible for users to understand and comprehend the process and the results.

TABLE 1 Utilization-focused evaluation (U-FE) checklist (4).

Step 1	Assess and build program and organizational readiness for utilization-focused evaluation.
Step 2	Assess and enhance evaluator readiness and competence to undertake a utilization-focused evaluation.
Step 3	Identify, organize, and engage primary intended users.
Step 4	Conduct situation analysis with primary intended users.
Step 5	Identify primary intended uses by establishing the evaluation’s priority purposes.
Step 6	Consider and build in process uses if appropriate.
Step 7	Focus priority evaluation questions.
Step 8	Check that fundamental areas for evaluation inquiry are being adequately addressed.
Step 9	Determine what intervention model or theory of change is being evaluated.
Step 10	Negotiate appropriate methods to generate credible findings and support intended use by intended users.
Step 11	Make sure intended users understand potential controversies about methods and their implications.
Step 12	Simulate use of findings.
Step 13	Gather data with ongoing attention to use.
Step 14	Organize and present the data for use by primary intended users.
Step 15	Prepare an evaluation report to facilitate use and disseminate significant findings to expand influence.
Step 16	Follow up with primary intended users to facilitate and enhance use.
Step 17	Metaevaluation of use: Be accountable, learn, and improve.

2 Utilization-focused evaluation of the BAT sailing team

2.1 Starting point of the utilization-focused evaluation

The inclusive BAT Sailing Team 2020 was founded with the aim of breaking down the previous practice of separating sailing and paralympic sailing. The origin of this initiative was a sailing workshop for blind and visually impaired people. The name, which is derived from the word “bat” and alludes to the symbolic transfer: cannot see (well) but can fly (or sail). The founding crew consisted of 3 blind athletes and 4 sighted athletes, with one sighted person using a wheelchair. The founding crew also included 2 organizers and a coach. In 2024, the crew had grown to 13 actively sailing people, 4 of whom are blind, 2 of whom are severely visually impaired and one of whom is deaf. There is also a land team consisting of up to 4 people.¹ All named impairments are congenital. In Germany, a person is legally classified as blind if they have a visual acuity (visual acuity) of no more than 0.02 (1/50) in their better eye. The athletes with visual impairments mentioned above have visual acuity between 0.05 and 0.3 in their better eye, which is classified as severe visual impairment in Germany.

As soon as the team was founded, it was clear to them that participating in Germany’s largest sailing regatta, Kiel Week, would be the highlight of 2021. The J/70 was chosen as a boat class that is not explicitly known for adaptive sailing or has special provisions in terms of accessibility. The aim was to compete with non-(explicitly) inclusive teams in the regular competition in order to make the supposedly exclusive character inclusive from within. It was also clear that this was not to be a one-off project, but merely the start of a long-term initiative for inclusive sailing. One of the team organizers approached the scientists with the idea that professional and sustainable development should be objectively supported by an external body in the best possible way. Individuals from local sports associations, who were aware of the authors’ scientific focus from previous joint projects, put them in touch.

In the first meetings between scientists and those responsible for the BAT Sailing team, the possible design of the accompanying evaluation research was discussed together. During this phase, the scientists were given the task of determining the initiative’s readiness for evaluation (Step 1 of the checklist) and explaining the processes and purpose of a utilization-focused evaluation. It was emphasized by the scientists in this phase that the evaluation should have a direct utilization for the BAT Sailing team. The scientists also analyzed that the level of development of the BAT Sailing team made an

evaluation appear sensible. The two parties agreed on an intensive exchange in the form of annual workshops. To this end, scientists were to observe the BAT Sailing Team’s training and competitions and exchange ideas with the athletes. For this purpose, the BAT Sailing team assured the scientists access to the field. This also included arranging interview partners. The BAT Sailing team’s willingness to evaluate was rated as high. The field of research itself was considered sensitive by the researchers, as people with and without disabilities interact together and are certainly aware of their special situation. It was assumed that not all participants would have a positive attitude towards the evaluation. Accordingly, it was also expected that not all participants would be willing to be interviewed.

Special consideration was given to the situation of interviewing people with disabilities. The qualifications and experience of the evaluators were analyzed accordingly (Step 2 of the checklist). The team of researchers had the relevant expertise and previous experience from previous fieldwork in the context of inclusive sailing. Likewise, several members of the research group are considered experts in the research field of “inclusion in sports” and have experience in collecting qualitative data in this context (30). Accordingly, the research group engaged in intensive discussions about the upcoming fieldwork and anticipated the possible course of events.

The athletes and those responsible for the BAT Sailing team were identified as the primary beneficiaries of the evaluation findings (Step 3 of the checklist). The researchers had already anticipated this in the first situation analysis, which took place before the kick-off meeting (Step 4 of the checklist). To this end, the homepage and press releases on the BAT Sailing Team were analyzed in detail. In addition, the researchers already had information about the BAT Sailing Team due to previous field access at an inclusive regatta. Contacts had already been made with athletes and information collected. The assumption of the primary utilization for the BAT Sailing Team was confirmed in the initial discussions (see Figure 1).

2.2 First year of the evaluation in 2021 – reconstruction of actors’ perspectives

The analysis of the situation (Step 4 of the checklist) of the BAT Sailing Team is an ongoing process that runs through the entire evaluation process. In order to harmonize the evaluation process between evaluators and those responsible for the BAT Sailing Team, and thus between scientists and sports practice, several points of contact were initiated between these two status groups. The evaluators observed training sessions and various competitions of the team and also took part in other activities at the sailing club in order to get to know the environment, the training and competition venues, and of course in particular the people involved. These steps were fundamental to the evaluation process, as the trust of those involved in the BAT Sailing team had to be gained. This is due to the form of the evaluation, as in addition to participant observation, interviews with the participants were also part of the evaluation process. The

¹Further information on the BAT Sailing Team can be found at: <https://www.wir-sind-wir.org/bat-sailing-team/>

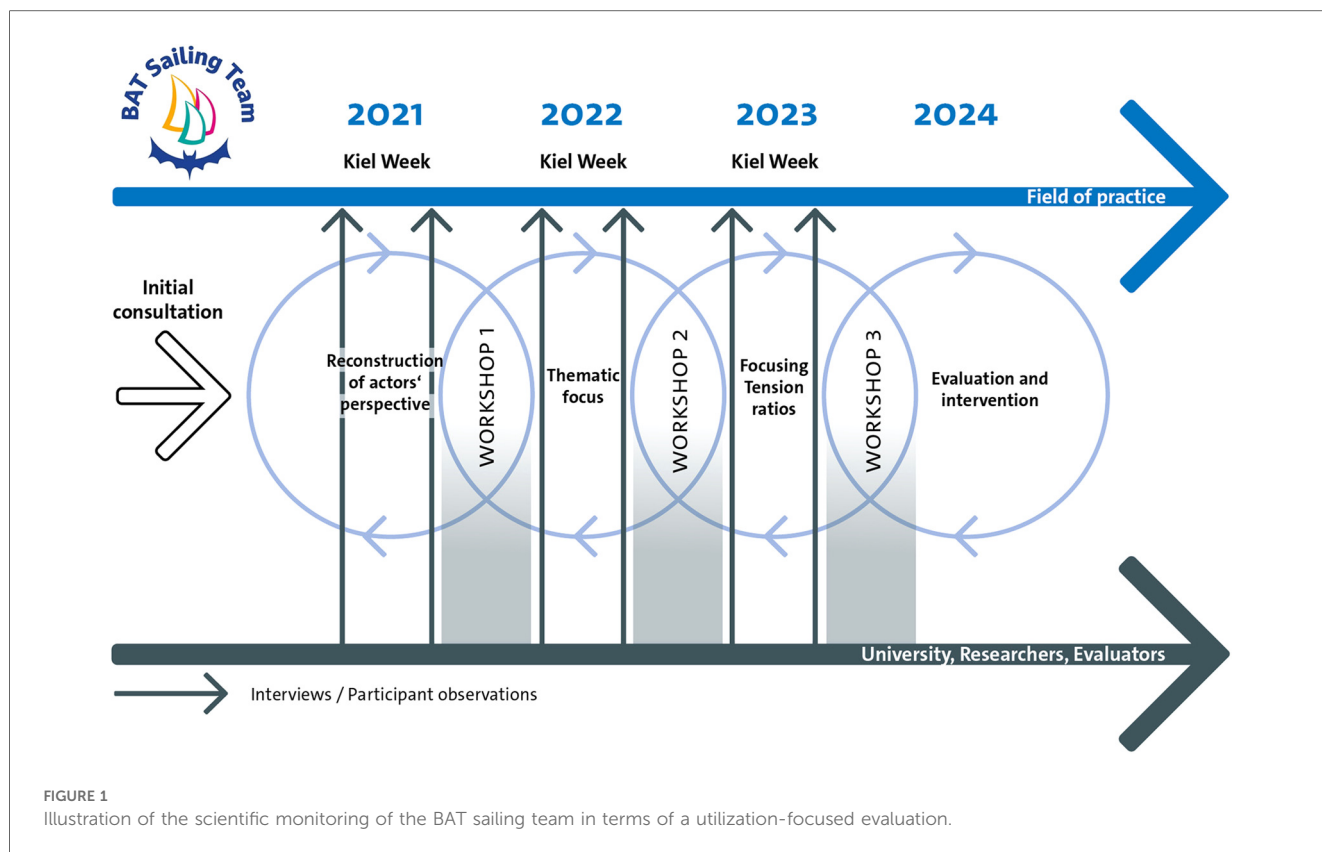


FIGURE 1 Illustration of the scientific monitoring of the BAT sailing team in terms of a utilization-focused evaluation.

TABLE 2 Overview of interviews and interviewees from 2021.

Name	Role	Sex	Age	Degree of VI	Pre-interview	Post-interview
Alf	Athlete	M	37	Blind	Yes	Yes
Fred	Athlete	M	27	Blind	Yes	Yes
Peter	Athlete	M	30	Blind	Yes	Yes
Lee	Athlete	M	32	Sighted	Yes	Yes
Micheal	Athlete	M	29	Sighted	Yes	Yes
Christa	Athlete	F	53	Sighted	No	Yes
Anna	Coach	F	48	Sighted	Yes	Yes
Nathalie	Organizer	F	37	Sighted/wheelchairuser	No	Yes
Stefan	Organizer	M	52	Sighted	Yes	No

importance of conducting interviews and obtaining the perspectives of the stakeholders emerged from the initial discussions between the researchers and those responsible for the BAT Sailing team and from the observations. It quickly became clear that there were many different perspectives on sailing and the upcoming competitions at Kiel Week. To design a profitable evaluation, these perspectives, many of which were not clear to all participants, had to be identified and systematically analyzed. A qualitative approach was chosen for this, using interviews. To this end, the stakeholders were divided into different groups at an analytical level (athletes with and without disabilities, coaches, organizers). Actors from the groups were interviewed before and after the Kiel Week to be able to reconstruct their perspectives in a comparative manner (see Table 2). Care was taken to include participants from all stakeholder groups to obtain as comprehensive a picture of the situation as possible.

The technique of episodic interviews was chosen, as these aim to present experiences in a general, comparative form. Concrete situations are also reconstructed, and the advantages of narrative and guided interviews are combined (31). Interview guidelines were used, but the interviewers were able to react spontaneously to statements and the individual interview processes and explore both specific attitudes (e.g., to their attitude towards people with disabilities, to competition and result orientation in sport) and concrete episodes from training sessions or competition situations. The interview guidelines therefore contained components that were relatively identical for all stakeholder groups. All interviewees were asked about their individual views on the BAT Sailing Team and the practices that take place there. The focus was also on participation in Kiel Week and the associated expectations (of themselves, the team, the event). There were specific sections for all groups of participants. For

example, the athletes were asked about their sporting or competitive biographies and the extent to which these are linked to their sporting expectations of competition in sailing. The organizers and coaches, on the other hand, were asked about their experiences and interpretations regarding the integration of the inclusive team into the existing structures of sailing. This concerned, for example, the anchoring of training times in clubs that had previously worked (less) inclusively, but also the organization of participation in competitive regattas and finally the big event of Kiel Week. The length of the interviews was 38–119 min.

The choice of an explorative, qualitative design is also justified by the desire of those people in charge in the BAT Sailing team to map action processes as accurately as possible and to be able to influence them directly with the help of the results. In the data collection (points 9, 10 and 13 of the checklist), the premise was thus taken into account that the data collection should be carried out with constant attention to the question of utilization [cf. (30)]. Careful management of the evaluation process was ensured through ongoing reflection on the evaluation process by the researchers. The researchers were also in constant communication with those responsible in the BAT Sailing team. Rules were agreed for field access, as this is a very sensitive field. In addition, all evaluators were familiar with the context of disability sport and had previous experience in research in this field (32). The job shadowing sessions made it possible to identify various needs of the stakeholders. All members of the BAT Sailing team were also made aware that the evaluation should have a direct utilization for the team.

The direct confrontation of the actors with the data and the results of the analysis (Step 14 of the checklist) took place in a workshop held six months after Kiel Week. By the time of the first workshop, 15 interview transcripts and numerous field notes had been produced (33). The data was analyzed using the coding methods of Grounded Theory (29). The results were discussed in research team meetings. Open and axial coding were primarily used for the analysis. Selective coding was not used, as open and axial coding were sufficient for the thematic analysis. The character of the utilization-focused evaluation became apparent in the evaluation processes. After the initial open coding processes, the phenomena that (provisionally) appeared to be relevant were discussed with those responsible in the BAT Sailing team. The interview guidelines were adapted on the basis of these discussions. Ongoing data collection and axial coding allowed the categories identified to be substantiated and further differentiated. In addition, a triangulation of perspectives (34) of the different stakeholder groups took place. This allowed the different perspectives of the stakeholder groups to be contrasted.

When analyzing the data, it emerged that the perspectives of the stakeholders had to be analyzed on the three levels of “event”, “group” and “individual”. At the “event” level, the tension between “participation for all vs. professionalization” appeared relevant. At the “group” level, the continuum “develop - apply ‘new’ communication - pass on” could be presented. At the “individual” level, the participants’ statements were illustrated with the area of tension “Between childhood dream and new,

enjoyable hobby”. At the workshop, the previous steps in the field and the results of the data analysis to date were presented, discussed and reflected upon. The workshop thus served to continuously identify the primary intended utilizations, to focus the evaluation and to concretize the evaluation plan (steps 4, 5, 6, 7 and 8 of the checklist).

In order to achieve the greatest possible utilization for the optimization of processes at the BAT Sailing team (Step 5 of the checklist), a preliminary meeting was held between scientists and those people responsible in the BAT Sailing team to plan the workshop. A corresponding strategy for the workshop was developed here. It was decided that the phenomena should be discussed in small groups using interview quotes. In addition, the scientists were to present their analytical steps so that everyone could understand the necessity of the evaluation. The scientists were to take on a moderating role in the workshop. In the workshop, the researchers aimed to prepare the data in such a way that it was understandable and relevant for the primary intended users (Step 14 of the checklist). This also means, for example, that the workshop processes and visual content were always verbalized to ensure greater accessibility. Attention was also paid to interactive breaks in the presentation, during which questions could be clarified at any time. The participants were confronted with interview quotations and thus with authentic material [in the sense of “face validity”; (35), p. 93] and thus encouraged to critically discuss their practice.

The workshop was organized for a time frame of three hours. A welcome address was followed by a short overview presentation on organization and structure and on the purpose of the type and manner of evaluation. The presentation led into group discussions (36). Thematic tables were prepared for this purpose, which were derived from the data analysis.

The first table was entitled: >Childhood dream vs. nice hobby - How to deal with individual demands in a group?<. The participants should discuss the following questions: (A) What does sailing and specifically taking part in Kiel Week mean to you? (B) How should the group’s requirements be developed?

The second table was entitled: >Team growth between participation for all and professionalization<. The participants should discuss the following questions: (C) Does the team need to grow? (D) What are the challenges in terms of team growth?

With the help of impulses from short interview quotes, moderated discussions followed under the key questions described. The participants were also asked to develop alternative courses of action for the future and define concrete steps. The discussions and results of the workshop formed the basis for the further course of the evaluation. The researchers left it up to the BAT-Sailing team to decide whether the evaluation should continue.

2.3 Second year of the evaluation 2022 – thematic focus

Those people responsible for the BAT Sailing team contacted the scientists after the workshop and reported on the decision to

also be evaluated as part of Kiel Week 2022. They reported that the team had decided to tackle the questions identified in the first workshop: “Childhood dream vs. nice hobby - how to deal with individual demands in the group?” and “Team growth between participation for all and professionalization?”. This meant that the people in charge wanted to continue to grow. The aim was to start not just with one, but with two boats at Kiel Week. The respective crews of the boats were also to be arranged in such a way that a corresponding increase in performance would also be possible. To achieve this, new athletes should be acquired. Ambitious and experienced athletes should also be given the opportunity to train and compete with a focus on success. This also means that communication on and off the boat between people with and without disabilities should be optimized.

Based on these aims of the BAT Sailing team, the scientists developed the procedure for the further evaluation. Interviews were again conducted before and after Kiel Week and training sessions were also observed. Data collection focused on the questions and problems described above. To this end, the guidelines for the interviews were redesigned accordingly and the aforementioned topics were central to the questions, e. g. “How is it that you are now sailing in boat number 1/2?” or “How do you rate the ambitions of your crew?” Ten interviews with eleven people were conducted before and also after Kiel Week (see [Table 3](#)).

In the second year described above, the evaluation was therefore essentially focused (Step 7 of the checklist), although points 4, 5 and 6 were also revisited and reflected upon.

In the workshop, the participants worked in small groups. They were asked to develop guiding principles for joint action in the BAT Sailing team and present them to each other. The idea of developing guiding principles arose in a preliminary exchange between the researchers and the team organizers. The scientists had already found this process beneficial in a previous benefit-focused evaluation in the context of inclusive handball and the organizers of BAT sailing expressed the desire for a concrete proposal from the scientists so that the team members would have a point of reference for orientation for individual adaptation. The groups of four people each worked according to the think-pair-share principle (T-P-S). The “mission” proposed by the scientists was: “We sail (Kiel Week) in a performance-oriented AND inclusive manner”. The following sentence was

proposed by the scientists as a guiding principle: “In order for us to realize the mission with fun, everyone should have sailing skills or be able to acquire them quickly”.

In the T-P-S, the participants were first asked to read, correct and expand the university suggestions on their own (Think). They then shared, compared and discussed their own suggestions with another person (Pair). This was then presented to the small group (Share). The guiding principles were then discussed by the entire group of participants (plenary). First of all, it should be noted that almost all athletes asked for the time available to work on the first step to be doubled. The original 15 min thus became approx. 30 min. The subsequent discussion clarified the reasons for the need: the fact that the team was sailing in two different high-performance boats for the first time obviously led to new group-finding processes within the BAT Sailing Team, which also led to tensions and friction between athletes from the different boat teams over the course of the season. While the above-mentioned formulation of the mission was felt to be adequate by all team members, opinions were divided on the proposed guiding principle. Those athletes who felt they belonged to the less performance-oriented boat rejected the sentence in this form and formulated it as “In order for us to implement the mission with fun, we need good communication”. In a discussion, this was accepted by all athletes as a common guiding principle and was described as essential, especially considering the addition of a deaf athlete to the team.

2.4 Third year of the evaluation 2023 – focusing tension ratios

The BAT Sailing team also decided to continue the scientific evaluation in 2023. The focus was also on Kiel Week. In the second workshop, which took place six months before Kiel Week 2023, the obvious tension ratios that have accompanied and shaped the team since its participation in Kiel Week were once again highlighted. The question of the further growth of the team and possible professionalization were central to this. In order to analyze this further, interviews were again conducted with the members before and after Kiel Week (see [Table 4](#)).

The third loop focused on the “promotion of utilizations” (point 16 of the checklist). Building on the knowledge gained up

TABLE 3 Overview of interviews and interviewees from 2022.

Name	Role	Boat	Sex	Age	Degree of VI	Pre-interview	Post-interview
Alf	Athlete	1	M	38	Blind	Yes	Yes
Fred	Athlete	2	M	28	Blind	Yes	Yes
Peter	Athlete	1	M	31	Blind	Yes	Yes
Lee	Athlete	1	M	33	Sighted	Yes	Yes
Micheal	Athlete	2	M	30	Sighted	Yes	Yes
Christa	Athlete	2	F	54	Sighted	No	Yes
Jasmine	Athlete	1	F	26	Sighted	Yes	Yes
Cathy	Athlete	2	F	31	Sighted/deaf	Yes	No
Marla	Athlete	2	F	29	Sighted	Yes	Yes
Manu	Athlete	2	F	32	Visually impaired	Yes	Yes
Anna	Coach	-	F	49	Sighted	Yes	Yes

TABLE 4 Overview of interviews and interviewees from 2023.

Name	Role	Boat	Sex	Age	Degree of VI	Pre-interview	Post-interview
Alf	Athlete	1	M	39	Blind	Yes	Yes
Fred	Athlete	2	M	29	Blind	Yes	Yes
Peter	Athlete	1	M	32	Blind	Yes	Yes
Lee	Athlete	1	M	34	Sighted	Yes	Yes
Micheal	Athlete	2	M	31	Sighted	Yes	Yes
Christa	Athlete	2	F	55	Sighted	No	Yes
Jasmine	Athlete	1	F	27	Sighted	Yes	Yes
Marla	Athlete	2	F	30	Sighted	Yes	Yes
Manu	Athlete	2	F	33	Visually impaired	Yes	No
Stefan	Organizer	-	M	54	Sighted	No	Yes

to this point, the question was how the actions at BAT Sailing could be improved in concrete terms. Particular consideration was given to reconciling the various interests of the members. To this end, the creation of an organizational chart was suggested. In the workshop, which was again held a few months after Kiel Week, work was again carried out in small groups of four people using the think-pair-share principle. This had proved successful in the previous workshop and was also requested by the participants. The guiding principles developed in the last workshop were used for this. These were to be reconsidered in light of the experiences of the previous Kiel Week. The group then had the task of creating an organizational chart for the further internal team organization. The scientists had put forward the idea for an organization chart in the preliminary discussion for the workshop with those responsible for the BAT Sailing team. The organization chart was intended to clarify the structure of the team and define and define responsibilities. The reason for this was the fact that, despite the team being divided into two boats with different goals, some team members had to use these structures flexibly for the purpose of helping out. In addition, there are tasks outside of active sailing, such as public relations work, which are carried out for the entire initiative regardless of the respective boat. Those responsible welcomed this idea for the organization of the workshop. However, in the discussion at the workshop itself, the participating athletes agreed that they would not need an organizational chart. This decision was preceded by a process of exchange that focused on the situation of two boats and their respective crews. The athletes came to the realization that they see themselves as one big team, regardless of any division into performance-oriented and participation-oriented. In connection with this, areas of responsibility outside of sailing, such as public relations and acquiring sponsors, were also formulated as areas that are fundamentally open to everyone.

3 Communication on and off the boat as reflected in the utilization-focused evaluation

The interviews were transcribed and subsequently analyzed in line with the pragmatic application of coding procedures from Grounded Theory (27, 28). By combining inductive and

deductive analytical steps, underlying structures within the data material were revealed. The following section draws on anchor quotes from the interviews to illustrate how communication within the BAT Sailing team has evolved over the course of three years. These anchor quotes represent particularly salient excerpts that highlight relevant phenomena and shed light on how members of the BAT Sailing team have responded to and dealt with them. The focus here is on the situation between sighted and blind athletes in particular. The interviews in the first year of the utilization-focused evaluation were characterized, among other things, by the fact that sighted athletes had to develop and learn many new components in communication. This is illustrated by the following example

Lee (2021 – first year): “What we’ve all learned - me in particular - is communication. I never go on a boat anymore without saying: “I’m getting on the boat.” That we have learned to always communicate everything, briefly and concisely, with simple sentences that are familiar. I’ve already transferred that to all the boats I sail on.”

It is interesting to note at this point that the sighted athlete not only uses this type of communication on the BAT boat, but also on other boats in regular (i.e., non-inclusive) sailing. This indicates a positive interpretation of these “new” communication practices, which are obviously seen as generally useful for sailing, as other interview passages also show. Many athletes without disabilities reflect on their own behavior and their previous communication in the context of sailing. This is stimulated by the experience of communication in the BAT Sailing Team. The resulting “new” communication is perceived as enriching, which is also shown by another quote from a female sighted athlete:

Christa (2021 – first year): “We all saw ourselves as very equal.. where everyone has their own needs. For most people, communication was very important, talking about everything.. especially because of the blind people involved. And I think the fact that we took the time to do this meant that we were really well coordinated, that our processes were really smooth if we always discussed everything in detail before and after training. And then I also realized that you don’t do it that way with sighted people.. there’s much more

non-verbal..just by seeing what the other person is doing, I know what they're up to. (...) What I'm getting at is that it helped us a lot to verbalize everything and work on our communication..which maybe other teams don't do. (...) I think that was a great learning gift."

The detailed verbalization obviously also leads to the athletes' thinking about how blind people experience the processes. This change of perspective can be seen as a beneficial learning process that goes beyond sailing (or sports). This is an important insight, especially for people without disabilities. In addition to the perspectives of sighted athletes described so far, the participating blind athletes also describe enriching processes. It is interesting to note that these are also located in the context of communication among the sighted athletes.

Alf (2021 – first year): "Our sighted people also learn from us - communication, for example - they talk differently. Non-verbal communication only with tactile possibilities - otherwise not possible with the blind. That's why they have to learn to talk more - but not endlessly. (...) We have developed certain commands."

The blind athlete mentions learning from the sighted athletes. He also describes that a pragmatic procedure was developed for this process, which was adapted to the needs of sailing. In this quote, a communicative distinction is also made between the "sighted" and "blind" groups. This is also evident elsewhere in the interviews:

Jasmin (2022 – second year): "It's really enriching for me, because they bring in completely new ideas that you don't really have on your radar as a sighted athlete. They do a lot of listening, they observe the sounds that they hear around them, the sounds that their own boat makes. They feel a lot. That's really enriching and really cool input. And for me, it's also an impetus to rethink how I've sailed as part of a team so far. (...) A lot is about non-verbal communication - and I find myself doing that again and again. When I go on a boat with blind people, it just doesn't work."

In this quote, here from a sighted athlete, a distinction is also made between the in-group (we, the sighted) and the out-group (the others, the blind). The language manifests this distinction. The evaluators were already familiar with this distinction from other contexts [e.g., inclusive handball; (30, 37)].

In the second year of the evaluation, communication was discussed less in the interviews. Obviously, the learning effect or the effect of being confronted with something new and unfamiliar gave way to a certain routine, which was also described:

Lee (2022 – second year): "So we always say windward or leeward and that also helps us the other way round in the team, so that everyone knows exactly what's going on."

The sighted athlete describes a sail-specific command that is effective for everyone. This also seems to economize the work in

the team. Another example relates to a different level of interpersonal communication:

Lee (2022 – second year): "I think what's important is simply that we've developed as a team. Especially with Cathy, she's really happy that we're learning the signs and that we also like to learn some nonsense signs that hardly anyone actually needs."

The sighted athlete describes the feelings of a sighted and deaf athlete, who is obviously pleased that she is not only learning sailing-specific commands as signs and the usual tone of voice, but also colloquial language and "trash". In general, it became clear in the first two years that communication between sighted and blind athletes is very important and that Cathy as a new team member has brought further development. This was also evident in the interviews in the third year, as this excerpt shows:

Michael (2023 – third year): "Boat 1 [the performance-oriented one of the two boats] was simply better in sporting terms. That's the team that is better coordinated and also has better communication with each other. In my opinion, this is also because they have a different communication culture and not so many obstacles to communication. In other words, they consciously take the time to talk to each other before they arrive at the camp. So when they came off the boat, they deliberately met briefly outside the camp, talked to each other about the day, what each individual was allowed to say, without interrupting the other, but they always have their rhythm, that they go through the boat from, I think, the front to the back, i.e., the positions in which they sit on board. In this order, they talk about what they found good, bad, moving, whatever, without interrupting or judging the other person. They talk about their own perceptions. And when they've finished, they talk about what needs to change."

The sighted athlete, who sailed in the second boat of the BAT Sailing Team during Kiel Week, describes here that the team of Boat 1 was more successful in sporting terms. He attributes this to increased clarity of communication within the team. This clarity in communication between the blind and sighted athletes was also achieved by the team setting up and ritualizing appropriate communication situations away from the sailing situation. This resulted in a higher level of commitment. This was practiced and led to sporting success, which was also visible. This culture of communication provided security and self-confidence and demonstrates the positive cooperation between athletes with and without disabilities. There was a clearer distribution of responsibilities and tasks, which led to better processes.

4 Discussion

4.1 Focusing the methodological approach

The presentation and reflection of the BAT Sailing project shows the potentials and limitations of the research methodological approach in the context of utilization-focused evaluation in a specific setting. By presenting selected evaluation results to the BAT-Sailing team, the scientists reflected on their own behaviors and used the workshops to critically deal with them. As shown, this led to an awareness of the many different needs and interests which were dealt with positively by the participants. At this point, it seems important to mention that the scientists perceived the close and personal exchange as always open-minded and cordial and felt that they were accepted by the team as part of the self-critical development that had been desired from the outset. However, this also meant that the researchers had to constantly reassure themselves of their role and, for example, did not take the lead in discussions during the workshops, which could have contradicted the actual user orientation. The scientists found it particularly interesting that Cathy, a deaf athlete, joined the team in the second year, but this did not lead to any further discussion of the topic (more on this below). The evaluation thus had a direct influence on practice and did not remain without consequences in the evaluators' sphere of knowledge (38), on the criticism of this phenomenon, which frequently occurs in evaluation practice). This process was made possible by the mutual commitment of researchers and actors from the BAT Sailing team to work together. The flexible structure of the evaluation was also beneficial here, allowing the needs of those being evaluated to be addressed. This was reflected, among other things, in the flexibility in the choice of topics for the workshops or the adjustments that were made during the work phases in the workshops. This was always geared towards the needs of the participants. In addition to the general approach in the evaluation, this shows a great openness to systematically address relevant topics of the users and thus the strong orientation towards the usefulness for the users or stakeholders (as those primarily affected by the results), which is an important quality criterion of utilization-focused evaluation (35). With regard to feasibility as a further quality criterion of utilization-focused evaluation (35), it can be stated that all processes of data collection and presentation met with the acceptance of the BAT-Sailing stakeholders. In addition, the evaluation met ethical standards, and the evaluators showed great consideration for the particularities of the field being researched. The quality criterion of correctness (35) was therefore met. In addition, the data collection and evaluation instruments used correspond to the quality criteria of empirical social research, which means that the quality criterion of accuracy (35) was fulfilled. The checklist of utilization-focused evaluation represents a suitable orientation framework for the implementation of the evaluation. However, adjustments or omissions were also made to components, for

example, the extensive concrete simulation of utilizations (Step 12 of the checklist) was omitted. Although the possible consequences of a concrete approach were repeatedly pointed out in advance in the discussions, no concrete work was carried out on fabricated hypothetical data and thus on possible, potential results of future surveys. This procedure once again shows the importance of trusting cooperation between both sides in such a form of evaluation. To build up such a relationship of trust, the researchers also need to know the respective characteristics and customs of the field as extensively and precisely as possible, which usually includes corresponding internal information and processes. Through previous experience from other areas of sport on the way to inclusive structures, the researchers were able to make transfers to sailing and, above all, anticipate barriers that the inclusive team encountered in interaction with their performance-oriented sailing environment. Due to the open exchange about this in the context of the interviews, but also apart from this, a corresponding relationship of trust was built up between the athletes and the researchers over the years. This bond cannot be taken for granted when initiating a similar project. In the project presented here, for example, it was only after several years that concrete interventions began to be carried out in practice, as this requires a great deal of trust on the part of the actors in the field. In general, the maxim that users have a right of veto on all ideas of the researchers was followed. Therefore, all research ideas and interests of the researchers were discussed with those responsible for the initiative and modified if necessary. This openness restricted the researchers in some places, but was unavoidable in the interests of the project and in retrospect can be seen as a strength of the project (23).

4.2 Focus on selected results

The findings on phenomena like “participation for all vs. professionalization” and “develop - apply “new’ communication - pass on” presented here must also be viewed in this light, namely as those phenomena that the BAT Sailing team considers relevant for their own practice and its further development. In conclusion, it can be said that the BAT Sailing Team has repeatedly committed itself to the goal of practicing inclusive and competitive sailing in recent years, while at the same time ensuring the highest possible level of participation for all (new) team members. The tensions and frictions that have arisen in the process are outlined above, along with possible solutions, such as the interest-based division into two boats with different aspirations for competitive success. Another solution, or rather a prerequisite for successful joint action, is the new communication. Although these are supposed peculiarities of communication between primarily sighted and blind people in the context of (performance-oriented) sailing, the athletes' descriptions suggest that these peculiarities can be profitably transferred to other (sporting) contexts. This is perhaps an area of strength

in the context of inclusive sailing for sighted and visually impaired people, from which other inclusion-oriented areas of sport could benefit and which should be given more attention by sports scientists. In any case, it should be noted that in the context of the present utilization-focused evaluation, the phenomenon of “new” communication was attributed a fundamental benefit for all participants, but especially – from the athletes’ point of view – those athletes without visual impairment benefited from the jointly developed communication. Compared to previous research findings, this benefit of inclusive sailing can therefore be attributed to the side of people without disabilities. To what extent exactly the types of communication developed further when a sighted and deaf athlete, Cathy, joined the team, remains largely open in this article. The main reason for this is the strict orientation towards the principles of the utilization-focused evaluation. Although practice may be more strongly influenced by a further development of communication under these conditions, the users (the athletes) do not currently attach excessive importance to this. The authors consider it important to emphasize that this can change and thus become the focus of further utilization-focused evaluation.

5 Conclusion

Research in the field of competition-oriented or competitive and at the same time inclusive sports remains rare. This should also be noted in the context of sailing. With regard to sailing together by sighted and blind or visually impaired people, this article has primarily achieved two things: Firstly, by providing detailed presentation and reflection of a utilization-focused evaluation, concrete possibilities for a qualitative, exploratory approach in a field that has been little researched have been offered. This approach requires time and mutual commitment – from both practitioners and researchers – but with a flexible and user-oriented design, it is a promising approach for critical further development, also for both sides. Second, the article provides concrete results regarding the supposedly necessary specific communication in such an inclusive team constellation. Other research contributions also attach particular importance to communication (14, 22). However, this article highlights that all athletes benefit from the communication developed jointly, but that athletes without impairments in particular find the transfer of these learnings to other areas (of sport) beneficial. Future research on inclusive and competitive sports should explore these benefits further.

Data availability statement

The original contributions presented in the study are included in the article/Supplementary Material, further inquiries can be directed to the corresponding author.

Ethics statement

The studies involving humans were approved by Ethikkommission der Universität Hamburg. The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study. Written informed consent was obtained from the individual(s) for the publication of any potentially identifiable images or data included in this article.

Author contributions

SG: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Writing – original draft, Writing – review & editing. FB: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Writing – original draft, Writing – review & editing. PB: Data curation, Formal analysis, Investigation, Visualization, Writing – review & editing. KS: Conceptualization, Data curation, Investigation, Writing – original draft. CK: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Writing – review & editing.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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From their eyes: Deaflympic athletes' and coaches' perspectives on mental training

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Introduction: Sport psychology research has largely overlooked athletes with hearing impairments competing in Deaflympic sports, the designated elite sporting movement for this population. This study therefore explored Deaflympic athletes' and coaches' perspectives on mental training in the elite Deaf sports.

Methods: A qualitative approach was used, involving six focus group interviews with 23 athletes ($M_{age} = 33.09$; 26.1% female) and four coaches from individual and team Deaf sports. Data were analyzed using reflexive thematic analysis.

Results: Three themes emerged: sport psychology consultation, the influence of visual orientation on psychological skills and demands, and Deaf sport culture and communication. While participants expressed strong interest in sport psychology, engagement with professionals was limited by accessibility issues, lack of sign language-fluent consultants, and structural barriers. Deaf athletes reported adapting some techniques to match their visual-spatial orientation and both advantages and challenges of visual reliance in sports. Distinct communication dynamics between native signers and spoken-language users within Deaf teams were also revealed.

Discussion: These findings highlight the importance of culturally sensitive sport psychology frameworks that support the needs and preferences of Deaflympic athletes and promote equitable access to effective mental training resources.

KEYWORDS

Deaf sport, Deaf culture, sign language, sport psychology, psychological skill training (PST)

Introduction

The elite sport movement for athletes with hearing impairments, the Deaflympic movement, offers a dedicated platform where this athlete group can compete without the auditory and communicative barriers they face in the hearing world. The competition rules in the Deaflympics closely mirror those of the Olympic Games. Yet, Deaflympic sport include key adaptations such as visual signals replacing auditory cues to meet the communication needs of athletes with hearing impairments (3, 4). The International Committee of Sports for the Deaf (ICSD), the governing body responsible for overseeing Deaf sports globally, regulates that athletes must have a hearing loss of at least 55 decibels in their better ear to compete. The use of hearing aids or cochlear implants (CI) is prohibited during competition to maintain fairness (ICSD, 2009). These regulations allow hard-of-hearing (HH) athletes, who can process some auditory information to a certain extent, to compete alongside athletes with profound hearing loss. In addition, this means that some athletes who rely on hearing aid technologies in their daily lives must adapt to a distinctly different sporting environment in which the use of such devices is not

permitted. Unlike the Paralympics, the Deaflympics do not classify athletes based on the degree of their disability, which allows all eligible Deaflympic athletes to compete together under the same conditions. This criterion results in a heterogeneous group of athletes competing in the Deaflympics (5, 6).

The heterogeneity among Deaflympic athletes is profound, shaped by a wide spectrum of hearing loss characteristics, communication preferences, and cultural identities (7, 8). First, they have varying degrees of hearing loss, ranging from complete deafness to severe and moderately severe levels, with some retaining residual hearing. Further, Deaflympic athletes experience different types, etiologies, and onsets of hearing impairment. These varying hearing impairments may influence Deaflympics athletes' communication preferences, psychological development and sport performance in an interplay with additional sociodemographic factors (9). For example, the age at which hearing loss occurs and the type of communication exposure during childhood can have a significant impact on cognitive development, particularly in areas such as language acquisition (10). Deaflympic athletes' diversity extends to their cultural identification. Deaf individuals (referred to with a capital "D") tend to use sign language as their primary mode of communication and view Deafness through a cultural and communicational lens. On the contrary, deaf individuals (referred to with a lowercase "d") may align more with the hearing world, relying on spoken language and lipreading. Many of the latter group use hearing aids technologies in their everyday lives (11, 12). Together, these factors create a complex and diverse population of athletes with unique strengths and challenges.

D/deaf individuals are often referred to as "people of the eye", a term that emphasizes the centrality of visual perception in their lives in contrast to hearing and deafblind individuals. This visual orientation is fundamental to how D/deaf individuals process information, engage in social interactions, and perceive the world around them (10, 13). Relying on their visual sense for communication, Deaf people primarily use sign language, a complex visual-spatial language. This visual reliance extends beyond linguistic communication to encompass broader social and cultural practices or "Deaf culture", which places significant importance on visual experiences and social cues (14, 15). Consequently, the concept "people of the eye" not only underscores the adaptive strategies that Deaf individuals develop to navigate their environments but also reinforces the distinct cultural identity centered on visual communication (12, 14, 16). Moreover, visual-spatial orientation influences various cognitive functions. For instance, research suggests that Deaf individuals exhibit some enhanced visual-spatial abilities compared to their hearing peers (17, 18). In the realm of sports, competitive Deaf athletes have demonstrated shorter reaction times to visual stimuli than hearing athletes (5). These and other capabilities associated with visual-spatial orientation are often referred to as "Deaf gains" (17). These gains are celebrated in Deaf culture, which rejects the clinical view of Deafness as a physical disability.

Despite the distinct sociocultural characteristics and communication needs of Deaflympic athletes, research in sport psychology concerning this population has remained limited (19). Further, there are no reliable quantitative sport

psychological diagnostic instruments available for this population (20). Consequently, little is known about the application of sport psychology practices and lived experiences of DHH athletes in Deaflympic sports (21). The persistent research gaps in sport psychology within Deaf sports hinder the development of evidence-based interventions adapted to the diverse communication needs of athletes with hearing impairments. In response to these research gaps, this study aims to explore Deaflympic athletes' and coaches' perspective on sport psychology practices. Gaining insights into their views and experiences would enable better understanding of the necessary framework for sport psychology consultation adapted to their needs and preferences. Using a qualitative research methodology, this study seeks to effectively and comprehensively gather data on a variety of topics relevant to understanding the role that sport psychology plays in Deaflympic sport. This study was designed to examine how Deaflympic athletes perceive the role of mental training in shaping their athletic careers and to explore their application of psychological skills and techniques. Further, the study examines athletes' and coaches' views on the potential impacts of D/deafness on athletic performance. Furthermore, this research aims to identify factors, athletes and coaches believe could contribute to the success of mental training in Deaf sports. Additionally, the study explores the aspects that Deaflympic athletes consider crucial for effective collaboration and communication among themselves and with hearing professionals.

Method

Research paradigm and study design

A qualitative research approach was adopted due to the exploratory nature of the study and its goal of providing a comprehensive representation of the lived experiences and perspectives of an underrepresented group of D/deaf and hard-of-hearing (DHH) athletes on mental training. Qualitative research suits Deaf Studies as it captures lived experiences and cultural nuances while allowing the creation of "Deaf space", where sign language and visual-oriented interactions can foster authentic, community-centered research (22). Focus group interviews were used for data collection, as this methodology facilitates generating insights into and under-researched phenomena and populations (23). A critical realist philosophical framework was adopted in the construction of the study design, the formulation of the research questions and the data analysis (24). Critical realism aims to generate explanations about the investigated research topic and its underlying mechanism (25). It transcends paradigmatic debates that limit research impact by bridging realist and constructivist-interpretivist approaches, acknowledging the interaction between enduring "real" social structures and the processes by which individuals experience and understand the world (26, 27). Thus, it optimally facilitates the exploration of DHH athletes' unexplored subjective experiences and perspectives on mental training in Deaflympic sports, even as they are interpreted within the constraints and influences of social structures.

Situating the authors

Our research team comprises three authors, including one woman and two men, all of whom have substantial expertise in consulting with athletes and teams in competitive sports. The first author (AM-G) specializes in the psychological aspects of Deaf sports, combining his research with practical work and possessing a basic proficiency in German Sign Language (DGS). The second author (AM-E) focuses on the psychological dimensions of performance in Olympic sports, with additional expertise in cultural sport psychology. The third author (RS) is a former Paralympic athlete with extensive research experience in disability and Deaf sports spanning several decades. It is important to note that none of the members of the research team are DHH. To address this, we engaged in extensive consultations with DHH Deaf sports stakeholders and researchers prior to conducting this study. In addition, this study is part of a broader research project investigating sport psychology practices within the population of elite athletes with hearing impairments, in continuous collaboration with the German Deaf Sport Association (DGSV).

Participants

Athletes from the German Deaf Sport Association (DGSV), who meet the participation criteria for the Deaflympics, and their coaches, were eligible for this study. The DGSV manages 16 elite sports departments, including around 160 Deaflympic athletes. Six of these departments were selected for the study. Both individual (e.g., tennis) and team sports (e.g., handball) were included to ensure representativeness across sport types. Additionally, the selected departments were chosen to reflect the diversity in athletes' communication methods, as well as the degrees and types of hearing impairment. The final sample included 23 active elite DHH athletes ($M_{\text{age}} = 33.09$; $SD = 9.47$), representing approximately 14.3% of the total Deaflympic athlete population within the DGSV. Four DGSV coaches (25% female) also participated in the study. All athletes exhibited a hearing loss of at least 55 dB ($M = 91.40$ dB, $SD = 15.76$) in the better ear (see Table 1). The majority of them were born with a hearing impairment to hearing parents and had congenital hearing loss. All of them train and compete in mainstream hearing sports in addition to their training and participation in competitive Deaf sports. Nearly all athletes (91.3%, $n = 21$) had experience competing internationally, and the majority (82.6%, $n = 19$) had won medals in Deaf sports at events such as the Deaf European and World Championships or the Deaflympics. The coaches' sample ($M_{\text{age}} = 51.75$, $SD = 1.26$) included one Deaf participant who was a native sign language user and one HH participant. The other two coaches were hearing. The average coaching experience was 15.5 years ($SD = 9.71$) in Deaf sports and 18.5 years ($SD = 12.40$) in mainstream hearing sports.

TABLE 1 Sociodemographic characteristics of participants (athletes).

Sample characteristic		n	%
Variable	Category		
Gender			
	Female	6	26.1
	Male	17	73.9
Hearing loss severity ^a			
	Severe (65 to < 85 dB)	6	27.3
	Profound (85 to < 95 dB)	5	22.7
	Complete (95 dB or greater)	11	50
Hearing loss onset			
	Congenital	16	72.7
	Postnatal	6	27.3
Parents with hearing loss			
	Yes	6	73.9
	No	17	26.1
Use hearing aid technologies			
	Yes	8	34.8
	No	15	65.2
Sports context			
	Team sports	6	26.1
	Individual sports	17	73.9
Worked with sport psychologist			
	Yes	3	13
	No	20	87

N = 23.

^aIn the better ear.

Procedure

The study was reviewed and approved by Leipzig University's ethics advisory. The study was conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study. Recruitment took place in February and March 2021 in collaboration with the DGSV. The DGSV provided explanations about the study and the purpose of the focus group interviews to all its national sport divisions, inviting interested participants to come forward. After receiving a list of interested divisions, the research team initially selected five divisions for the study. However, as data saturation was not achieved for all interview guide topics, a sixth focus group interview was subsequently planned and conducted. Consistent with Braun and Clarke (28) we did not treat saturation as a strict threshold of informational redundancy, but instead evaluated the need for additional data based on whether key interview topics had been sufficiently explored and whether new, relevant patterns were still emerging. The selection process aimed to include DHH athletes from both individual and team sports, reflecting the diversity of the Deaflympic athlete population. Each interview included four to six athletes, and in four of the interviews, the national team coaches participated alongside the athletes. One interview was conducted in person during a national division training camp, while the others were conducted via the University Leipzig's video conference platform videoconference platform BigBlueButton (29). Two sign

language interpreters provided simultaneous interpretation for all interviews. The interviews were carried out by the first and third authors between June and August 2021. Before each interview, athletes and coaches were provided with comprehensive information about the study's aims, procedures, and data protection policies. The interviews lasted between 67 and 93 min ($M = 84.26$, $SD = 9.05$). Following the interviews, participants completed a brief, self-constructed questionnaire that gathered sociodemographic data, information on sports participation, and details regarding their hearing status.

Interview guide

A semi-structured focus group interview guide was developed following Hennik and colleagues (30). The questions were designed to encourage discussion and to gather in-depth comprehensive information on athletes' and coaches' familiarity with applied sport psychology, (e.g., What do you understand by the term "sport psychology"?), experiences with the implementation of psychological skills and techniques (e.g., sometimes athletes feel tension during competition. How do you deal with this tension?), and communication preferences with teammates, coaches and sport psychology practitioners (e.g., How should Deaflympic athletes and hearing sports psychologists communicate with each other?). In addition, the participants were asked to share their interpretations of a finding from previous research within the overall research project (18), which suggests that Deaflympic athletes may use relaxation techniques less frequently than other commonly employed strategies. Participants were encouraged to discuss and share their diverse opinions and experiences in response to each question. Follow-up questions and probes were used to obtain more detailed insights.

The guide was iteratively adapted after each focus group interview as new topics emerged that required further exploration. The adapted guide included questions about the transition of athletes using hearing aid devices from hearing in everyday life and sports to participating in sport without hearing aids during official Deaf sport competitions. An example of such a question is, "A CI user mentioned that without the CI, she is 'focused differently'. How does one's focus change without a CI during competitions?". Other topics included the potential psychological influence of D/deafness on performance (e.g., "Some athletes have reported that their sense of touch becomes very sensitive when they close their eyes. What role does this play in bowling?") and the implications of visual orientation and communication on psychological skills (e.g., "Some players talk to themselves during a game or competition to motivate or calm themselves. How does this work when someone uses sign language?").

Data analysis

The focus group interview data was first anonymized and transcribed verbatim. Following the critical realism paradigm, a six-phase reflexive thematic analysis (TA) was conducted according to the guidelines of Braun and Clarke (2). MAXQDA

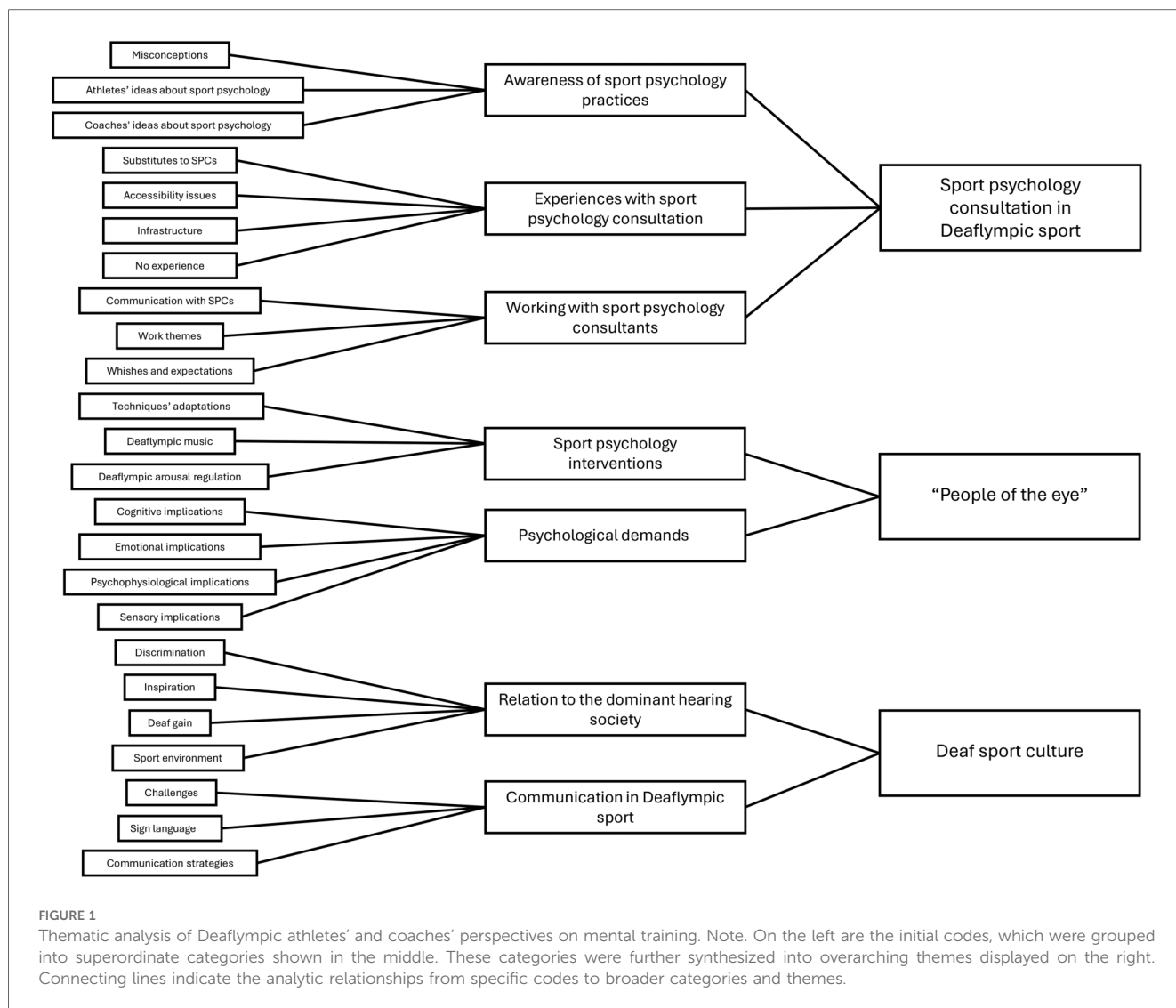
(31) was used for data analysis. In the initial phase, the dataset was read and re-read to ensure familiarity and thorough understanding. During this process, the first and third authors made digital notes in MAXQDA, reflecting on significant phenomena and gathering insights for subsequent analysis phases. The dataset was then inductively coded, with text segments labeled to explore participants' perspectives and subjective experiences. Following Braun and Clarke (2), coding was understood as an active and interpretative process. It was led by the research questions and shaped by reflexive insight, with codes developed iteratively through close engagement with the data. In the third phase, the first author tentatively organized the coded segments into broader themes and subthemes related to the research questions. This thematic map underwent several rounds of review and refinement to optimally represent the athletes' perspectives on the relevant issues. The third author acted as a "critical friend" in this process, providing an external perspective on the allocation of raw data into codes and themes (32). The themes represented different dimensions related to the research questions, encompassing each diverse opinions, ideas, and experiences on a broader topic. These themes guided the analysis of participants' perceptions of mental training in Deaflympic sports.

Results

The process of assigning codes to superordinate categories and overarching themes was guided by participants' responses. Initially, 899 codes were generated, reflecting participants' knowledge, perspectives, and experiences regarding applied sport psychology practices in Deaflympic sports. These codes were then grouped into 7 superordinate categories, which were further organized into three overarching themes (see Figure 1). The first theme, "Sport psychology consultation in Deaf sports", captures participants' perspectives on the applicability of sport psychology consultation in Deaflympic sports. The second theme, "People of the Eye", represents participants' views on how D/deafness and its associated visual orientation influence sports performance and mental training. The third theme, "Deaf sports culture", encompasses participants' reflections on the unique characteristics of Deaf sports culture, its relationship with the dominant hearing society, and communication practices in Deaflympic sports.

Sport psychology consultation in Deaflympic sport

A total of 251 codes were identified regarding participants' perspectives on sport psychology consultation in Deaflympic sports. These were classified into three superordinate categories: Awareness of sport psychology practices, Experiences with sport psychology consultation, and Working with SPCs.



Awareness of sport psychology practices

Most participants demonstrated awareness of sport psychology, recognizing various psychological interventions and their potential benefits. One participant explained when asked what they associate with the field of sport psychology: “Sports psychology is a very large field. It’s not just about one thing; it involves performance, dealing with pressure, understanding yourself, how to handle frustration, how to manage it, or if you get injured, how to cope with that”. Many participants expressed a strong interest in working with SPCs, outlining clear expectations regarding the aspects they wished to develop, encompassing various areas of applied sport psychology. However, some participants perceived sport psychology as primarily catering to hearing athletes. One participant remarked: “My experience is simply that, for hearing people, if you learn a lot from psychologists at the age of 16, 17, or 18, it is certainly a very valuable and important asset”. Additionally, some athletes indicated a lack of awareness among their peers and coaches about the benefits of sport psychology services in Deaflympic sports. In addition, misconceptions about sport psychology could be detected in some cases. For example,

one participant believed that performance improvements require starting psychological training at a young age.

Experiences with sport psychology consultation

Despite widespread recognition of the benefits of sport psychology and interest in engaging in consultation, only one participant reported having ever received sport psychology support, and even this was in the context of hearing sports. When participants were asked about the reasons for the lack of SPC engagement in Deaflympic sports, they identified accessibility as a key barrier. First, athletes reported insufficient support provided from national organizations and local clubs, as illustrated by one participant: “There are also very few opportunities for sports psychologists, which is why I don’t have one. I reflect a lot on my own, I spend a lot of time in self-reflection, and I basically train myself mentally”. In addition, coaches confirmed the challenges their athletes faced in accessing sport psychology services and described similar difficulties for themselves: “I want to develop as a coach so that I can delegate

areas of responsibility to specialists. I am also looking for someone in the field (mental training) who can support me in this area or help improve things”. Furthermore, a significant issue raised by Deaf participants was the lack of sport psychologists who are native sign language users. One participant emphasized the language barrier: “I know a few hearing athletes who go to a sports psychologist, but of course, for me, that would be an important factor—the person would need to know sign language”.

Due to the absence of engagement with SPCs, Deaflympic athletes often relied on alternative forms of support, such as self-reflection or seeking advice from family and friends. One participant described how their partner acted as an informal SPC:

Family can somewhat take on the role of a sports psychologist. For example, my boyfriend was also at a boarding school for a long time and acted as my sports psychologist in many ways... That was really important to me. Now that he's no longer at the sports boarding school, I notice how much that affects me. So, I've realized that family can almost take on the role of a sports psychologist.

Coaches also attempted to fill the gap left by the lack of professional sport psychology services, though their efforts were limited by their lack of training and resources. One coach expressed: “That's why I said I wouldn't be opposed to professional support. I try to use my amateur knowledge to do some sport-psychological things to give the guys a bit of a push...I feel like that works well”. Another coach expressed frustration over financial constraints that prevent personalized support for his athletes.

Working with sport psychology consultants

Participants identified various themes, skills, and techniques they wished to work on with SPCs, either as individual athletes working one-on-one with an SPC or as teams engaging in group consultations. Most of these areas were not specific to Deaf sports but reflected general characteristics of competitive sports. One athlete shared: “I often feel like I'm stuck at a certain point in my training and doubt myself too much, thinking that I can't do it. That's why I've now decided to find a sports psychologist—to learn how to be less self-critical”. However, some consultation goals were unique to the context of Deaf sports. For example, one HH team sports athlete, who is a native spoken language user, expressed the need for SPCs to assist with team communication:

When I communicate with a Deaf person, I often feel that I am misunderstood. What I want to say doesn't always come across the way I intend it... If someone were to do this for the entire team, then maybe there would also be tips on how to improve communication among each other...I would expect the psychologist to help with this aspect of communication.

Another topic raised by participants was the challenge of transitioning between daily life and participation in competitive Deaf sports, particularly given the financial constraints that are

prevalent in Deaf sports. Additionally, some Deaf athletes expressed the wish for hearing SPCs to act as a bridge between them and the hearing world: “I believe that deaf people always face many barriers in communication with hearing people, and the sports psychologist should perhaps also take that into account in some way”.

Participants also discussed essential factors for establishing an effective working relationship with SPCs, with communication emerging as a central concern. For some Deaf athletes, the most crucial factor was that the SPC could communicate in sign language: “A hearing person—how is communication supposed to work? Should we write everything down on paper and keep passing it back and forth? No, it has to be sign language”. For some, the SPC's hearing status was irrelevant as long as they could communicate fluently in sign language. Others, however, maintained that only a Deaf SPC could possess the cultural and experiential insight necessary to fully grasp their lived experiences: “If a hearing sports psychologist is working in the Deaf community, they don't really know the world of deaf people. It would have to be a deaf sports psychologist who can understand and empathize with the world of Deaf people”. While some Deaf athletes were sceptical about using sign language interpreters for communication (e.g., “Then it becomes a three-person setup. That can work, but I imagine it to be difficult”), others viewed it more positively and reported good experiences with interpreters. In contrast to native signers, HH athletes expressed a preference for working with SPCs who were either hearing or HH individuals proficient in spoken language, as most of them do not use sign language.

As there were neither D/deaf SPCs nor SPCs who were native sign language users in Germany at the time of data collection, participants were asked how hearing SPCs could establish effective working relationships with DHH athletes and Deaf teams beyond the use of sign language interpretation. First, participants suggested that some SPCs could acquire sign language skills through long-term collaboration with the DGSV, as some association coaches had done. Additionally, the importance of SPCs gaining a deeper understanding of the lived experiences of DHH individuals was emphasized. One participant noted: “They really need to immerse themselves in the life of deaf people. The psychologist needs to understand the life of deaf individuals, and then working with interpreters would be manageable”. Furthermore, participants identified several key factors crucial for establishing trust and rapport with DHH athletes. These included the SPCs' interpersonal skills, respect for and enthusiasm toward Deaf sport culture, communication at eye level, and a genuine commitment to understanding the experiences of Deaf athletes. One participant explained:

It really comes down to trust. I think any deaf person can communicate with a hearing person, whether visually or through spoken language—that doesn't really matter. What's important is that they're on the same page, that the hearing person can really put themselves in the deaf person's shoes and understand them. For example, I remember a coach back then, he just really got deaf people...If we had psychologists

like that—especially hearing ones—then it wouldn't be a problem at all. But if you have a psychologist who thinks they're above you, that would break trust. It's really all about trust. In that case, it would probably be better to have a deaf or hard-of-hearing psychologist, or at least someone who's completely fluent in sign language. So, in the end, it's not just about whether they're a coach or a psychologist—it's about the kind of person they are.

People of the eye

392 codes were generated related to athletes' reflections on the influence of visual orientation and/or D/deafness on mental training and sports performance. Participants' reflections were categorized into two superordinate themes: Sport psychology interventions and Psychological demands.

Sport psychology interventions

The athletes described the use of various psychological skills and techniques, similar to those employed by Paralympic and Olympic athletes. For example, one athlete described their use of imagery training: "I try to internalize these technical processes...I refine these movement sequences and improve them visually... Refine the technique again, and go through it in my head once more". Yet, their descriptions highlighted specific adaptations and nuances that emerged in relation to D/deafness in the application of these techniques.

Self-talk

Sign language is a visual language, making it challenging for native signers to use it discreetly during competitions. One athlete explained: "It is uncomfortable because others can look too, so I think I wouldn't do that either because I feel like everyone sees it and is looking at me". To adapt to the visual modality of sign language, Deaf athletes engage in inner dialogues similar to those of hearing athletes. Some described these inner dialogues as visualizing themselves signing, while others characterized them as "images" or "thoughts". One athlete noted: "I don't think in signs. I think, I believe, I think in images, in pictures. For example, by recalling pictures of how I could be relaxed". Another way native signers conduct self-talk in sign language was by finding a private place to sign without being noticed:

When I'm really under pressure, I very often go to the bathroom, for example—so, into a room where no one can see me. Then I do sign to myself in the mirror and say: That was really bad just now. And I sign it to myself there. Then I feel like I've let it out, and I have a positive feeling afterward. That helps me—I've always done that.

Arousal regulation

Many arousal regulation techniques are dependent on auditory cues, such as music. Athletes who use hearing aids reported

utilizing music for relaxation and activation purposes, similar to Paralympic and Olympic athletes:

Before a competition or a game, I always listen to music. Yeah, sure, I'm deaf, that's true, but I turn it up really loud. If I didn't have it, I'd play poorly—I already know that. And the music helps me...I use music that's very bass-heavy. I need the bass when I warm up. Before, I always used headphones or my hearing aids to play the music through, and that also boosts my motivation.

In contrast, Deaflympic athletes not using hearing aid technologies reported that the motivating and relaxing effects of music are not available to them. One participant explained: "Well, with hearing people, I often see that they relax by listening to music. But of course, that's not really an option for me". Instead, athletes reported utilizing various alternative relaxation methods. Some described using visual stimuli and positive memories, such as focusing on familiar objects or recalling comforting images, to facilitate relaxation. Others mentioned engaging in tactile stimulation, such as holding certain objects in their hands applying pressure. Some also highlighted the use of taste-based stimuli, such as sucking on a piece of chocolate, as a means of relaxation. Some athletes highlighted movement as a strategy (e.g., "I also need movement, so I take another lap around the competition venue, try to go outside for a few minutes, and then really let go of these thoughts mentally"). Additionally, several participants emphasized the role of interpersonal communication, noting that engaging with teammates and coaches during competition contributed to their ability to regulate arousal levels.

As noted in the method section, relaxation techniques were found to be used less frequently than other psychological strategies among Deaf athletes (18). Reflecting on this finding, one athlete reported receiving various inputs from different coaches, but none proved effective. Other athletes shared the observation that relaxation techniques were not systematically integrated into their training: "Maybe that's not being trained. the coach doesn't teach the athletes how to control their breathing, focus on themselves, and relax. I could imagine that there is no awareness of this among the coaches". One coach echoed these concerns, emphasizing the challenges of implementing relaxation techniques in a group with diverse communication needs.

Imagery

Similar to relaxation techniques, many imagery techniques are traditionally guided with closed eyes and rely on auditory cues, making them less accessible to Deaf signers. One coach described how they adapted an imagery technique to be inclusive for all players:

When we arrive in a foreign country, we form a circle already at the airport with the idea of imagining that we will form the same circle again when we fly back—with the trophy in hand. Deaf players are even more receptive to this. Then, I ask the players to briefly close their eyes for a few seconds, about ten seconds. I give them a time frame and tell them in advance

what they should visualize. Then they close their eyes, and at some point, I give a signal—this can be a clap, knocking on the floor—they feel it immediately, and then it's over.

Psychological demands

The participants expressed diverse perspectives on how D/deafness and reliance on visual processing shape psychological demands during training and competition. These differences largely stemmed from variations in auditory processing abilities among athletes, leading to distinct lived experiences within the Deaflympic environment. In particular, two subgroups of Deaflympic athletes emerged. The first group includes athletes who do not use hearing aids and are therefore accustomed to navigating the world without auditory input. The second group consists of athletes who rely on auditory information in their daily lives with the assistance of hearing aids. For them, the Deaflympic environment represents a significant shift, as the prohibition of hearing aids in competition forces them to adapt to a fully non-auditory setting, which differs from their usual communication and sensory experiences.

Stress and nervousness

Some athletes who rely on sign language reported experiencing heightened stress due to their visual orientation:

I'm not relaxed at all, I'm actually always on high alert. Because I take in everything with my eyes. My energy is constantly flowing. Hearing people have the auditory sense and can close their eyes to relax—that doesn't work for me. So, I'm basically always in a state of alertness. There's really nothing truly relaxing for me. I would say I constantly need energy.

A coach reflects on the increase in stress levels among HH and deaf athletes while competing in the Deaflympics without the use of their hearing aids and the resulting changes in their communication methods: "The sports medical department always points out that our players have incredibly high muscle tension compared to other to hearing athletes. I find that interesting, but I can't quite explain where that comes from". Another coach reflected on this phenomenon and described changes in their communication means:

You can see a certain helplessness in the players at first. They have to assess the situation and figure out what's happening. As soon as the hearing aid is turned off, especially with CI users, you notice that they become more restless. They seem more stressed at first. In general, the players have to make a much greater effort. They need to use their peripheral vision more extensively. They have to find the right balance between looking at the bench, their teammates, and the overall game. Overall, everything becomes more stressful, and that's why they feel the need to touch someone—to physically feel another person in order to regain a sense of presence in their surroundings.

However, other participants did not perceive any direct impact of visual orientation on stress levels, instead attributing stress to individual personality traits rather than D/deafness.

Sense compensation

Some participants described how, in addition to their reliance on visual perception, their other senses become more attuned during sports activities and competitions:

We are visual people. Sure, we don't have the sense of hearing, but we perceive a lot more visually...When I close my eyes, I become extremely tactile-sensitive, much more aware of sensations. Our lack of hearing is simply compensated for by our other senses. I suddenly become much more aware of how something tickles my feet, and when I close my eyes, I notice: "Oh no, now it's tingling here and there".

This heightened sensitivity was viewed by some as an advantage, particularly in relation to bodily awareness and responsiveness. Others, however, described it as a challenge, as external stimuli could become overwhelming and distracting. One participant explained:

When I take the (bowling)ball in my hand and concentrate, and then, on the lane next to me, for example, someone suddenly drops a ball—it's not just a visual distraction for us. There's also the vibration, the disturbance on the ground. I was just focused, and suddenly, a ball drops next to me on the lane. Everything that enters our field of vision can be distracting. A camera, for example, or if someone waves a flag, or anything else—it can all be distracting.

Concentration and attention

As illustrated in the previous quote, participants noted that their visual orientation could impact their ability to concentrate, sometimes impairing performance. One athlete elaborated: "We, as deaf individuals, we are so visually oriented that we immediately notice when something moves—a light turning on or off, or people moving. That can really be distracting and can also affect my performance". A potential explanation for this phenomenon, as provided by participants, is the increased attentional demands associated with relying exclusively on visual cues. Unlike hearing athletes, who can orient themselves using auditory cues, such as the sound of a ball moving across the grass, DHH athletes must constantly scan their surroundings, which requires greater cognitive effort. One participant described this heightened attentional demand:

Actually, you could say that you hear with your eyes. You have to take in a lot of impressions and be even more attentive because verbal cues are rare. Most people don't hear them, so you have to see what's happening. If someone announces something, you absolutely have to notice it visually. That's why you have to be much more alert. For example, if you look to the left and your teammate calls something out, a hearing person would notice it. But for us, we have to constantly look left and right to really catch everything.

However, some participants saw their reliance on visual information as an advantage, particularly when interpreting movement and game dynamics: "Since we are visual people we

might perceive the game differently...I would say that sometimes I can read the game better than other players because I can clearly see how the opponents are moving”.

HH and deaf athletes relying on hearing aids in their everyday life reported difficulties in adapting to the transition from auditory referee cues (e.g., whistles) in hearing sports to visual cues (e.g., flags) used in the Deaflympics. This shift requires conscious effort and sometimes leads to delayed reactions in their experience. Further, some athletes described they sense a qualitative shift in their focus when using or not using hearing aids, although they struggled to articulate exactly how it changes. Others reported no difference in the level or quality of concentration.

Emotions

HH and deaf athletes relying on hearing aids also shared the experience that the inability to hear during competition affects their sense of presence and connection to the sporting environment:

I am HH, and when I play football with hearing players, I always use my hearing aids. I play with them and can hear everything: the fans, the crowd and everything else. I'm used to it. But when I switch to Deaf football and turn off my hearing aids, I sometimes feel a sense of emptiness. I can still see the spectators and their facial expressions, but I can't hear them anymore. It's a completely different feeling, and I notice that something is missing. At the same time, I still perceive emotions very strongly, because I see facial expressions and how people are approaching me. It's almost like images rushing toward me—it's a very different perception.

Deaf sport culture

The final theme in the analysis encompassed participants' perspectives on cultural aspects of Deaf sports. A total of 121 codes were generated, which were categorized into two overarching areas: Relationship with the dominant hearing society and Communication in Deaflympic sports.

Relation to the dominant hearing society

Participants frequently compared their experiences in hearing sports with those in Deaf sports. Some Deaflympic athletes described facing discrimination in hearing sports, and even, in rare cases, within Deaflympic settings from hearing coaches and professionals. These experiences included perceptions that DHH athletes were not as competent as their hearing counterparts, as well as a general lack of awareness or effort from professionals to accommodate their needs. Jenny (pseudonym), for example, reflected on how her hearing coach and training partners assumed that sport psychology services were only relevant for hearing athletes: “I had a mental coach when I trained with hearing people...I remember that, in the past, whenever I went to mental training, they would always say: ‘Oh no, we can't practice with Jenny because she's deaf”

However, not all experiences with hearing sports were negative. Some participants, including both hearing aid users and sign language users, reported positive engagement with hearing professionals and teams.

Many emphasized that their participation in Deaflympic sports provides them with an environment where their communication needs, hearing status, and Deaf cultural identity are recognized and respected. One participant described the unique atmosphere within their Deaf national team:

When we're in the locker room, the hearing aids are turned off, and the CIs are taken out, so everything is communicated solely through sign language—lip reading, sign language—and at that point, we are all on the same level, so to speak. That's also the essence of Deaf teams...And I think in our deaf national team, or in general, it is a must to sign or at least to make an effort to communicate with your hands.

Despite this sense of inclusion, some athletes highlighted tensions arising from differences in communication preferences and hearing abilities. For instance, an athlete who uses CI noted:

Thanks to my CI, I don't have any language barriers when communicating with hearing people. For Deaf people who rely on sign language, communicating in the outside world is, of course, much more challenging. That's why the Deaflympics exist—a community where deaf people come together and participate in activities. In those moments, I sometimes actually feel like an outsider.

Communication in Deaflympic sport

Participants in team sports reported that the majority of their teammates rely on hearing aid technologies and have limited or no proficiency in sign language. This generational shift, due to advancements in hearing aid technologies, has led to tensions in Deaf teams regarding communication. On the one hand, these teams are part of Deaf sports, which traditionally prioritize sign language as the primary means of communication. On the other hand, with fewer athletes now relying on sign language, team communication strategies must evolve to accommodate a diverse linguistic landscape. A 40-year-old athlete reflected on these changes over time:

When I started, I was one of only two-three people who were HH. The rest were deaf, so I was practically an outsider because everyone communicated only in sign language. I could only talk to one or two others because it was difficult to communicate with the deaf players. But they always tried to include me so that I could learn. Over time, I picked up more sign language. Over time, people started speaking more. I think now there are one or two people in the team who know sign language, but the rest don't. And then we all come together and are supposed to communicate, even though almost no one knows sign language.

Athletes who rely on spoken language in their daily lives reported the necessity of developing alternative communication

strategies while competing in Deaf sports alongside Deaf athletes. Given the absence of auditory cues, they have to adapt their communication methods dynamically during both training and competition:

In hearing teams, many people say that I work much more with physical contact. For example, when I'm in the block, I use my hands in the circle so that I know where my teammate is. Since I can't rely on sounds as well, like when someone is behind me, I prefer to keep a hand in contact with the circle, so I always know where they are. And specifically in Deaf sports, I've realized that I automatically rely much more on my eyes—especially when it comes to communication with other players. Also, with the coach, I have to actively seek eye contact. And when calling out plays, I need to visually confirm that everyone has understood what I announced... As a central player in a Deaf team, I have the extra responsibility to make sure everyone gets the message and gives me a quick visual confirmation.

Deaf teams develop various strategies to foster effective communication and ensure all players feel included. First, many athletes reported adapting their communication style based on their teammates' preferences and abilities "You naturally notice which form of communication works and adapt to it. If it works well with Person A, that doesn't automatically mean it will work the same way with Person B". Additionally, some teams developed a unified signing system on the pitch, coordinated with the coach, to streamline communication during games: "Sign language alone isn't enough...You need short, clear signals so that everyone immediately understands what's meant. Full sentences don't work in that setting. Just like when you shout something on the field, you shorten it—it's the same with signs". Another widely used strategy involved memorizing and coordinating plays before games. Some Deaf athletes reported that they spent extra time learning their teammates' playing styles so they could anticipate their movements without needing verbal confirmation. Body posture was also highlighted as a crucial nonverbal communication tool: "Whether you try to communicate with signs or gestures, or simply use body language—often, your overall presence already helps a lot. For example, if you want to say, "Pick up the pace!", body posture can be really important". Beyond specific strategies, participants emphasized that fostering familiarity and trust within the team was fundamental to effective communication and overall team cohesion. Establishing strong interpersonal connections allowed players to navigate communication challenges more effectively and create a sense of unity on and off the field.

Discussion

The findings of this study provide new insights into the perspectives of Deaflympic athletes and coaches on mental training. They reveal key aspects of sport psychology consultation in Deaflympic sports, including the influence of visual-spatial

orientation on psychological skills and demands, as well as the role of Deaf sport culture in shaping athletes' experiences.

Sport psychology consultation in Deaflympic sport

While Deaflympic athletes demonstrate both an awareness of and a strong interest in sport psychology, their engagement with professional support remains highly limited. Both athletes and coaches identify accessibility barriers and the lack of culturally adapted services as the primary obstacles to utilizing sport psychology services in Deaflympic sports. This aligns with the current state of sport psychology in Germany, where no DHH SPCs are native sign language users (1). However, the absence of SPCs fluent in sign language does not fully explain the lack of psychological support available to HH and deaf athletes who rely on spoken language with the assistance of hearing aids. These athletes expressed a preference for working with SPCs who are either hearing or fluent in spoken language. For them, financial constraints and the limited federal support for Deaflympic sports likely present more significant barriers (3).

For Deaf athletes, however, communication in sign language is a crucial factor in addition to financial constraints when accessing effective psychological support. These athletes prefer working with SPCs who are proficient in sign language and familiar with the cultural and perceptual realities of Deaf individuals. This preference aligns with research emphasizing that effective psychological support relies on culturally competent professionals who understand the lived experiences of their clients (33, 34). The importance of cultural competence in sport psychology is particularly recognized in work with culturally marginalized communities and athletes with physical disabilities (35, 36). For Deaf athletes, trust is built not only through sign language communication but also through an SPC's willingness and ability to engage with Deaf culture and understand the broader sociocultural realities they navigate (37).

To bridge the linguistic gap between Deaf athletes and hearing professionals, sign language interpretation is a viable option for some but not for others. These findings align with research on the preferred communication methods of DHH individuals in clinical settings, which found that approximately half of native sign language users prefer to communicate through sign language interpreters. Others, however, prefer direct communication with professionals who can sign, while a smaller group is willing to communicate with professionals using spoken language, provided they are familiar with Deaf sociocultural issues (38). The scepticism some Deaf participants expressed toward interpretation is consistent with existing literature, which suggests that sign language interpretation does not always fully meet the needs of Deaf clients. Interpretation involves a triadic setting—where communication occurs between the client, the interpreter, and the consultant—which can lead to misunderstandings, misdiagnoses, and even mistreatment, particularly in medical and psychological services (39, 40). This concern is even more pronounced among a subgroup of Deaflympic athletes who cannot envision working with an SPC unless the consultant is D/deaf themselves.

Apart from accessibility challenges, some Deaflympic athletes view sport psychology as primarily designed for hearing athletes, and misconceptions about its relevance persist. Such attitudes may contribute to the continued stagnation of sport psychology services in Deaf sports (1, 41). Deaflympic athletes therefore develop alternative strategies to enhance their mental resilience. They seek support from friends and family, draw inspiration from hearing peers in competitive sports, and rely on their coaches' mental training expertise. When given the opportunity to work with SPCs, Deaflympic athletes have clear expectations regarding the support they require. These expectations go beyond general performance optimization and well-being, as they also reflect specific needs unique to DHH athletes. This study identified two key areas where athletes seek specialized support: facilitating communication and cultural understanding between the Deaf and hearing worlds and optimizing communication within Deaf sports teams. Currently, these issues are neither addressed in sport psychology handbooks [e.g., (42)] nor explored in sport psychology research, and they are also notably absent from the education of practitioners (1). As a result, SPCs working in Deaflympic sports presumably lack the knowledge about interventions needed to effectively address these challenges.

People of the eye: psychological skills and demands

The unique visual-spatial orientation of Deaflympic athletes influences various psychological and communication factors in competitive sports, as well as the way certain sport psychology interventions are applied. While participants' descriptions suggested that their use of these techniques was largely identical or similar to those observed in hearing sports, specific adaptations and considerations unique to Deaflympic sport were identified. This finding aligns with existing sport psychology research in Paralympic sports, which emphasizes that interventions can and should be tailored to meet the unique needs of athletes with physical disabilities (43, 44). Similarly, DHH athletes adapt psychological skills and techniques to align with their linguistic and sensory experiences. For example, they may employ internal visualizations or engage in private signing in secluded spaces as self-talk techniques. Additionally, they described different language modalities they engage with in their inner dialogues, including sign language, spoken language, and more abstract constructs such as "inner images" and "thoughts". Research supports the idea that inner dialogue in D/deaf individuals is multimodal, incorporating visual, proprioceptive, and motor components rather than being based on auditory speech (45). However, it remains unknown how this inner-dialogue modality relates to the effectiveness of self-talk in Deaflympic athletes.

The use of music as an arousal regulation method is common in Deaflympic sports, a finding that may seem counterintuitive to hearing individuals. However, Deaflympic athletes, including those with profound hearing loss, can access music through hearing aid

technologies. In contrast, D/deaf athletes who do not use hearing aids rarely reported using music. Research suggests, however, that D/deaf individuals can engage in "multisensory listening," experiencing music through tactile, visual, and kinaesthetic means (46, 47). This raises the question of whether multisensory listening could be utilized as a sport psychology intervention for Deaflympic athletes without hearing aids. For example, Vibrational Music Therapy (VMT) offers a potential alternative, allowing athletes to perceive music through bodily vibrations. VMT also integrates non-verbal communication techniques, such as social-haptic communication, to enhance accessibility for D/deaf and DeafBlind individuals (48). Notably, haptic communication is already used in Deaflympic sports, both as a communication method among teammates and as a coaching tool for imagery interventions. This suggests its potential for broader sport psychology applications in Deaflympic sports.

In addition to or instead of using music, Deaflympic athletes report employing alternative relaxation techniques that engage their other senses. However, there is currently no research on the effectiveness of these intuitive methods or on adapted sport psychology relaxation techniques for Deaflympic athletes (Anonymized). Addressing this gap is crucial, as DHH individuals face additional stressors in their daily lives compared to their hearing peers, including communication barriers, discrimination in education and workplaces, and limited access to healthcare and mental health services (49, 50). These heightened stress levels are not only evident in daily life but also extend to sport contexts. This is supported by both self-reports and a coach's observations of physiological assessments, which indicated increased muscle tension in DHH athletes compared to their hearing counterparts, suggesting elevated physical stress responses. This study therefore highlights the urgent need for research on relaxation techniques tailored to Deaflympic athletes.

The findings on heightened stress levels suggest that D/deafness may influence various psychological factors in sports beyond its impact on how psychological skills and techniques are used and adapted. Participants' experiences indicate that some challenges, such as stress and distractibility, may be linked to the heavy reliance on visual cues in the Deaflympic sport environment. Without or with limited access to auditory information, Deaflympic athletes must process visual cues to orient themselves, communicate with teammates, track the ball, and receive referee signals, to name a few. This intense visual dependence poses significant challenges, particularly for HH and deaf athletes who rely on hearing aids in daily life.

In addition to visual reliance, participants reported using memorization of tactical moves to bypass communication difficulties. This places additional demands on their working memory, requiring them to manage more cognitive tasks than hearing athletes. As a result, their reported struggles with stress and distractibility during competition may stem from increased cognitive load—the mental effort needed to process, interpret, and retain information (51, 52). Prolonged exposure to high cognitive load in sports may lead to cognitive fatigue, a state that temporarily impairs sustained attention, increases distractibility,

and reduces decision-making efficiency (53, 54). Some Deaflympic athletes and coaches described experiences aligning with symptoms of cognitive fatigue. This finding corresponds with research on cognitive fatigue in e-learning, showing that DHH students experience higher cognitive and visual fatigue due to their reliance on visual processing, leading to increased stress and mental exhaustion compared to their hearing peers (55).

Deaf sport culture and communication

Deaflympic athletes and coaches acknowledge the challenges of visual-spatial orientation in competitive sports but also recognize its advantages. For example, they believe Deaflympic athletes have a better understanding of team tactical drills than their hearing counterparts. This belief aligns with research suggesting that D/deaf individuals possess enhanced visual-spatial abilities (56). It also reflects the concept of Deaf gain, which highlights the benefits and unique contributions of Deaf culture and visual-spatial orientation to cultural diversity and enrichment (17). At the same time, DHH athletes reported experiences of discrimination, isolation, and stigmatization in hearing sports due to their hearing status, a phenomenon known as Audism (57). These challenges have also been documented in studies examining the experiences of Deaflympic athletes in hearing sports (58). From athletes' experiences, it is evident that Deaflympic sports serve as a safe Deaf cultural space where they can compete without facing such biases.

Although sign language is central to Deaf culture and celebrated in the Deaflympic sport movement, its practical use in Deaf team sports is declining, a trend also supported in the literature (9). The increasing use of hearing aids among German Deaflympic athletes reflects a broader pattern in Western societies, where advancements in hearing aid technology have made them more accessible. More Deaflympic athletes are now educated in inclusive classrooms where spoken language is the primary mode of instruction, rather than in Deaf schools, as was common in the past (10, 59). Given these shifts and the lack of a shared language among all athletes, Deaf teams must find alternative ways to communicate in a mutually understood, coordinated, and effective manner. This study presents novel findings on diverse strategies used in Deaf sports teams, such as agreed signs and body contact. These findings align with research on collegiate DHH athletes in hearing sports, where teams developed secret sign systems for specific drills (58). However, despite these adaptations, participants reported ongoing communication challenges and emphasized the need for professional support from SPCs in this area.

Practical implications

The findings of this study offer several practical implications. First, SPCs should consider the visual-spatial orientation of Deaflympic athletes when designing intervention strategies. For instance, tactile and visual cues can replace auditory signals in

imagery training. Additionally, since Deaf athletes rely heavily on visual cues for orientation during competition, they may be more susceptible to cognitive fatigue—an important factor to address in mental training. However, it is crucial not to pathologize their visual-spatial orientation, as it holds significant cultural value for culturally Deaf individuals. The study highlights the importance of SPCs respecting Deaf cultural values and immersing themselves in the world of DHH athletes to build trust and rapport. Moreover, visual-spatial orientation presents not only challenges but also potential advantages, such as enhanced visual-spatial skills. SPCs working with DHH athletes can leverage these unique capabilities.

Furthermore, the study emphasizes the importance of allowing Deaflympic athletes to independently choose their SPC and, if desired, their interpreter, to ensure a trusting relationship and the ability to communicate in their preferred language (60). Sign language interpretation alone cannot fully bridge communication gaps between hearing SPCs and Deaf athletes in all cases, as it presents various challenges and should therefore not be assumed as a fully satisfactory solution (61, 62). Additionally, when SPCs work in Deaf sports, addressing communication within Deaf teams is essential for providing meaningful support. Moreover, given the limited availability of SPCs who are native signers, organizations such as the DGSV, the German Society of Sport Psychology (asp), and the German Federal Institute for Sport Science (BISp) should collaborate, support, promote, and fund cultural education and sign language training for SPCs seeking to work in Deaflympic sports. To increase SPCs' involvement in Deaf sport, training programs should include Deaf-specific content. In addition, funded placements or fellowships from international or national organizations could provide SPCs with hands-on experience. Finally, joint practice-based research projects can help promote Deaf sport as a valuable and innovative field within sport psychology.

Limitations and future research directions

Despite this study's significant contribution to the field of sport psychology in Deaf sports, it has several limitations. First, the research team was composed entirely of hearing researchers. Although DHH researchers and Deaf sports stakeholders were consulted during the study's planning, data collection, and analysis, some Deaf cultural perspectives may have been overlooked. To ensure a more inclusive and culturally informed approach, future research in Deaflympic sport psychology should be pursued internationally, with efforts made to collaborate with D/deaf sport psychology researchers as core members of the research team (63). Second, while this study reveals how Deaflympic athletes employ and adapt psychological skills and techniques, it does not assess their effectiveness. Future empirical research should explore the impact of these adaptations on athletic performance and psychological well-being. Third, future studies should focus on developing and evaluating sport psychology interventions tailored to Deaflympic athletes, addressing their visual-spatial orientation and diverse communication needs.

Given reports of increased tension and stress due to heightened cognitive load during competition, this phenomenon and its underlying mechanisms should be empirically examined. Research should investigate sport-specific stressors in Deaf sports, including cognitive fatigue (64). Understanding these factors in the context of Deaflympic sports will help identify effective strategies to enhance athletes' well-being, performance, and enjoyment of sport. A valuable starting point would be the development and assessment of adapted relaxation techniques suited for Deaflympic athletes. Inspiration could be drawn from the literature on VMT (48). Further, relaxation techniques incorporating tactile and visual cues should be explored. For example, progressive muscle relaxation [PMR; (65)] could be adapted for Deaf athletes and tested for effectiveness. Such adaptations would contribute to refining mental training in Deaf sports, ensuring that interventions align with athletes' communication preferences and sensory modalities. To evaluate such interventions, future studies should incorporate physiological measures alongside accessible self-report tools like visual analogue scales to help bypass communication barriers. Standardized psychological instruments may require linguistic and cultural adaptation, including professional sign language translation, to ensure validity. Moreover, given the limited national pool of eligible participants, cross-national collaboration will be essential to support adequately powered research.

Conclusion

This study provides novel insights into the use, adaptation, and implementation of psychological skills and techniques in Deaflympic sports. It reveals communication strategies employed by Deaflympic athletes, coaches, and teams, identifies sport psychology themes unique to Deaf sports, and offers practical implications for future research and professional practice. The findings serve as a foundation for adapting and evaluating sport psychology interventions tailored to the communication preferences and visual-spatial orientation of Deaflympic athletes. Moreover, the study demonstrates that Deaflympic athletes are actively engaged with sport psychology practices and seek professional support, just as their Paralympic and Olympic counterparts do. It is now essential for the sport psychology research community to equip SPCs with the tools to work effectively on "eye level" with Deaflympic athletes, coaches, and associations. By addressing and adapting sport psychology practices for Deaflympic sports, the field can ensure that Deaf athletes receive the specialized psychological support they need and deserve to thrive in their sporting careers.

Data availability statement

The datasets presented in this article are not readily available because Although the data have been anonymized following standard procedures, the population of Deaflympic athletes in Germany is small, which may pose a risk of identification.

Therefore, the interview content (study data) will only be shared after careful consideration and consultation with all co-authors. Requests to access the datasets should be directed to alon.markovglazer@oth-regensburg.de.

Ethics statement

The study involving human participants was reviewed and approved by Leipzig University's ethics advisory. The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study.

Author contributions

AM-G: Conceptualization, Data curation, Formal analysis, Methodology, Project administration, Visualization, Writing – original draft, Writing – review & editing. A-ME: Supervision, Writing – review & editing. RS: Conceptualization, Data curation, Formal analysis, Funding acquisition, Methodology, Resources, Writing – review & editing.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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The author(s) declare that Generative AI was used in the creation of this manuscript. Generative AI, specifically ChatGPT (by OpenAI), was used solely to enhance the readability and clarity of the text.

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"Actually, it's pretty much like normal PE": reconstructing social hierarchies from the perspective of visually impaired students and their teachers in segregated PE

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Purpose: Blind and visually impaired (BVI) students frequently report negative experiences in inclusive Physical Education (PE), often facing social exclusion. Many transfer to special schools, however, research on social inclusion and exclusion dynamics in segregated PE remains scarce. This study examines how BVI students and their sighted PE teachers navigate ability-related social hierarchies in a segregated school in Austria. The investigation is grounded in the concept of ableism and an intersubjective understanding of inclusion.

Materials and methods: Following Clark's Mosaic Approach, participant-led school tours were conducted along with semi-structured guideline interviews with 19 BVI secondary school students and three sighted PE teachers. Data were analyzed using thematic content analysis.

Results and conclusion: The analysis identified three key social hierarchies in segregated PE: (1) the differentiation between sighted students and BVI students, reinforcing the perceived necessity and benefits of segregated PE from both student and teacher perspectives; (2) the differentiation between visually impaired and blind students based on their level of vision, which is embedded in teaching practices and internalized by students; and (3) the differentiation between students' developmental stages as perceived by teachers vs. students' own self-perception, leading to tensions between necessary instructional adaptations and the risk of infantilization. The results illustrate that while feelings of inclusion can be fostered for BVI students in segregated PE by critically dismantling ableist norms of visual abilities, ableist notions can still persist in nuanced, subtle and implicit ways.

KEYWORDS

ableism, visual impairment, physical education, social hierarchies, inclusion

1 Introduction

In the context of global social transformation, education systems play a crucial role in addressing the exclusion of marginalized groups (1, 2). Aligned with social justice discourses, educational policies strive to ensure equal opportunities for education and social participation for as many individuals as possible. Disability occupies a central position in these efforts, as highlighted by the *Key Principles for Promoting Quality in Inclusive Education* by the European Agency (3) and the *Convention on the Rights of Persons with Disabilities* (CRPD, 4). This paper contributes to research on how

physical education (PE) for blind and visually impaired (BVI) students can foster a more inclusive and equitable society.

Globally, inclusive education is closely associated with the dissolution of segregated institutions, as mandated in Article 24, paragraph 2(a) of the CRPD, which states that “persons with disabilities are not excluded from the general education system on the basis of disability” (4). In Anglo-American contexts, BVI students (without additional disabilities) are predominantly educated in mainstream schools (5). However, this trend is not universal and does not apply to German-speaking countries, where inclusive education is unevenly implemented, and special schools remain prevalent, particularly for students with sensory impairments (6–8). In these regions, scholars have highlighted that the interpretation of the CRPD remains particularly contentious (9, 10). For instance, in Germany, recent data show that over half of students with special educational needs (SEN) in Germany—55.9% overall and 50.37% of BVI students—remain in special schools (11), highlighting the persistence of segregated education (12). In Austria, 34.4% of students with SEN were enrolled in special schools in 2022, while 2.5% of SEN students identified as having a visual impairment (13). No data, however, clarifies how many BVI students attend general vs. special schools.

Against this background, we propose that understanding inclusion merely as a matter of spatial (non-)segregation would be overly simplistic. Instead, we argue that, regardless of the educational setting, BVI students must receive the necessary support to feel included in their PE lessons, an argument also emphasized in recent inclusion research (14, 15). However, previous research has often marginalized their voices by prioritizing the perspectives of non-disabled peers, teachers, or parents (16). This exclusion limits our understanding of the thoughts, feelings, and experiences of disabled students, which are essential for creating supportive educational environments. To bridge this gap, we adopt an intersubjective understanding of inclusion as the experience of feeling acceptance, value, and belonging (17), focusing on how BVI students themselves perceive and experience participation in PE.

Existing research highlights that BVI students frequently report negative experiences in inclusive PE (18). For example, they often face bullying, exclusion, and isolation (19). Moreover, facilities and equipment have been shown to remain shaped by ableist norms that fail to accommodate their needs (20). Sighted peers and teachers often appear indifferent to the needs of BVI students, showing limited willingness to reflect on social dynamics or adapt teaching practices. This reluctance, as noted by Ruin et al. (21), is tied to socially constructed norms of normality and ableist attitudes, further relegating BVI students to lower positions within social hierarchies. While these dynamics have been studied in inclusive PE, research on social inclusion/exclusion in segregated settings is scarce (22). In this regard, investigating segregated PE in German-speaking contexts contributes uniquely to the existing body of knowledge: Unlike inclusion-oriented education systems in many Anglo-American countries, Austria, Germany, and Switzerland maintain comparatively high rates of school segregation for students with

disabilities (23). These institutional frameworks offer a distinct lens through which to explore how ableist norms are reproduced, negotiated, or challenged within formally segregated environments. By centering the lived experiences of BVI students, this study adds context-specific insights that have been underrepresented in international PE research so far.

We acknowledge that inclusive PE should remain the ultimate goal. However, as long as segregated schooling systems persist, it is essential to critically examine segregated PE settings as well. While these environments may address students’ needs more effectively than poorly implemented inclusive settings, they are not without challenges. Students with similar (dis)abilities are not a homogeneous group, and prioritizing certain needs over others may inadvertently create new forms of exclusion. A broader perspective that considers societal norms shaping inclusion and exclusion is needed.

A cultural understanding of disability, together with the concept of ableism, is well established within Critical Disability Studies and has recently gained prominence in sports pedagogic discourses (24, 25). This perspective rejects an individualistic or medical model that defines disability as an inherent attribute tied to functional limitations (26). Instead, the cultural model examines societal notions of normality. These notions are shaped by a “network of beliefs, processes and practices that produces a particular kind of self and body (the corporeal standard) that is projected as the perfect, species-typical and therefore essential and fully human. Disability then, is cast as a diminished state of being human” (27). This shift of focus highlights societal discourses and norms that define what counts as a “normal” or “able” body and, by extension, what is deemed “deviant” or “disabled.” Such discursive constructions are closely tied to the concept of ableism. Ableism can be understood as “a set of beliefs, processes, and practices that produce, based on one’s abilities, a particular kind of understanding of one’s self, one’s body, and one’s relationship with others of one’s species, other species, and one’s environment, and includes one being judged by others” (28). From this perspective, dis/ability emerges as a social construct—akin to gender or race—produced through the intersubjective and societal attribution, or more commonly the denial, of abilities (29). This process classifies individuals as “able-bodied” or “disabled” and reinforces the “ableist divide” (27). Notions of “normal” and “deviant” abilities are also context-specific, giving rise to nuanced variations of how individuals are classified as “more” or “less able” across different environments. These classifications form the basis for processes of social inclusion and exclusion. The attribution or denial of abilities leads to what has been described as sub-segregation (21, 22): the (re-)production of ability-related social hierarchies that underpin inclusion and exclusion. Examining these hierarchies constitutes the central objective of our study.

To contribute to this body of research and the identified gaps, *we investigate how BVI students and their sighted PE teachers negotiate ability-related social hierarchization in segregated PE as a basis for social in- and exclusion.* Insights from this study aim to improve participation opportunities in segregated PE, which will likely remain a reality in German-speaking education

systems in the future, while also contributing to improving experiences of BVI students in inclusive PE and sports settings.

The following sections outline our research context and methodological considerations, followed by a description of participants and ethical considerations, our methods of data collection and analysis as well as a critical reflection of our positionality as researchers. We then present the results of our data analysis and conclude with a discussion of implications for fostering participation and inclusion in PE for BVI students.

2 Materials and methods

Our data originates from a larger research project on the participatory development of digital assistive technologies for PE based on the ideas and self-identified needs of BVI students (16, 20). To establish a foundation for these participatory processes, we first sought to better understand the subjective experiences of BVI students and their sighted teachers in segregated PE.

In line with an intersubjective understanding of inclusion as opposed to spatial integration, educational spaces—such as schools, classrooms or gyms—are far from neutral or passive spatial backdrops. Instead, they are social constructs, continuously (re-)shaped through the interactions of people, spaces and objects (30), where learning unfolds as an embodied experience (17). Capturing the situated and embodied knowledges (31, 32) of BVI students in PE requires data collection within the specific environments of interest—in this case, the school spaces where PE occurs. Clark's Mosaic Approach (30, 33) provided a highly suitable methodological framework for this investigation. This multi-method, participatory, and reflexive approach enables the reconstruction of children's and adolescents' embodied experiences within educational institutions. From Clark's extensive range of proposed methods, we deliberately selected those that enabled students and teachers to share their experiences most authentically (30) while minimizing the risk of reinforcing ability-related hierarchies. This consideration was crucial, as certain methods could require varying levels of assistance depending on the degree of visual impairment, potentially creating disparities among participants. Since all students had completed extensive mobility training, enabling them to navigate the school grounds independently regardless of their visual abilities, we conducted participant-led school tours accompanied by semi-structured guideline interviews. Interview questions were tailored to elicit the perspectives of both students and teachers on the topics of interest. Students participated in pairs or small groups, while teachers were interviewed individually. Small group interviews with students were used to mitigate power asymmetries between researcher and participants and to draw on the supportive dynamics of peer interaction. To account for pre-existing peer relationships, students were allowed to choose their group composition, while the interviewer facilitated balanced speaking time and ensured that differing viewpoints were respected. Teachers were interviewed

individually to evoke rich reflections of their own teaching practices and avoid collegial pressure (16). In addition to verbal data, we collected field notes and photographs of places and objects that students and/or teachers identified as significant to their PE experiences.

2.1 Participants and ethical considerations

The data were collected in a public special school for BVI in Austria. 19 students (12 female, 7 male) aged 14–20, participated in the study. Among them, three were blind, while the remaining 16 were visually impaired. None of them had any additional disabilities. This comparably large sample represented a quite wide spectrum of visual abilities allowing for a nuanced exploration of how varying types and degrees of visual impairment shaped students' embodied experiences, social positioning, and participation in PE contexts.

All blind students had attended the school since primary level, whereas the visually impaired students had transitioned from inclusive settings either at the start of lower secondary school or during it, based on teacher recommendations and their own reports of unmet educational needs in inclusive environments. 17 students had previously attended schools in Austria, while one male student had transferred from an inclusive lower secondary school in Germany and one female student transitioned after attending an inclusive primary school in Syria and an inclusive lower secondary school in Austria. Additionally, their three sighted PE teachers (2 female, 1 male) aged 43–48 participated in the study. All were Austrian and had over ten years of experience teaching PE to BVI students (Table 1).

Before data collection, written informed consent was obtained from all participants. Students indicated that printed consent forms, accessible via text-to-speech applications on their smartphones, would be most convenient. Accordingly, printed forms were provided in age-appropriate language for both students and teachers. Terms of participation were thoroughly discussed, including the right to withdraw from the study at any time. Ample time was given to address questions, and participants were assured that students' responses would not be shared with their teachers and vice versa.

2.2 Methods of data collection and analysis

The inquiries began in empty classrooms, gym halls, or locker rooms with a general discussion about participants' PE experiences. These conversations included broad descriptions of lessons, favorite and least favorite activities, and progressed to questions about the most significant spaces, people, and objects shaping their experiences in PE (30). In the main part of the interviews, students and teachers guided us through PE spaces they deemed most relevant, highlighting aspects they liked, disliked, or wished to retain, eliminate, or modify for a more accessible PE in the future. This approach was designed to give participants maximum freedom while providing enough

TABLE 1 Participants.

Pseudonym	Role	Age	Gender	Self-description of vision	Degree of VI
Michael	Student	16	Male	"I just see a bit worse and just have to look twice to see something. Like look at stuff longer to recognize it sometimes. It depends"	Visually impaired
Vanja	Student	18	Female	"Of course, I realize that I'm limited by a lot of things, but I have accomplished a lot in life. Sometimes, I still struggle, but I think everyone does. I wouldn't say that I have coordination problems. I play an instrument, several instruments, numbers are not my friends, but apart from that ... yeah"	Blind
Lina	Student	14	Female	"I had an orientation day here, and I saw that the classes are much smaller, in my other school there were more people in one class with different needs. They would have minded visual impairments but also other kinds..."	Visually impaired
Samira	Student	16	Female	"I have come to kindergarden here since I've been four or five. I was at another kindergarden before but wasn't really supervised properly which caused an accident. That's why my mom found this school for me"	Visually impaired
Laura	Student	16	Female	"According to the doctors, I should actually not see anything at all, I was diagnosed with optic hypoplasia. Long name and difficult to memorize. With that illness you usually don't see anything, but I can see like shadow silhouettes"	Blind
Emma	Student	15	Female	"So, I have REP, I can see in the center, but not on the outsides. My glasses don't really help, they make everything a bit sharper, but I don't see much different with them. I cope quite well, it's just small things (fig.), like with reading, small letters, I can't really read those well, or when things are further away. But apart from that it's pretty good"	Visually impaired
Ayse	Student	19	Female	"I have Morbus Stargard, but I don't really know the details, because I don't like to research that. My left eye sees better than the right one, but the right one supports the left one. I think I can recognize and see stuff pretty well. But of course, the details ... Sometimes you don't quite pay attention, or you're not focused or tired. It really depends on the situation, too"	Visually impaired
Sarah	Student	16	Female	"So, for me, I have macular degeneration. That's an illness or a visual impairment, where you can't see that well in the center. Also on the edges, but for me, it's mostly in the center where I don't see. There is this spot, where I don't see. I also have diopters, but it's not something that glasses would help with. Because you can't really determine whether it would be better because of the other illness. And yeah, I get along quite well in life. It's like the small things (fig.) that are hard, especially, you realize when you have to manage on your own. And like with reading and stuff, that's not so easy"	Visually impaired
Zahra	Student	14	Female	"So, I can see 15%. I can see everything from afar, but when it's like writing, I really can't. I mean, I can see the colors, like black and white, but I can't recognize the letters"	Visually impaired
Nuri	Student	14	Female	"I can see pretty much everything, but I can't quite recognize what it is from afar. Like it's a person, I can see that, but I can't recognize who it is"	Visually impaired
Kerstin	Student	14	Female	"For me it's different, because my eye percentages are different. (I: And which kinds of things do you recognize well?) I can recognize pretty much everything"	Visually impaired
Luca	Student	15	Male	"I can still recognize and read things when I get really close. And I can recognize faces a bit. (I: And what is it like in PE?) I don't have any issues there, I can play soccer perfectly, I was on a soccer team, but then I wasn't into that anymore. Because it was also a bit difficult. You have to play soccer in winter too, and when it was getting dark, I had a hard time. Then I quit"	Visually impaired
Emir	Student	16	Male	"I am blind in one eye. And the other one is so-so. So, I can still manage, but yeah"	Visually impaired
Noah	Student	16	Male	"So, for me, I can still recognize silhouettes, but not that well anymore. I can recognize bright and dark, but that's it. (I: And in PE?) Kind of difficult"	Visually impaired
Maximilian	Student	20	Male	"So, I have just below 70% visual impairment, couple of percent, I can't really say. [...] I mostly see colors. Things get blurry, but I recognize things through colors. [...] Doctors told me that it should not get any worse"	Visually impaired
Liam	Student	17	Male	"On my disability card it says 70% visual impairment. I would be able to manage on my own on public transport and so on (laughs), but with my eye disease I have a hard time discerning dark colors. But apart from that ... yeah"	Visually impaired
Elena	Student	15	Female	"So, for me, I need darkness, and I can't really see things far away. Like, I can see you, but for example I need writing really close to me [...] And yeah, I can actually see everything in this room. The doctors say I have like 2% [remaining vision], but I don't feel like that at all. I feel like I have 10, 11%"	Blind
Sasha	Student	14	Female	"From far away I can't really read well. But when it's like six or five or eight cm away from me, I can read it. But when it's really far away from me, I can't see it at all. And sometimes it depends on the size of the letters. For instance, I sometimes can't read handwriting. But when it's computer writing, I can read it"	Visually impaired
Nikita	Student	14	Male	"So, I have 10% remaining vision, and it's like with Elena. It's easier in the dark, I see better. And uhm, I think I can read letters normally, I just need minimal magnification. But I have a hard time with farther distances, like 1 m. Color recognition, so when I have like green and blue in front of me, I have kind of a hard time discerning those two, but apart from that it's easy for me to recognize colors. Yeah, that's it"	Visually impaired
Susanne	Teacher	48	Female		Sighted
Claudia	Teacher	43	Female		Sighted
Thomas	Teacher	47	Female		Sighted

structure to encourage the sharing of their experiences. By combining interviews with an exploration of the physical spaces, participants could more fully convey their embodied experiences of PE compared to interviews conducted in spatially unrelated settings. Importantly, we avoided directly addressing students' impairments or participation barriers to minimize imposing our own internalized ableist assumptions or unnecessary problematization of visual impairments in ways that might not be relevant to them (27).

All interviews and school tours were audio-recorded and transcribed verbatim, using pseudonyms to ensure anonymity. Data were analyzed using thematic analysis (34) in MAXQDA (35). Coding was performed deductively by the first and second author along two categories derived from theoretical concepts (1): distinctions among students based on corporeal standards, reflecting norms that differentiate "normal" from "deviant" bodies (27), and (2) distinctions based on ability expectations, determining who is deemed "able" vs. "less able"/"disabled" (28). Related codes were then grouped into broader themes according to identified patterns. Together with the third author, we reviewed emerging themes for coherence, refining and finalizing them.

2.3 Researchers' positionality

It is important to be transparent about how the researchers' positionalities may have influenced data collection, analysis, and interpretation (36). The first author identifies as a white, cisgender, non-disabled woman from an educated middle-class background. She is healthy and physically active, with a professional background in PE and is currently a PhD candidate in Sport Pedagogy. Her academic work focuses on intersectional power relations and discursive constructions of the body in PE. The second author identifies as a white, cisgender, non-disabled man from a more or less middle-class background. He is physically active, with a professional background in PE and Sports Sciences. Currently, he serves as Full Professor of Sport Pedagogy and head of the Institute of Sport Science at his university. His research centers around diversity and inclusion as well as professionalization of PE teachers/PE teacher education. The third author identifies as a white, cisgender, non-disabled man from an educated middle-class background. He is physically active, has a decade of experience as a special education PE teacher for BVI students and currently serves as Full Professor of Sport Pedagogy and Deputy Managing Director of the Institute of Sport Science at his university. His research focuses on inclusion and disability in the context of visual impairment and blindness, Bildung and lived experience, and digitality.

As a research team, we were aware of the asymmetrical power relations embedded in our roles as adult academic researchers working with children and adolescents in a segregated educational setting. These asymmetries were shaped not only by age and institutional position but also by differences in ability, bodily normativity, and professional authority. Our varying

disciplinary backgrounds and lived experiences informed how we engaged with the field, the participants, and the data.

To mitigate potential bias and foster critical awareness throughout the research process, we engaged in regular peer reflections during data collection and analysis. These reflections served as valuable moments for mutually questioning our assumptions and interpretations. In addition, our methodological decisions were shaped by a shared concern to avoid reinforcing ability-related hierarchies during the data collection process. Drawing on Clark's Mosaic Approach (30, 33), we carefully developed a methodological repertoire that enabled students to express their embodied experiences authentically, while minimizing the risk of privileging certain sensory or cognitive abilities. This reflexive approach was central to our effort to foreground the perspectives of students and teachers while critically engaging with our own normative assumptions about ability.

3 Results

The analysis of data revealed three interrelated themes that became relevant from the students' as well as the teachers' perspective regarding how ability-based social hierarchies are negotiated among BVI students and their PE teachers within segregated PE. These three social hierarchies will now be described individually, followed by an exploration of their relation and interconnectedness in the discussion.

3.1 Social hierarchies between students with and without BVI

The first theme emerging from the analysis highlights the social hierarchization between sighted students and BVI students in inclusive and segregated PE, respectively. Both the participating BVI students and their PE teachers conceptualize BVI students as deviating from the norm of sighted students and organize PE into two distinct spheres: inclusive PE and segregated PE. The teachers articulate this division by frequently invoking an "inside-outside logic", referring to the "inside" of the special school and the "outside" of the inclusive schooling system. The "outside" of inclusive PE is characterized by both groups as imposing unjustified expectations of abilities on BVI students. In contrast, the "inside" of segregated PE is defined by the recognition that such ability expectations for BVI students are unwarranted and unrealistic. For instance, Emma and Ayse report about their past experiences in inclusive PE:

Ayse: "[It was a] disaster. We didn't really have proper PE classes; instead, they mostly had us play games like dodgeball or memory ball. The problem is, if we can't see, we can't catch the ball."

Emma: "Or what's it called... volleyball. That was all so difficult."

Ayse: “Everything with balls is just so difficult. For people with disabilities or blind people, it’s really hard when we can’t see the ball coming and then can’t catch it or things like that.” (Student Interview 3:74–76)

PE teachers and BVI students elevate adapted conditions in segregated PE to a necessity and new norm that addresses the individual needs of BVI students. However, their reasoning differs: the BVI students largely perceive segregated PE as an opportunity to engage in similar movement experiences as their sighted peers in inclusive PE, only under adapted conditions (e.g., adjusted learning pace or tailored instructions), allowing them to experience a sense of belonging. Four students, Emma, Zahra, Nuri and Kerstin describe their experiences as follows:

Emma: “Of course, it’s different from PE in regular schools. All of us have been to regular schools at some point, and it’s obviously different there. But the teachers and students here do pay attention to how we manage things. Here, it’s more tailored to us so that we can actually participate.” (Student Interview 3:71)

Nuri: “Well, actually, it’s pretty much like normal PE.”

Zahra: “Except they give a lot more instructions.”

Kerstin: “Because some of us are visually impaired and can’t see exactly what we’re doing, or some are blind, so things have to be explained in more detail.”

Zahra: “And it’s also much slower. The teachers speak more slowly and repeat things a few times.”

Nuri: “But other than that, it’s all normal, just like in regular classes.” (Student Interview 4:6–10)

From the analysis it becomes evident how BVI students’ feelings of normalcy are closely linked to experiences of social in- and exclusion. The data illustrates how students associate adapted PE not with segregation or deficiency, but with the opportunity to participate on equal footing, though under different conditions. Crucially, this sense of “normalcy” is not only tied to the structure of the lessons but also to broader feelings of social inclusion. The wish to not differ too much from peers in mainstream schools surfaces repeatedly in the students’ accounts, revealing how the experience of belonging is negotiated in relation to imagined norms of able-bodied schooling:

Lina: “Even though we’re different, we can still enjoy PE.”

Researcher: “What do you mean by that?”

Lina: “Well, because the others—oh my God—like, so we don’t feel as excluded from the other schools, the regular schools. As if we are so different.”

Samira: “We’re different from the other schools. Like, we’re a special school. And so we don’t want to be too different from the other schools, even in sports.” (Student Interview 2:32–35)

Conversely to students’ perspectives, the PE teachers justify adaptations in segregated PE based on specific support needs, vulnerabilities, and protective requirements of their BVI students to mitigate potential negative consequences. While they strongly emphasize the necessity to provide BVI students with opportunities of participation, this notion is also accompanied by explicitly lowered expectations of ability and limited developmental potential for BVI students. Certain activities are deemed meaningless and are therefore excluded from PE, while specific sports equipment is avoided altogether to prevent what is considered inevitable failure, embarrassment or injury. For instance, one teacher describes activities such as throwing or gymnastics as follows:

Thomas: “I hardly know anyone who can throw well as a blind person because the movement is so complex. [...] So, when it comes to things where I know from the start that failure or embarrassment in front of others is inevitable, I have to think about whether it’s okay to avoid it entirely or if I can find a way around it.” (Teacher Interview 3:12)

Thomas: “And that would be the balance beam, but we’ve taken it down. A relic. But it’s not really necessary because for our students, just flipping over the long bench is entirely sufficient. Really doing gymnastics is unimaginable anyway.” (Teacher Interview 3:61)

Thus, ambivalent meanings are assigned to segregated PE: On the one hand, segregated PE represents an essential environment for BVI students that facilitates participation in movement and sports experiences in which they can perceive themselves as “normal”. On the other hand, segregated PE is conceptualized as a necessary protective space, legitimized by reduced expectations of abilities and development as well as the heightened vulnerability and support needs of BVI students. In this manner, both PE teachers and BVI students simultaneously challenge and maintain the social hierarchy between BVI students and sighted peers.

3.2 Social hierarchies between blind and visually impaired students

As the second theme that emerged from our analysis, it became evident that ability-related normative assumptions and expectations regarding visual abilities served as a criterion for differentiating between blind and visually impaired students, pointing to another mode of social hierarchization. Interestingly, PE teachers did not explicitly articulate this distinction in their interviews. However, students casually reproduced it when describing specific tasks assigned by their teachers during PE

lessons. This suggests that PE teachers implicitly reinforce this hierarchy through the didactic structuring of movement tasks.

In the context of diving for objects during swimming lessons, Laura described:

Laura: “Yes, of course, it takes longer; you have to go to the bottom, you have to swim all the way down, and the blind students have to feel everything, and also with breathing time, it certainly takes a bit longer. But actually, it is more intended for sighted people. I mean, blind students can do it too; it’s just a bit more difficult. And yes, I always used to do it at the end of the lesson when everyone was already getting ready.”

Researcher: “You were curious and wanted to try it out?”

Laura: “So, I did do it.” (Student Interview 2:147–149)

This highlights how VI students with certain abilities—such as the ability to partially see and thus not having to rely on tactile exploration—are constructed as the “norm”, from which blind students deviate. The latter, in turn, challenge these normative expectations, as their abilities make such tasks nearly impossible, significantly more time-consuming, or even risky. Consequently, blind students are positioned as less capable in direct comparison to their partially sighted peers.

Furthermore, students recount that PE teachers frequently assign VI students to pair up with blind students to assist them with movement tasks. These pairings are not fixed but are regularly rotated. For example, Lina explains:

Lina: “Yes, actually, we always switch. It is NEVER always the same person; it keeps changing. Since there are more sighted students, it alternates—one time one person helps, then another, and so on.” (Student Interview 2:53)

On the one hand, this arrangement serves as a common didactic strategy to facilitate participation for blind students. On the other hand, rather than challenging or mitigating social hierarchies among students with different visual abilities, it may actually reinforce them. VI students are implicitly positioned as responsible and capable helpers, whereas blind students are cast as dependent, reliant on assistance, and unable to act independently. Thus, such didactic arrangements create a “helper child logic”, which perpetuates stereotypes of helplessness and inactivity associated with blind students.

Beyond such enabling logics, students with visual impairments also articulate limitations in the selection of certain physical activities, which they attribute to the perceived limited abilities of their blind peers. They describe how certain games can only be played with significant modifications or are excluded from PE altogether due to the lack of visual abilities among their peers and safety concerns. For example, Ayse recounts that ball games are rarely played at all and, when they are, only with specific adaptations and safety measures in place:

Ayse: “So, we don’t play many ball games, because it’s difficult for disabled and blind students to play with a ball when they can’t see it. But we do play with audible balls, just not dodgeball. We can’t shoot too hard or not watch where we’re throwing, because that could go wrong. You have to be careful.” (Student Interview 3:63)

Similarly, Nuri expresses her wish to play volleyball but finds that this is deemed impossible specifically due to the assumed limitations of blind students and even adaptations such as audible balls are considered insufficient leading to the activity being excluded altogether.

Nuri: “I would really like to play volleyball somehow. But unfortunately, we can’t, because some other students have worse vision. And with the balls that make sounds, it also doesn’t really work.” (Student Interview 4:178)

In this manner, normative assumptions and expectations regarding visual abilities give rise to forms of sub-segregation within the segregated PE setting. Students are implicitly differentiated according to the degree of their visual impairment. Those with partial sight are positioned at the top of the social hierarchy, as their abilities are perceived as closer to the norm and allow them to act as helpers or participate more fully in certain activities. In contrast, students with lower vision or blindness are positioned at the bottom. Their participation is often framed as difficult or risky and made dependent on assistance or specific adaptations. Rather than mitigating social hierarchies, the segregated setting thus produces new internal distinctions based on perceived ability, reinforcing ableist notions of competence and independence.

3.3 Social hierarchies between students according to assumed maturity

The third theme emerging from the analysis relates to social hierarchizations based on the perceived or teacher-attributed social and cognitive developmental levels of BVI students. Teachers often indirectly construct visual impairment as the cause for why BVI children fall behind expectations of age-appropriate developmental levels, by suspecting that they have experienced a particularly sheltered or patronizing upbringing due to their disability and did not receive the necessary support to develop in what is deemed an age-appropriate manner. These notions of what constitutes an “appropriate” developmental stage for a certain age lead, particularly on the part of teachers, to specific expectations regarding students’ pace of development, learning speed, and ability levels. As a result, they adapt their teaching practices to cater to their specific needs.

One teacher, Susanne, talks about one of her primary school classes:

Susanne: “So, I got to know these children in September, and then you’re standing there in the lesson, and very quickly, you

reach a point where you start to question your own abilities because it's just so challenging to teach these four children. Honestly, they all really belong in kindergarten. But of course, you have to assess that first—it takes time. By the end of September, I decided for myself, 'Okay, I'll take my ideas two years back.' And from that moment on, I thought, 'Hello, we don't need to overcomplicate things here.' Even a simple movement task is already too much. For example, you let the music play, and when it stops, they all lie down on the floor. Even that kind of input is already too much for these children. You know? [...] And then, after conversations with colleagues—who thankfully always feel exactly the same way (laughs)—you decide, 'Alright, back to kindergarten level.'" (Teacher Interview 1:46)

At the same time, teachers seem to draw conclusions from the assumed developmental levels of the students regarding what content might align with their interests and how it should be appropriately delivered in PE. Such assumptions also appear to translate to the older students at secondary level. These older students, however, do not appear to share this assessment in their self-perception. For instance, Vanja and Michael discuss, how they perceive the teacher's approach to teaching PE as infantilizing and describe their PE lessons as childish:

Vanja: "Well, the purpose is to learn that sports can be fun. I think it's good to focus on games in the first few years, but as you get older and you're in high school, I find games a bit childish." [...]

Michael: "For me, [PE]'s just a way to pass the time, but honestly, it feels like a waste of time. You warm up nicely, okay, gymnastics, great, and then it's either playing ball games or doing silly things on the mat, like standing back-to-back and having to push each other away."

Vanja: "We also had to crawl through each other's legs—such nonsense."

Michael: "Yeah, and I think, 'I enjoyed that in kindergarten or elementary school, but not in high school.' And I really feel like she criticizes me a lot and keeps picking on me. She totally misjudges me and sees me as someone completely different from who I actually am." (Student Interview 1:18–32)

In this way, social hierarchization based on (assumed) developmental levels becomes a point of tension between teachers' attempts to provide adapted and differentiated PE, and the students' own perceptions of themselves, their bodies, and their interests. While teachers interpret certain behaviors or forms of participation through the lens of developmental delay, students reject these attributions by presenting themselves as capable, mature, and misrecognized. These tensions reveal how ableist norms of age-appropriate development and physical abilities are perpetuated in pedagogical decisions, contributing

to the (re)production of social hierarchies within segregated PE settings.

4 Discussion

The analysis has revealed three distinct forms of social hierarchies that emerge in segregated PE among BVI students and their sighted teachers: (1) the differentiation between sighted students and BVI students, which serves to justify the necessity and benefit of segregated PE from the perspectives of both students and teachers; (2) the differentiation between visually impaired vs. blind students based on their degree of visual impairment, which is embedded into teachers' didactic practices and internalized by students; and (3) the differentiation between developmental stages of BVI students as perceived by teachers vs. students' self-perception, which leads to tensions between necessary instructional adaptations and the risk of infantilization.

The three described forms of social hierarchy are shaped by an overarching ableist regime, which not only becomes apparent on the institutional level in the distinction between mainstream and special schools but also operates within social relations inside the special school, constituting the social hierarchy between sighted and BVI students. While ableist norms are, at least in part, clearly named and critically questioned by students and teachers when it comes to the differentiation vis-à-vis the constitutive "outside" of mainstream schooling, they are at the same time reproduced within the segregated PE setting of the special school as the sub-segregation between blind and partially sighted students. Thus, while ableist mechanisms of classification are destabilized on a broader level, they are simultaneously maintained on a smaller scale within the segregated school by both students and teachers.

In the context of the third social hierarchy, a certain shift in the focus of ableist regimes can be observed—from visual ability toward social and cognitive abilities. While ableist attributions related to visual ability are challenged and destabilized by both teachers and students within the first hierarchy, attributions of delayed social and cognitive development appear legitimate and acceptable from the teachers' perspective in the context of segregated PE. The students, however, clearly resist and reject these attributions. What seems to be intended by teachers as a didactic adaptation to the assumed social and cognitive capacities of the students—framed as pedagogical care—ultimately denies the students opportunities for self-directed and autonomous learning based on their own capacities and interests. In this way, the segregated school system itself is once again reinforced through ableist norms and attributions.

Most notably, the findings illustrate that reinforcing or resisting ableist notions of deviance and normality as well as maintaining or dismantling related social hierarchies cannot be reduced to individual attitudes or personal beliefs. Like all members of (Western) society, BVI students and their sighted PE teachers are deeply embedded in ableist structures and have internalized normative ideas of "able" vs. "unable" and "normal"

vs. “deviant” bodies (27, 28), which are not always accessible to them through critical self-reflection.

Contrary to the findings of Ruin et al. (21), the sighted PE teachers in this study demonstrated a high degree of critical reflection on ability-related expectations and ableist assumptions of normality. They were strongly committed to providing differentiated and adapted learning opportunities, tailoring instruction to individual needs, and creating inclusive learning environments where BVI students could engage in diverse movement experiences under modified conditions. As a result, BVI students described their experiences in segregated PE as significantly more positive than their previous experiences in inclusive PE. Within the segregated setting under investigation, they reported a sense of belonging and normality, both considered essential for inclusion (14, 15, 17). However, while these teaching practices facilitated participation, they were also shaped by implicit notions of lowered expectations and limited developmental potential for BVI students. As a result, social hierarchies between sighted students and those with BVI may persist, subtly reinforcing existing ableist dynamics.

Moreover, unlike in inclusive PE, BVI students did not report experiences of overt bullying, exclusion, or isolation in segregated PE (19). Nevertheless, PE teachers’ didactic arrangements of movement tasks were implicitly structured around the distinction between partially sighted vs. blind students. Partially sighted students were frequently assigned to assist blind students in movement tasks, a practice intended to enhance participation for the latter. However, this arrangement led to sub-segregation (22), subtly reinforcing the ableist notion that people with blindness are inherently more dependent on help and “less able” than their partially sighted peers. Although blind students in this study did not comment on receiving such kind of help, previous research suggests that help in PE—whether instrumental, caring, or consensual—can have complex effects on disabled students. While some perceive it positively, others experience a loss of independence, threats to self-esteem, or restrictions on participation (37). Similarly, unsolicited help has frequently been reported as an issue by blind individuals, who often experience it as patronizing and condescending, as it assumes incompetence on their part (38). At the same time, rejecting such assistance can be challenging, as individuals may fear being perceived as ungrateful or rude (39).

Similarly, notions of infantilization mark another pervasive social dynamic towards disabled people, a dynamic widely reported in PE (40, 41). Infantilization leads individuals with physical or sensory impairments—such as BVI students—to feel as though they are not taken seriously or treated in a manner appropriate for their age (42). In this context, assumptions of diminished visual abilities appear to extend to assumptions of diminished cognitive abilities and social development. More broadly, recent research highlights that infantilization, alongside charity narratives, plays a central role in maintaining social inequalities from the perspective of BVI individuals (43). They are at risk of being relegated to a social space of “eternal childhood,” a phenomenon also described in relation to intellectual disabilities (44). Within this space, individuals often

experience restrictions on their autonomy and are subjected to forms of patronization that limit not only their personal interests and choices but also their fundamental rights, including political agency, healthcare decisions, and sexuality (45). As a result, it seems crucial for PE teachers to prioritize their students’ self- and co-determination in segregated PE and continuously take into consideration their interests and requirements to ensure they are treated with respect and taken seriously.

5 Limitations and strengths

This study has certain limitations and strengths: One limitation of our study is that all participants were recruited from a single school. While BVI students may face similar barriers across different educational settings, some of their experiences may be context specific. Additionally, selecting only one school may limit the diversity of students’ backgrounds, such as social status or parental support. Moreover, none of them had any additional sensory, physical or intellectual disabilities, which may limit the transferability of the results.

However, our study stands out for its relatively large and diverse sample, including students with varying degrees and types of visual impairment. This diversity enables us to present nuanced perspectives, a key strength of our research. Furthermore, our sample includes both students who transitioned from inclusive schooling and those who have attended a segregated school throughout, offering valuable insights into different educational trajectories.

Another limitation is the absence of participants younger than 14. In Austria, adolescents can provide independent consent for research participation at this age, and we were unable to obtain parental consent for younger students due to organizational constraints. While they participated in the broader project on the development of digital assistive technologies for PE, their data could not be recorded for research. However, we later involved them in testing prototypes and providing feedback, ensuring their perspectives contributed to the project.

6 Conclusion & outlook

This study contributes to the broader discussion on inclusive and segregated education, emphasizing that genuine social inclusion requires more than simply integrating BVI students into existing frameworks. The analysis reveals that social hierarchies in segregated PE for BVI students exist on multiple levels and are not simply a reflection of individual attitudes but are deeply embedded in societal ableist structures. The findings suggest that, under certain conditions, segregated PE can offer positive and inclusive experiences for BVI students. When ableist notions of normality and ability-related expectations are critically challenged within PE teaching practices, BVI students can have genuinely inclusive experiences. However, well-intended didactic strategies, such as assigning partially sighted

students as helpers or tailoring tasks to assumed social development levels, can unintentionally reinforce subtle forms of social hierarchization, leading to paternalism and infantilization. These dynamics risk perpetuating existing ableist norms rather than dismantling them.

There is no shortage of pedagogical concepts aimed at making PE—whether inclusive or segregated—more inclusive in design and delivery. From an ableism-critical perspective that understands inclusion as an intersubjective experience (17), however, we propose that the crucial yardstick for creating truly inclusive settings is to provide disabled students with meaningful opportunities to have a voice in determining what inclusivity actually means. For an extended period of time, BVI students' experiences in PE have largely been represented through the perspectives of sighted teachers, parents, or peers—those “who have not lived nor embodied disability” (32). Such approaches risk reinforcing ableist assumptions of normality and obscure the subjective meanings BVI students attribute to their experiences (14, 27, 28). As a result, research has often sidelined their perspectives, despite the fact that these should be central to any meaningful understanding of inclusion in PE (46, 47).

In light of this, we propose for future research to shift from “researching on to researching with” young people (48). Participatory and co-creative approaches have recently gained momentum as a means to develop more inclusive, empowering, and justice-oriented research and practice (49, 50). They offer potential not only to amplify the voices of disabled students, but also to challenge the power asymmetries embedded in conventional research and teaching practices (51, 52). Similarly, co-creation and co-production frameworks are increasingly used to collaboratively design curricula and didactic recommendations that reflect students' lived realities in PE (53). For instance, Arroyo-Rojas and Hodges (54) argue that systems of peer-support in PE should be developed jointly with students to avoid reinforcing social hierarchies or unintentionally reproducing paternalistic or infantilizing dynamics.

Future research should therefore place greater emphasis on participatory, student-centered methodologies that foreground the intersubjective experiences of acceptance, belonging and value (17). This shift not only aligns with the principles of the UN Convention on the Rights of Persons with Disabilities (4), but also holds potential to reimagine PE as a more inclusive and equitable space for all.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

The studies involving humans were approved by Ethics Committee University of Vienna (ref. no. 00879). The studies

were conducted in accordance with the local legislation and institutional requirements. Written informed consent for participation in this study was provided by the participants.

Author contributions

SM: Conceptualization, Data curation, Formal analysis, Funding acquisition, Methodology, Project administration, Supervision, Writing – original draft, Writing – review & editing. MG: Conceptualization, Writing – original draft, Writing – review & editing.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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