



OPEN ACCESS

EDITED BY

Sipho Dlamini,
University of Johannesburg, South Africa

REVIEWED BY

Mohamed Ahmed Said,
University of Jendouba, Tunisia
Gadjia Khan,
Human Sciences Research Council,
South Africa

*CORRESPONDENCE

Clara González-Sanguino
✉ clara.gonzalez.sanguino@uva.es

RECEIVED 10 October 2025

REVISED 15 December 2025

ACCEPTED 19 December 2025

PUBLISHED 12 January 2026

CITATION

Ayuso-Lanchares A, González-Sanguino C and Rodríguez-Medina J (2026) Discrimination, school inclusion, and quality of life in adolescence: a mediation analysis. *Front. Psychol.* 16:1722505. doi: 10.3389/fpsyg.2025.1722505

COPYRIGHT

© 2026 Ayuso-Lanchares, González-Sanguino and Rodríguez-Medina. This is an open-access article distributed under the terms of the [Creative Commons Attribution License \(CC BY\)](https://creativecommons.org/licenses/by/4.0/). The use, distribution or reproduction in other forums is permitted, provided the original author(s) and the copyright owner(s) are credited and that the original publication in this journal is cited, in accordance with accepted academic practice. No use, distribution or reproduction is permitted which does not comply with these terms.

Discrimination, school inclusion, and quality of life in adolescence: a mediation analysis

Alba Ayuso-Lanchares¹, Clara González-Sanguino^{2*} and Jairo Rodríguez-Medina¹

¹Department of Pedagogy, University of Valladolid, Valladolid, Spain, ²Department of Psychology, University of Valladolid, Valladolid, Spain

Introduction: Discrimination is a known risk factor for poorer mental health and reduced wellbeing during adolescence. This study aims to examine whether perceived inclusion in school mediates the relationship between perceived discrimination and quality of life (QoL) among adolescents.

Method: A cross-sectional study was conducted with a nationally representative sample of 839 Spanish adolescents aged 12 to 16 years. Participants completed the Everyday Discrimination Scale (EDS), the Perceptions of Inclusion Questionnaire (PIQ), and the KINDL-R QoL measure. Structural Equation Modeling (SEM) was used to analyze the direct and indirect effects of discrimination on QoL, with inclusion as a proposed mediator. Measurement invariance across gender was also assessed.

Results: Perceived discrimination showed a significant negative association with QoL ($\beta = -0.436, p < 0.001$), while inclusion was positively associated with QoL ($\beta = 1.575, p < 0.001$) and negatively associated with discrimination ($\beta = -0.457, p < 0.001$). Inclusion partially mediated the impact of discrimination on QoL, with a significant indirect effect ($\beta = -0.719, p < 0.001$). Mediation models demonstrated superior fit compared to non-mediated alternatives. School inclusion mitigates the negative impact of discrimination on adolescent QoL.

Discussion: Findings highlight the importance of fostering inclusive educational environments to enhance adolescent wellbeing. Future studies should examine these relationships longitudinally and across diverse cultural contexts.

KEYWORDS

adolescents, discrimination, inclusion, quality of life, structural equation modeling

1 Introduction

Adolescence is a stage in life development where psychosocial aspects such as the relationship with others and the need to belong are especially important (Allen et al., 2018). In this sense, the educational context is particularly relevant, as it is the place where young people spend most of their time and where many of their social interactions take place (Kiuru et al., 2020).

Inclusive settings in the educational context are key for the well-being of adolescents, as can foster a sense of belonging and acceptance, which are crucial for positive mental health development (Kyttälä et al., 2023), as well as socioemotional outcomes and academic performance (Civitillo et al., 2023). When young people feel included and supported, they are more likely to experience greater self-esteem, reduced anxiety, and a stronger sense of overall wellbeing (Boyle et al., 2023). In a recent study by Heppt et al. (2025), adolescents from

ethnically minoritized groups highly stigmatized, perceived a stronger discriminatory climate and experienced classrooms as less structured and more disruptive, highlighting the mediating role of the classroom between discrimination and school adjustment. In another longitudinal study, adolescents experienced the most discrimination in the school environment, associated with decreased wellbeing and protective health behaviors, as well as increased long-term risk behaviors (Emmer et al., 2025). Inclusive education aims to promote the highest levels of presence, participation and learning for all students in the regular education system, particularly, but not only, for those in vulnerable situations (Ainscow, 2005; UNESCO, 1994; United Nations, 2006). Therefore, inclusive education means better outcomes for special needs students as well as others (de Bruin, 2019), and it is the best practice recommended by UNESCO (2005) for all students.

One of the dangers that may threaten inclusion is the presence of stigma and discrimination toward students who are considered different. Discrimination involves unequal treatment based on group or personal characteristics, indicating that others perceive you negatively and do not accept you (Uluğ and Tropp, 2021), that you are treated unfairly or that the world is unjust (Brandt and Crawford, 2020), as well as that others have control over you (Kende and McGarty, 2019). Different studies have shown the existence of discrimination during adolescence for various reasons, such as racism, gender and sexual orientation (Cave et al., 2020; Vargas et al., 2020), physical appearance or weight (Gerend et al., 2022; Sutin et al., 2020), or having a disease or a disability (Meurillon et al., 2025; Lindsay and Cao, 2025; Mulvey et al., 2025). Overall showing how adolescents who perceive greater discrimination have a lower sense of belonging to the school and community (Kilicoglu and Kilicoglu, 2024; Carnes and Disney, 2025).

In addition, it is well known that discrimination has immediate negative effects on the mental health of those who experience it (Emmer et al., 2024), as well as lasting effects on different psychosocial dimensions (Trent et al., 2019; Emmer et al., 2025). As a stressor, it can adversely affect a broad range of physical and mental health outcomes (Peterson et al., 2016; Williams et al., 2019), and coping with it can lead to an increase in risky health behaviors and a decline in the utilization of healthcare services (Williams et al., 2019). Moreover, in order to experience the negative effects of discrimination, it does not only have to be experienced, as Del Toro et al. (2024) show how in cases of witnessing ethnic-racial discrimination it is also accompanied by negative consequences, such as poor academic performance.

Given the importance of discrimination and inclusion, and their impact on the wellbeing of young people, some studies have attempted to investigate their relationships. Montoro et al. (2021), found that discrimination has a negative relationship with school belonging. Mulvey et al. (2022), found that discrimination was negatively related to inclusion and the sense of belonging, with the latter functioning as mediators between discrimination and lower engagement in the classroom. Additionally, Mulvey et al. (2021) point out the complex interaction between school and teacher factors in the face of exclusion, finding that a better school climate can promote the intention to intervene in situations of discrimination. On the other hand, they find that adolescents with previous experiences of discrimination judge it to be more acceptable (Mulvey et al., 2020) and are less likely to intervene (Mulvey et al., 2021).

Although these constructions are often discussed together in the literature, it is essential to clarify their conceptual distinctions to

appropriately frame the present study. In the present study, school inclusion, sense of belonging, and wellbeing are treated as related but conceptually distinct constructs. School inclusion refers to students' perceptions of being academically supported, socially accepted, and emotionally valued within the school environment, encompassing emotional, social, and academic dimensions (Venetz et al., 2015). Sense of belonging, by contrast, reflects the psychological experience of feeling connected, accepted, and valued as part of the school community and is widely recognized as a protective factor for adolescent development (Allen et al., 2018). Finally, wellbeing is understood as adolescents' broader subjective and health-related quality of life, including emotional, physical, school, and social domains, as assessed through validated HRQoL instruments (Ravens-Sieberer and Bullinger, 1998; Rajmil et al., 2004). Clarifying these distinctions is essential, as previous studies have sometimes used these terms interchangeably despite their unique theoretical and functional roles in adolescent adjustment. In another study, it was found that high school wellbeing promoted subsequent higher academic performance through better quality of interpersonal relationships (Kiuru et al., 2020). Different studies have focused on the relationship between inclusion and quality of life, stating Gaydarov (2014) in his meta-analysis, that if the effectiveness of inclusive education is to be increased, individual psychological wellbeing must also be improved. Another study show how discrimination and a lower sense of belonging increase the risk of suicidal ideas and attempts in discriminated adolescents, showing the enormous importance that inclusion and the school system can have on the wellbeing of young people, although it is not clear how these variables of discrimination, inclusion and wellbeing are related (Boyd et al., 2024). And finally, various reviews have shown the negative impact of discrimination on the quality of life in young people (Civitillo et al., 2023; Mendoza et al., 2024). However, despite the existence of the aforementioned studies, there is currently no published research that shows the effects of discrimination on the quality of life or wellbeing of Spanish adolescents and the role that inclusive education plays in this context through a model that relates these variables. Therefore, the present study contributes to the literature by examining the effects of perceived discrimination on quality of life while evaluating the mediating role of perceived school inclusion within a nationally representative Spanish sample.

Considering the aforementioned, the aim of this study is to investigate the effects of discrimination on adolescents' quality of life, including examining the role of inclusive education in this relationship. To this end, a structural equation model is developed, which relates these variables in a sample of Spanish adolescents.

2 Materials and methods

2.1 Participants

Although the initial sample included 1,000 adolescents, a rigorous data screening process was applied to ensure data quality. First, 81 multivariate outliers were identified using Mahalanobis distance (D^2) at the significance level $\alpha = 0.001$ (Hair et al., 2019), with the maximum value being 23.97. Second, Guttman errors were calculated to identify atypical response patterns (e.g., straight-lining), leading to the exclusion of 8 cases. Finally, 72 participants were excluded due to

incomplete responses on one or more of the key study variables (EDS, PIQ, or KINDL). This resulted in a final total of 839 participants included in the analysis. In this final sample, 50% identified as female, 49.3% as male, and 0.7% chose not to disclose their gender, with ages ranging from 12 to 16 years (Mean = 14; Standard Deviation = 1.41). The participants were selected using a method of stratified random sampling according to age, gender and national distribution (sampling error 3.1% with a confidence level of 95.5% for an infinite population and assuming maximum uncertainty). The distribution of the sample across Spain was representative, although the vast majority (92.8%) identified their ethnicity as Western European, excluding other categories such as Roma, Eastern European, or Afro-descendants. The majority of adolescents attended public schools (69.5%), with fewer attending charter schools (25.6%) and/or private schools (4.9%). Moreover, only 7.3% of the participants reported having a diagnosis of mental disorder, physical illness, or disability.

2.2 Procedure

An online survey was conducted using the CAWI (Computer-Assisted Web Interview) method via an access panel provided by Analysis and Investigation company. Data collection occurred during October and November 2023. Participants were required to meet specific criteria: (a) aged between 12–16 years, (b) access to the internet and a mobile device or computer. Participants were invited to participate through personalized links, targeting parents or legal guardians of children aged 12 to 16. They received information about the study and provided informed consent before participating. Subsequently, children completed the survey using multi-device technology. A cross-sectional natural group design (NGD) was employed to ensure response consistency. The questionnaire comprised two parts: the first part, directed at families, included 6 closed-ended questions to gather socio-demographic data, followed by questions for adolescents. The average completion time was 5 min for adults and 25 min for adolescents. All collected data are anonymous and have been approved by the ethics commission of the Ethics Commission of the University of Valladolid (protocol code PI23-3245NOHCUV).

2.3 Variables and instruments

Socio-demographic characteristics were assessed through targeted questions. Parents provided information on their child's age, the type of educational institution they attend, and whether the child has experienced any mental disorder, physical illness, or disability. Adolescents were asked to provide their gender and ethnicity.

Discrimination was assessed using the Everyday Discrimination Scale (EDS; Williams et al., 1997) in its Spanish adaptation (Campos et al., 2016; Flores et al., 2023; Miguel-Alvaro et al., 2025). This scale consists of 9 items that explore common experiences of perceived discrimination, with statements such as “You receive less respect than others” or “People behave as if they are superior to you.” In the version administered in this study, responses were recorded on a 6-point frequency scale, with the following anchors: 1 = Almost every day; 2 = At least once a week; 3 = A few times a month; 4 = A few times a year; 5 = Less than once a year; 6 = Never. For interpretability, responses were recoded after data collection so that higher scores

reflected greater perceived discrimination (i.e., Never = 0 ... Almost every day = 5), and these recoded variables were used in all subsequent analyses. The EDS does not include reverse-keyed items; therefore, this procedure represents a directional recoding of the response scale, rather than item-level reverse scoring. In the present sample, the scale showed high reliability (ordinal $\alpha = 0.89$; $\omega_t = 0.89$).

To evaluate QoL, the Questionnaire for Measuring Health-Related Quality of Life in Children and Adolescents (KINDL-R) (Bullinger et al., 2008; Ravens-Sieberer and Bullinger, 1998) was used in its Spanish version (Rajmil et al., 2004). This instrument has shown sufficient evidence of both reliability and validity in the interpretation of its scores and has been used in various studies within the Spanish context (Urzúa and Mercado, 2008; Fernández-López et al., 2004). The test is designed to be used with populations aged 8 to 16 and consists of 24 items distributed across six subscales: (1) Physical Wellbeing; (2) Emotional Wellbeing; (3) Self-esteem; (4) Family Wellbeing; (5) Friends; (6) School. KINDLR responses are collected on a five-category Likert scale ranging from “0 = never” to “4 = always.” Following the recommendation of the KINDL authors, all raw scores were transformed to a 0–100 scale to facilitate interpretation and comparability. The transformation was performed using the standard formula:

$$\text{Transformed score} = \left(\frac{\text{Raw score} - \text{Minimum possible score}}{\text{Maximum possible score} - \text{Minimum possible score}} \right) \times 100$$

Higher scores indicate better perceived QoL. In this sample, the scale No showed high reliability (ordinal $\alpha = 0.90$; $\omega_t = 0.90$).

Perceptions of inclusion were evaluated using the Perceptions of Inclusion Questionnaire (PIQ) (Venetz et al., 2015) in its Spanish version (PIQ-E) (Rodríguez-Medina et al., 2024). This instrument measures adolescents' subjective perceptions across three dimensions: Emotional and Social Inclusion (EMI), Sense of Inclusion (SOI), and Academic Self-Concept (ASC). Each subscale comprises 4 items rated on a 4-point agreement scale (1 = strongly disagree; 2 = disagree; 3 = agree; 4 = strongly agree), with items 4, 8, and 12 being reverse-scored. Sample items from the EMI subscale include statements like “I enjoy attending school” or “I find school enjoyable.” From the SOI subscale: “I have many friends in my class” or “I get along well with my classmates.” And from the ASC subscale: “I perform well academically” or “I find many aspects of school challenging.” Reliability was assessed for each subscale, demonstrating adequate internal consistency: Emotional Inclusion ($\alpha = 0.89$; $\omega_t = 0.90$), Social Inclusion ($\alpha = 0.91$; $\omega_t = 0.92$), and Academic Self-Concept ($\alpha = 0.84$; $\omega_t = 0.85$). The overall scale also demonstrated high reliability, with ordinal alpha ($\alpha = 0.91$) and omega ($\omega_t = 0.91$).

2.4 Data analysis

In the first phase, a descriptive analysis of the entire dataset was performed. In the second stage, the measurement models for all instruments were evaluated using Confirmatory Factor Analysis (CFA) using the lavaan (Rosseel, 2014) package in R. The statistical significance and magnitude of factor loadings were assessed to confirm that items adequately reflected their

corresponding latent constructs. During this phase, evidence regarding convergent and discriminant validity as well as reliability was obtained for all instruments. To accomplish this, each model was estimated based on prior literature (Bullinger et al., 2008; Ravens-Sieberer and Bullinger, 1998; Venetz et al., 2015). In the third phase, gender invariance of the structural model was examined. The progressive estimation of invariance began with the baseline model (configural invariance) and continued with metric (weak), scalar (strong), and strict invariance levels (Liu et al., 2017). Following the procedure recommended by Liu et al. (2017) for testing invariance with ordinal data, we also evaluated the practical significance of any invariance violations through sensitivity analyses.

In the fourth phase, to explore the relationship between discrimination and QoL in adolescents, a Structural Equation Model (SEM) was estimated using the lavaan package (Rosseel, 2014) in R. Model fit was evaluated using multiple indices, including the chi-square test, CFI, TLI, RMSEA, and SRMR. Following established recommendations, CFI and TLI values ≥ 0.95 were interpreted as good fit (≥ 0.90 acceptable), RMSEA values ≤ 0.06 indicated good fit (≤ 0.08 acceptable), and SRMR values ≤ 0.08 reflected adequate fit (Hu and Bentler, 1999). Standardized path coefficients were examined to determine the strength and significance of the direct and indirect effects between inclusion and QoL. Mediation analyses were conducted to investigate potential mediating and moderating variables that could influence the relationship between the two constructs.

3 Results

The results show discrimination scores below the mean of the questionnaire ($M = 45.29$; $SD = 8.14$), revealing that the sample of adolescents does not suffer discrimination frequently, with the most common forms of discrimination being feeling undervalued by others, being treated worse or being called names or insulted. On the other hand, the sample reveals medium-high levels of quality of life ($M = 68.95$; $SD = 12.61$), where in general perceptions of wellbeing are adequate. In relation to inclusion, the results show that it is also medium-high ($M = 68.01$; $SD = 15.59$), especially in the social dimension and relationships with peers. Details on the total scores as well as on the individual items of each scale can be found in the [Supplementary material](#).

3.1 Measurement models

3.1.1 Everyday discrimination scale

The CFA confirmed that all items in this scale fit well within a single-factor model, meaning they all contribute to measuring everyday discrimination. The model showed a good fit to the data ($\chi^2(27) = 48.144$, $RMSEA = 0.031$, $CFI = 0.993$, $TLI = 0.991$, and $SRMR = 0.046$), indicating that the scale is reliable for assessing discrimination experiences among adolescents (Table 1).

3.1.2 PIQ questionnaire

The confirmatory factor analysis (CFA) confirmed that the PIQ questionnaire follows a three-factor structure, representing Emotional Inclusion, Social Inclusion, and Academic Self-Concept. The model

TABLE 1 Standardized factor loadings for the everyday discrimination scale.

Indicator	B	SE	Z	Beta	R ²
DISCRI1r	0.72	0.03	28.07	0.68	0.46
DISCRI2r	0.81	0.03	28.67	0.75	0.56
DISCRI3r	0.45	0.02	22.02	0.53	0.28
DISCRI4r	0.76	0.03	26.46	0.66	0.43
DISCRI5r	0.33	0.02	17.16	0.43	0.18
DISCRI6r	0.58	0.02	24.52	0.63	0.40
DISCRI7r	0.86	0.03	28.04	0.63	0.40
DISCRI8r	0.60	0.03	23.84	0.58	0.34
DISCRI9r	0.44	0.02	23.55	0.59	0.35

All *p*-values were statistically significant at $p < 0.001$.

demonstrated a good fit to the data ($\chi^2(51) = 139.609$, $RMSEA = 0.042$, $CFI = 0.988$, $TLI = 0.984$), confirming its validity (Table 2).

3.1.3 Questionnaire for measuring health-related quality of life in children and adolescents (KINDL-R)

The CFA confirmed that the six-factor structure provided an acceptable fit to the data ($\chi^2(237) = 1268.128$; $RMSEA = 0.063$; $CFI = 0.961$; $TLI = 0.954$), supporting its validity. Results can be seen in Table 3.

3.1.4 Inclusion as mediator between discrimination and quality of life

The relationship between Inclusion, Discrimination and Quality of Life was studied using SEM. Figure 1 presents the final proposed model, in which discrimination negatively affects both inclusion and QoL. Discrimination directly and negatively affects quality of life, while it is also affected indirectly through inclusion, which acts as a mediator between the two variables. More discrimination is related to lower quality of life, while more discrimination implies less inclusion, and less inclusion is related to lower quality of life. In addition, inclusion shows a strong positive association with quality of life, indicating that a greater sense of belonging contributes to improved wellbeing.

Standardized path coefficients further confirmed that Discrimination significantly reduces both Inclusion ($\beta = -0.457$, $p < 0.001$) and QoL ($\beta = -0.436$, $p < 0.001$), whereas Inclusion has a strong positive impact on QoL ($\beta = 1.575$, $p < 0.001$). The indirect effect of Discrimination on QoL through Inclusion was significant ($\beta = -0.719$, $p < 0.001$), confirming that Inclusion partially mediates the negative impact of Discrimination on adolescent wellbeing. Results in detail can be seen in Table 4.

This final mediated model was compared to another model where the relationship of Discrimination and QoL was not mediated by Inclusion, this model was called 'Alternative Model'. In this model, it is shown that although inclusion partially buffers the negative impact of discrimination, discrimination exerts a direct effect on quality of life resulting in a model that is sufficient in terms of its parameter outcomes. But the results show a worse fit of the alternative model compared with the final one, showing how introducing the mediation of Inclusion improves the statistics, thus underlining the importance

TABLE 2 Standardized factor loadings for the PIQ questionnaire.

Latent factor	Indicator	B	SE	Z	Beta	R ²
Emotional	PIC1	0.666	0.022	30.764	0.842	0.709
	PIC4R	0.582	0.033	17.862	0.650	0.423
	PIC7	0.639	0.022	28.410	0.818	0.669
	PIC10	0.526	0.024	22.357	0.781	0.611
Social	PIC2	0.576	0.023	24.578	0.777	0.603
	PIC5	0.484	0.019	26.021	0.806	0.650
	PIC8R	0.491	0.024	20.463	0.702	0.493
	PIC11	0.486	0.019	25.918	0.817	0.668
Academic	PIC3	0.493	0.021	23.007	0.747	0.558
	PIC6	0.498	0.024	21.064	0.694	0.481
	PIC9	0.454	0.022	20.665	0.734	0.538
	PIC12R	0.455	0.031	14.567	0.583	0.340

All p-values were statistically significant at $p < 0.001$.

TABLE 3 Standardized factor loadings for the KINDL-R questionnaire.

Latent factor	Indicator	B	SE	Z	Beta	R ²
FI	KINDL1r	0.45	0.03	16.13	0.49	0.24
	KINDL2r	0.42	0.03	13.50	0.48	0.23
	KINDL3r	0.49	0.03	15.89	0.55	0.31
	KINDL4	0.61	0.03	22.43	0.74	0.55
EM	KINDL5	0.47	0.02	19.76	0.61	0.38
	KINDL6r	0.46	0.03	15.79	0.55	0.30
	KINDL7r	0.64	0.03	22.71	0.67	0.45
	KINDL8r	0.56	0.03	19.44	0.58	0.34
AU	KINDL9	0.73	0.03	29.12	0.81	0.66
	KINDL10	0.76	0.03	29.48	0.82	0.68
	KINDL11	0.72	0.02	30.23	0.90	0.81
	KINDL12	0.46	0.03	16.25	0.59	0.34
FA	KINDL13	0.57	0.02	26.24	0.77	0.59
	KINDL14	0.63	0.02	25.71	0.82	0.68
	KINDL15r	0.59	0.03	21.15	0.66	0.44
	KINDL16r	0.71	0.03	24.39	0.72	0.52
AM	KINDL17	0.52	0.03	18.73	0.58	0.34
	KINDL18	0.52	0.02	22.68	0.74	0.54
	KINDL19	0.51	0.02	22.99	0.74	0.55
	KINDL20r	0.69	0.03	22.23	0.66	0.43
ES	KINDL21	0.55	0.03	20.48	0.69	0.47
	KINDL22	0.53	0.03	17.33	0.55	0.30
	KINDL23r	0.14	0.04	3.33	0.13	0.02
	KINDL24r	0.45	0.04	11.75	0.41	0.17

All p-values were statistically significant at $p < 0.001$.

of Inclusion. The final mediated model highlights the crucial role of school belonging in mitigating the effects of Discrimination and promoting QoL. Table 5 displays the fit indices of both models.

4 Discussion

The results of this study highlight the significant relationship between perceptions of inclusion and QoL in adolescents, reinforcing previous findings on the impact of inclusive education (Gaydarov, 2014). Our data show that a greater perception of inclusion correlates with a higher quality of life, supporting the idea that a sense of belonging and acceptance within the school environment is essential for adolescents' overall wellbeing. These findings are consistent with those of Arslan (2021), who observed that school belonging is positively associated with adolescents' subjective wellbeing and fewer mental health issues.

A key aspect of this study concerns the role of perceived inclusion as a mediating factor between discrimination and quality of life. Our findings indicate that although discrimination has a direct negative impact on quality of life, as shown in other studies (Gaydarov, 2014), this effect is partially mediated by perceived inclusion, which mitigates some of its negative consequences. This suggests that the benefits of inclusion are partly explained by the negative impact of discrimination, as also indicated by Coley et al. (2017), who found that perceived discrimination was associated with lower quality of life in older African American women. Similarly, the study by Sevillano et al. (2014) in an immigrant population in Spain reinforces the view that perceived discrimination is a key predictor of physical and mental health.

Our model presents a comprehensive view of the interconnection between Discrimination, Inclusion, and QoL, a pattern supported in previous research, such as the study by Kakemam et al. (2024). This latter work examines how social factors, such as social support, governance, and perceived discrimination, affect mental health in Iranian adults, identifying the mediating role of quality of life in this relationship. Although Kakemam et al. (2024) emphasize the importance of quality of life as a mediator in the connection between social factors and mental health disorders, their focus is directed toward an adult population and centers primarily on the effects of social determinants on mental health disorders.

The findings of our study align with broader theoretical frameworks on inclusion and mental health (Gómez et al., 2021; Schalock et al., 2016; Verdugo et al., 2021), including the Quality of Life and Supports Model (MOCA) by Verdugo et al. (2021), which provides an operational integration of the quality of life and support paradigms for people with intellectual disabilities. This model emphasizes an inclusive environment as a means to improve wellbeing. Our study highlights the importance of fostering inclusive practices not only to improve direct outcomes such as academic performance (Kart and Kart, 2021) but also to address indirect factors that can impact adolescents' development. For instance, Montoro et al. (2021) found that school belonging, a key indicator of academic wellbeing, is negatively affected by discrimination from both adults and peers, impacting students' sense of belonging.

However, our results also reveal that inclusion, while beneficial, may not fully counteract the negative effects of discrimination on quality of life among diverse adolescent populations. Our findings show that while inclusion directly enhances quality of life, adolescents who experience discrimination—particularly those from minority backgrounds or those facing physical or mental challenges—report lower quality of life. These findings are similar to the research by Sellers et al. (2013) and Nascimento et al. (2020), who highlighted

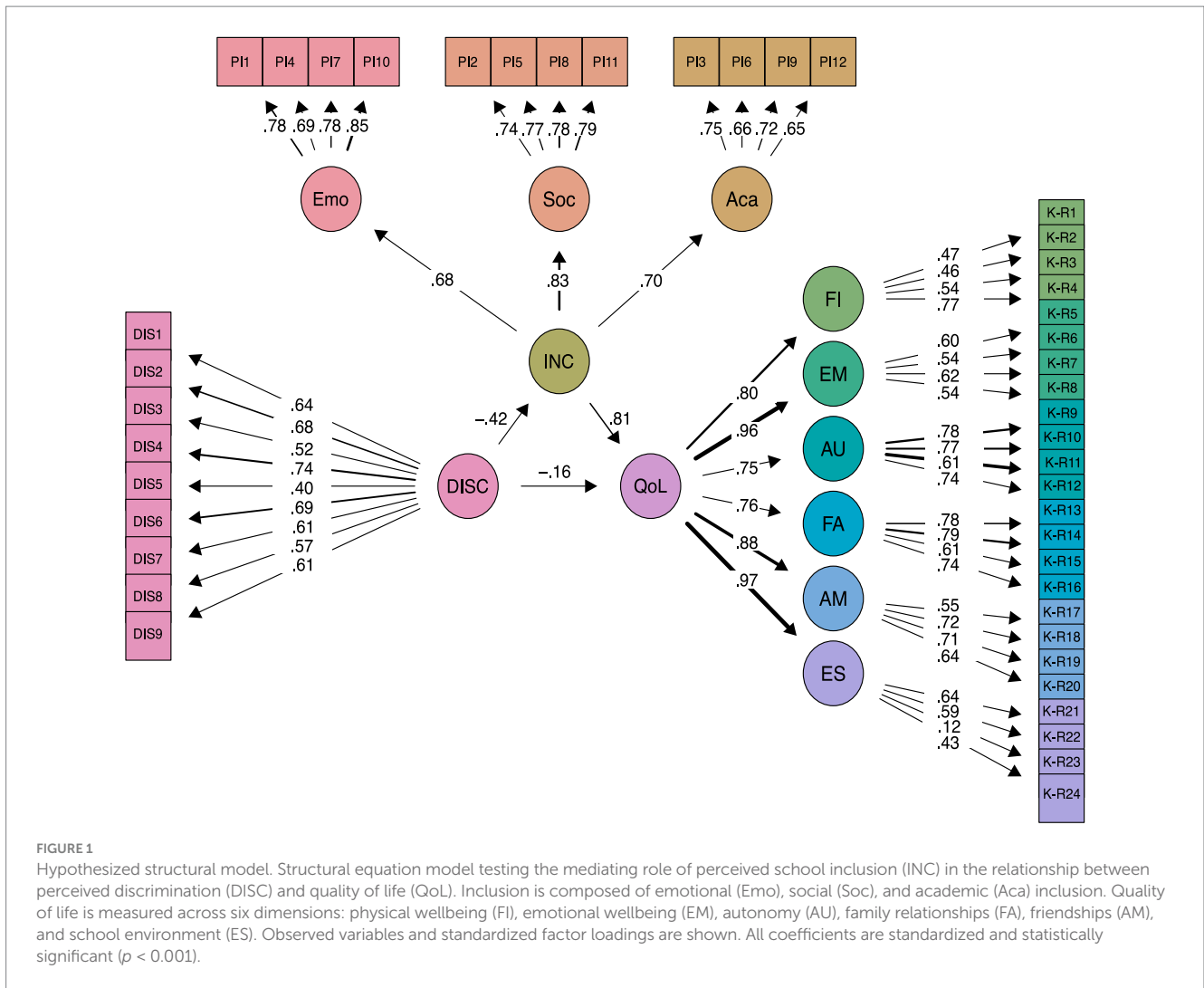


TABLE 4 Standardized path coefficients of the mediation model.

Path	Estimate	S.E.	ci. lower	ci. upper	Std	z	p
QoL ~ DISCRI	-0.436	0.076	-0.500	-0.201	-0.163	-4.592	<0.001
INC ~ DISCRI	-0.457	0.048	-0.552	-0.362	-0.415	-9.445	<0.001
QoL ~ INC	1.575	0.174	1.234	1.915	0.805	9.062	<0.001
Indirect effects	-0.719	0.110	-0.935	-0.503	-0.334	-6.539	<0.001

TABLE 5 Fit indices of the proposed model.

Model	χ^2 (df)	$p(\chi^2)$	RMSEA	SRMR	CFI	TLI
Mediated model	2782.79 (933)	< 0.001	0.049	0.063	0.965	0.963
Alternative model	2872.73 (934)	< 0.001	0.050	0.076	0.964	0.961

the compounded effects of discrimination on the wellbeing of marginalized youth. The broader social context also plays a significant role. Thomas (2013) suggests that to maximize the positive impact of inclusive education, it is crucial to rethink traditional approaches to students' difficulties in school and to recognize how factors such as inequality and social judgment contribute to learning barriers.

Some limitations of this research refer to the characteristics of the sample, which, although it has ensured a balanced sample in terms of gender, age and territorial distribution in Spain, there is a lack of access to specific populations, such as adolescents of very low and high socio-economic status, or truly rural populations, probably due to the online methodology employed. In addition, the ethnic composition of the sample was highly homogeneous, with 92.8% of participants

identifying as Western European. This limited diversity may constrain the generalizability of the findings, particularly regarding the experiences of adolescents from minoritized ethnic backgrounds. Future research should include more ethnically diverse samples to enhance external validity. On the other hand, it is necessary to take into account the limitations of the cross-sectional methodology and structural equations. Although they are advanced and complete analyses, they still provide a static picture of reality, making it difficult to make absolute statements when formulating explanatory theories of phenomena as complex as the relationships between the variables presented in this study. Complementing this model in the future with longitudinal and qualitative studies will undoubtedly enrich knowledge in the area. Along the same lines, the replicability of this model in other samples and cultures would ensure the generalisability of the results obtained, which until then should be interpreted with caution.

The conclusions of this study underscore the significant relationship between inclusion and quality of life (QoL) in adolescents, highlighting that the perception of inclusion is not only directly associated with improved quality of life but also appears to mediate experiences of discrimination, which negatively impact adolescent wellbeing. These results are consistent with previous research suggesting that a sense of belonging and acceptance within the educational environment is essential for positive development during adolescence.

Our findings confirm that discrimination has a persistent negative impact on adolescent wellbeing. While inclusion mitigates some of its effects, targeted interventions against discrimination remain essential to improve quality of life. This finding suggests that, to maximize the benefits of inclusive practices, effective policies should be in place to address and mitigate discrimination. In this regard, the findings support the need to promote an educational environment that is not only inclusive but also actively committed to preventing and reducing discrimination against adolescents from diverse backgrounds and characteristics. These findings reinforce the importance of fostering inclusive school environments not only as a means of improving adolescent wellbeing, but also as a lever for driving meaningful educational change toward greater equity and social justice.

Data availability statement

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

Ethics statement

This study was conducted in accordance with the Declaration of Helsinki and approved by the Ethics Committee of the University of Valladolid (Protocol number 23-3245NOHCUV). Informed consent was obtained from all individual participants included in the study. 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.

Author contributions

AA-L: Investigation, Conceptualization, Writing – review & editing, Methodology, Writing – original draft. CG-S: Writing – original draft, Investigation, Conceptualization, Funding acquisition, Writing – review & editing, Supervision, Formal analysis, Project administration, Methodology. JR-M: Funding acquisition, Writing – original draft, Formal analysis, Methodology, Investigation, Data curation, Conceptualization, Writing – review & editing.

Funding

The author(s) declared that financial support was received for this work and/or its publication. This work was supported by the Foundation la Caixa Childhood Vulnerability in Spain under Grant [FS23-1B/CHILDHOOD VULNERABILITY IN SPAIN]; and by Ministry of Science, University and Innovation (Spain) under Grant [PID2023-150190OA-I00/MENTAL-SED] Mental Health of People with Intellectual Disabilities: Assessment, Diagnosis, and Prevention through a Digital Assessment System, funded by MICIU/AEI/10.13039/501100011033 and by ERDF/EU.

Conflict of interest

The author(s) declared that this work was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Generative AI statement

The author(s) declared that Generative AI was not used in the creation of this manuscript.

Any alternative text (alt text) provided alongside figures in this article has been generated by Frontiers with the support of artificial intelligence and reasonable efforts have been made to ensure accuracy, including review by the authors wherever possible. If you identify any issues, please contact us.

Publisher's note

All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers. Any product that may be evaluated in this article, or claim that may be made by its manufacturer, is not guaranteed or endorsed by the publisher.

Supplementary material

The Supplementary material for this article can be found online at: <https://www.frontiersin.org/articles/10.3389/fpsyg.2025.1722505/full#supplementary-material>

References

- Ainscow, M. (2005). Developing inclusive education systems: what are the levers for change? *J. Educ. Change* 6, 109–124. doi: 10.1007/s10833-005-1298-7
- Allen, K., Kern, M. L., Vella-Brodrick, D., Hattie, J., and Waters, L. (2018). What schools need to know about fostering school belonging: a meta-analysis. *Educ. Psychol. Rev.* 30, 1–34. doi: 10.1007/s10648-016-9389-8
- Arslan, G. (2021). School belongingness, well-being, and mental health among adolescents: exploring the role of loneliness. *Aust. J. Psychol.* 73, 70–80. doi: 10.1080/00049530.2021.1904499
- Boyd, D. T., Gale, A., Quinn, C. R., Mueller-Williams, A. C., Jones, K. V., Williams, E., et al. (2024). Do we belong? Examining the associations between adolescents' perceptions of school belonging, teacher discrimination, peer prejudice and suicide. *J. Racial Ethn. Health Disparities* 11, 1454–1464. doi: 10.1007/s40615-023-01622-5
- Boyle, C., Allen, K. A., Bleeze, R., Bozorg, B., and Sheridan, K. (2023). “Enhancing positive wellbeing in schools: the relationship between inclusion and belonging” in *New research and possibilities in wellbeing education*. (Eds.) White, M. A., McCallum, F., and Boyle, C. (Singapore: Springer Nature Singapore), 371–384.
- Brandt, M. J., and Crawford, J. T. (2020). “Worldview conflict and prejudice” in *Advances in experimental social psychology*, ed. Gawronski, B. (San Diego, CA, United States: Elsevier Academic Press), 1–66.
- Bullinger, M., Brütt, A. L., Erhart, M., and Ravens-Sieberer, U. BELLA Study Group (2008). Psychometric properties of the KINDL-R questionnaire: results of the BELLA study. *Eur. Child Adolesc. Psychiatry* 17, 125–132. doi: 10.1007/s00787-008-1014-z
- Campos, L., Dias, P., Palha, F., Duarte, A., and Veiga, E. (2016). Development and psychometric properties of a new questionnaire for assessing mental health literacy in young people. *Univ. Psychol.* 15, 61–72. doi: 10.11144/Javeriana.upsy15-2.dppq
- Carnes, S. L., and Disney, L. (2025). Social inclusion, belonging, and school-based experiences in central American immigrant youth. *Child. Sch.* 47, 17–25. doi: 10.1093/cs/cdae026
- Cave, L., Cooper, M. N., Zubrick, S. R., and Shepherd, C. C. J. (2020). Racial discrimination and child and adolescent health in longitudinal studies: a systematic review. *Soc. Sci. Med.* 250:112864. doi: 10.1016/j.socscimed.2020.112864
- Civitillo, S., Mayer, A.-M., and Jugert, P. (2023). A systematic review and meta-analysis of the associations between perceived teacher-based racial-ethnic discrimination and student well-being and academic outcomes. *J. Educ. Psychol.* 116, 719–741. doi: 10.1037/edu0000818
- Coley, S. L., Mendes de Leon, C. F., Ward, E. C., Barnes, L. L., Skarupski, K. A., and Jacobs, E. A. (2017). Perceived discrimination and health-related quality-of-life: gender differences among older African Americans. *Qual. Life Res.* 26, 3449–3458. doi: 10.1007/s11136-017-1663-9
- de Bruin, K. (2019). Does inclusion work? In *Inclusive education for the 21st century*, ed. Graham, L. London, United Kingdom: Routledge.
- Del Toro, J., Legette, K., Christophe, N. K., Pasco, M., Miller-Cotto, D., and Wang, M.-T. (2024). When ethnic-racial discrimination from math teachers spills over and predicts the math adjustment of nondiscriminated adolescents: the mediating role of math classroom climate perceptions. *Dev. Psychol.* 60, 2242–2257. doi: 10.1037/dev0001833
- Emmer, C., Dorn, J., and Mata, J. (2024). The immediate effect of discrimination on mental health: a meta-analytic review of the causal evidence. *Psychol. Bull.* 150, 215–252. doi: 10.1037/bul0000419
- Emmer, C., Neumer, A., Kalter, F., and Mata, J. (2025). Long-term discrimination effects on adolescent health behaviors and well-being in four countries. *Health Psychol.* 44, 854–865. doi: 10.1037/hea0001496
- Fernández-López, J. A., Fidalgo, M. F., Cieza, A., and Ravens-Sieberer, U. (2004). Medición de la calidad de vida en niños y adolescentes: comprobación preliminar de la validez y fiabilidad de la versión española del cuestionario KINDL questionnaire. *Aten. Primaria* 33, 434–442. doi: 10.1016/S0212-6567(04)79429-9
- Flores, J., Caqueo-Urizar, A., Acevedo, D., Osorio, S., and Urzúa, A. (2023). Validación de la Escala de Discriminación en la Vida Cotidiana (EDS) en escolares chilenos. *Rev. Psicol.* 32, 1–13. doi: 10.5354/0719-0581.2023.70340
- Gaydarov, K. (2014). Psychological wellbeing in the context of inclusive education. *Int. J. New Trends Educ. Implic.* 5, 1–12.
- Gerend, M. A., Patel, S., Ott, N., Wetzel, K., Sutin, A. R., Terracciano, A., et al. (2022). A qualitative analysis of people's experiences with weight-based discrimination. *Psychol. Health* 37, 1093–1110. doi: 10.1080/08870446.2021.1921179
- Gómez, L. E., Schalock, R. L., and Verdugo, M. Á. (2021). A new paradigm in the field of intellectual and developmental disabilities: characteristics and evaluation. *Psicothema* 33, 28–35. doi: 10.7334/psicothema2020.385
- Hair, J. F., Black, W. C., Babin, B. J., and Anderson, R. E. (2019). *Multivariate data analysis*. 8th Edn. London: Cengage.
- Heppt, B., Schwarzenhal, M., and Scharf, J. (2025). Discriminatory climate and school adjustment in ethnically Minoritized adolescents and majority adolescents: an investigation of the mediating role of teaching quality. *J. Youth Adolesc.* 54, 1732–1755. doi: 10.1007/s10964-025-02147-2
- Hu, L., and Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives. *Struct. Equ. Model.* 6, 1–55. doi: 10.1080/10705519909540118
- Kakemam, E., Mohammadpour, E., Karimi, S. E., Saiedpour, J., Abbaszadeh, M., and Alizadeh, M. (2024). The relationship between good governance, social support, and perceived discrimination with mental health through the mediation role of quality of life: a cross-sectional path analysis in Iran. *BMC Public Health* 24:2306. doi: 10.1186/s12889-024-19806-x
- Kart, A., and Kart, M. (2021). Academic and social effects of inclusion on students without disabilities: a review of the literature. *Educ. Sci.* 11:16. doi: 10.3390/educsci11010016
- Kende, A., and McGarty, C. (2019). A model for predicting prejudice and stigma expression by understanding target perceptions: the effects of visibility, politicization, responsibility, and entitativity. *Eur. J. Soc. Psychol.* 49, 839–856. doi: 10.1002/ejsp.2550
- Kilicoglu, G., and Kilicoglu, D. (2024). Turkish adolescents' perceived discrimination and sense of belonging to school: a comparative analysis in Germany and France. *Turk. Stud.* 26, 157–183. doi: 10.1080/14683849.2024.2419387
- Kiuru, N., Wang, M.-T., Salmela-Aro, K., Kannas, L., Ahonen, T., and Hirvonen, R. (2020). Associations between adolescents' interpersonal relationships, school well-being, and academic achievement during educational transitions. *J. Youth Adolesc.* 49, 1057–1072. doi: 10.1007/s10964-019-01184-y
- Kyttälä, M., Sinkkonen, H.-M., and Harju-Autti, R. (2023). Perceptions of inclusion among lower secondary level students in Finland. *Scand. J. Educ. Res.* 69, –178. doi: 10.1080/00313831.2023.2266728
- Lindsay, S., and Cao, P. (2025). Navigating the impact of discrimination: exploring the experiences of sex/gender Minoritized youth with disabilities. *Child Care Health Dev.* 51:e70067. doi: 10.1111/cch.70067
- Liu, M., Harbaugh, A. G., Haring, J. R., and Hancock, G. R. (2017). The effect of extreme response and non-extreme response styles on testing measurement invariance. *Brain Behav Immun Frontiers in Psychology*. 8:726. doi: 10.3389/fpsyg.2017.00726
- Mendoza, F. S., Woo Baidal, J. A., Fernández, C. R., and Flores, G. (2024). Bias, prejudice, discrimination, racism, and social determinants: the impact on the health and well-being of Latino children and youth. *Acad. Pediatr.* 24, S196–S203. doi: 10.1016/j.acap.2023.12.013
- Meurillon, R., Stheneur, C., and Le Roux, E. (2025). Discrimination against adolescents with chronic diseases: a systematic review. *Eur. J. Pediatr.* 184:74. doi: 10.1007/s00431-024-05829-4
- Miguel-Alvaro, A., Rodríguez-Medina, J., and González-Sanguino, C. (2025). Spanish version of the everyday discrimination scale (EDS-E): factorial structure and scale invariance in Spanish adolescents. *J. Clin. Med.* 14:2887. doi: 10.3390/jcm14092887
- Montoro, J. P., Kilday, J. E., Rivas-Drake, D., Ryan, A. M., and Umaña-Taylor, A. J. (2021). Coping with discrimination from peers and adults: implications for adolescents' school belonging. *J. Youth Adolesc.* 50, 126–143. doi: 10.1007/s10964-020-01360-5
- Mulvey, K. L., Cerda-Smith, J., Joy, A., Batul, M., and Ozturk, E. (2025). The role of discrimination and barriers in the perceptions of adolescents with and without disabilities of STEM classes and jobs: Mulvey et al. *Int. J. Sci. Math. Educ.*, 1–15. doi: 10.1007/s10763-025-10599-y
- Mulvey, K. L., Gönültaş, S., Hope, E. C., Hoffman, A. J., DiStefano, C., Irvin, M. J., et al. (2020). The complex nature of youth aggression: relations between cognition, discrimination, and peer perceptions of bullying involvement. *Youth Soc.* 53, 979–1000. doi: 10.1177/0044118X20920085
- Mulvey, K. L., Gönültaş, S., Irdam, G., Carlson, R. G., DiStefano, C., and Irvin, M. J. (2021). School and teacher factors that promote adolescents' bystander responses to social exclusion. *Front. Psychol.* 11:581089. doi: 10.3389/fpsyg.2020.581089
- Mulvey, K. L., Mathews, C. J., Knox, J., Joy, A., and Cerda-Smith, J. (2022). The role of inclusion, discrimination, and belonging for adolescent science, technology, engineering and math engagement in and out of school. *J. Res. Sci. Teach.* 59, 1447–1464. doi: 10.1002/tea.21762
- Nascimento, F. K., Reis, R. A., Saadeh, A., Demétrio, F., Rodrigues, I. L. A., Galera, S. A. F., et al. (2020). Brazilian transgender children and adolescents: attributes associated with quality of life. *Rev. Lat. Am. Enfermagem* 28:e3351. doi: 10.1590/1518-8345.3504.3351
- Peterson, L. M., Matthews, K. A., Derby, C. A., Bromberger, J. T., and Thurston, R. C. (2016). The relationship between cumulative unfair treatment and intimate media thickness and adventitial diameter: the moderating role of race in the study of women's health across the nation. *Health Psychol.* 35, 313–321. doi: 10.1037/hea0000288
- Rajmil, L., Serra-Sutton, V., Fernández-López, J. A., Berra, S., Aymerich, M., Cieza, A., et al. (2004). “Versión española del cuestionario alemán de calidad de vida relacionada con la salud en población infantil y de adolescentes: el Kindl” in *Anales de Pediatría*, vol. 60 (Barcelona, Spain: Elsevier Doyma), 514–521.

- Ravens-Sieberer, U., and Bullinger, M. (1998). Assessing health-related quality of life in chronically ill children with the German KINDL: first psychometric and content analytical results. *Qual. Life Res.* 7, 399–407. doi: 10.1023/A:1008853819715
- Rodríguez-Medina, J., Gonzalez-Sanguino, C., Betegón-Blanca, E., and Ayuso-Lanchares, A. (2024). Psychometric properties of the Spanish student version of perceptions of inclusion questionnaire (PIQ-Spa) in a sample of adolescents. *Eur. J. Spec. Needs Educ.* 40, 276–289. doi: 10.1080/08856257.2024.2354605
- Rosseeel, Y. (2014). The lavaan tutorial: Department of Data Analysis. Vienna, Austria: Ghent University.
- Schalock, R. L., Verdugo, M. A., Gomez, L. E., and Reinders, H. S. (2016). Moving us toward a theory of individual quality of life. *Am. J. Intellect. Dev. Disabil.* 121, 1–12. doi: 10.1352/1944-7558-121.1.1
- Sellers, S., Cherepanov, D., Hanmer, J., Fryback, D. G., and Palta, M. (2013). Interpersonal discrimination and health-related quality of life among black and white men and women in the United States. *Qual. Life Res.* 22, 1307–1312. doi: 10.1007/s11136-012-0278-4
- Sevillano, V., Basabe, N., Bobowik, M., and Aierdi, X. (2014). Health-related quality of life, ethnicity and perceived discrimination among immigrants and natives in Spain. *Ethn. Health* 19, 178–197. doi: 10.1080/13557858.2013.797569
- Sutin, A. R., Stephan, Y., Robinson, E., Daly, M., and Terracciano, A. (2020). Body-related discrimination and dieting and substance use behaviors in adolescence. *Appetite* 151:104689. doi: 10.1016/j.appet.2020.104689
- Thomas, G. (2013). A review of thinking and research about inclusive education policy, with suggestions for a new kind of inclusive thinking. *Br. Educ. Res. J.* 39, 473–490. doi: 10.1080/01411926.2011.652070
- Trent, M., Dooley, D. G., Dougé, J., Cavanaugh, R. M., Lacroix, A. E., Fanburg, J., et al. (2019). The impact of racism on child and adolescent health. *Pediatrics* 144:e20191765. doi: 10.1542/peds.2019-1765
- Uluğ, Ö. M., and Tropp, L. R. (2021). Witnessing racial discrimination shapes collective action for racial justice: enhancing awareness of privilege among advantaged groups. *J. Appl. Soc. Psychol.* 51, 248–261. doi: 10.1111/jasp.12731
- UNESCO 1994 Conferencia Mundial sobre Necesidades Educativas Especiales: Acceso y Calidad Salamanca, España. Available online at: https://unesdoc.unesco.org/ark:/48223/pf0000110753_spa (Accessed November 15, 2024).
- UNESCO (2005). Guidelines for inclusion: ensuring access to education for all. Paris: UNESCO.
- United Nations 2006 Convention on the rights of persons with disabilities. Available online at: https://treaties.un.org/doc/Publication/CTC/Ch_IV_15.pdf
- Urzúa, A., and Mercado, G. (2008). La evaluación de la calidad de vida de los y las adolescentes a través del Kiddo-Kindl. *Ter. Psicol.* 26, 133–141. doi: 10.4067/S0718-48082008000100012
- Vargas, S. M., Huey, S. J. Jr., and Miranda, J. (2020). A critical review of current evidence on multiple types of discrimination and mental health. *Am. J. Orthopsychiatry* 90, 374–390. doi: 10.1037/ort0000441
- Venez, M., Zurbriggen, C. L. A., Eckhart, M., Schwab, S., and Hessels, M. G. P. 2015. “The perceptions of inclusion questionnaire (PIQ).” Available online at: <http://www.piqinfo.ch> (Accessed November 15, 2024).
- Verdugo, M. A., Schalock, R. L., and Gómez, L. E. (2021). The quality of life supports model: twenty-five years of parallel paths have come together. *Siglo Cero* 52, 9–28. doi: 10.14201/scero2021523928
- Williams, D. R., Lawrence, J. A., Davis, B. A., and Vu, C. (2019). Understanding how discrimination can affect health. *Health Serv. Res.* 54, 1374–1388. doi: 10.1111/1475-6773.13222
- Williams, D. R., Yu, Y., Jackson, J. S., and Anderson, N. B. (1997). Racial differences in physical and mental health. Socio-economic status, stress and discrimination. *J. Health Psychol.* 2, 335–351. doi: 10.1177/135910539700200305