frontiers | Frontiers in Social Psychology

TYPE Original Research
PUBLISHED 31 October 2025
DOI 10.3389/frsps.2025.1659017

OPEN ACCESS

EDITED BY
Richard P. Eibach,
University of Waterloo, Canada

REVIEWED BY
Yasemin Niephaus,
University of Siegen, Germany
Elena Stepanova,
European Commission Headquarters, Belgium

*CORRESPONDENCE
Thomas McLaren
✉ thomas.mclaren@medizin.uni-leipzig.de
Tobias Schott
✉ tobias.schott@medizin.uni-leipzig.de

RECEIVED 03 July 2025
ACCEPTED 15 September 2025
PUBLISHED 31 October 2025

CITATION
McLaren T, Fleischer T, Schott T, Weiß A, Blume M, Ulke C, Hinz A, Reyes N, Zeynalova S, Schomerus G and Speerforck S (2025) The impact of political marginalization in the former German Democratic Republic on satisfaction with life in a population-based sample. *Front. Soc. Psychol.* 3:1659017. doi: 10.3389/frsps.2025.1659017

The impact of political marginalization in the former German Democratic Republic on satisfaction with life in a population-based sample

Thomas McLaren[1]*, Toni Fleischer[1], Tobias Schott[1]*, Anne Weiß[1], Marie Blume[1], Christine Ulke[1], Andreas Hinz[2], Nigar Reyes[3], Samira Zeynalova[3,4], Georg Schomerus[1] and Sven Speerforck[1]

[1]Department of Psychiatry and Psychotherapy, University Hospital Leipzig, Leipzig, Germany, [2]Department of Medical Psychology and Medical Sociology, University of Leipzig, Leipzig, Germany, [3]Institute for Medical Informatics, Statistics and Epidemiology, University of Leipzig, Leipzig, Germany, [4]Leipzig Research Centre for Civilization Diseases, University of Leipzig, Leipzig, Germany

Background: Political marginalization of people by state institutions is both a historical and a contemporary problem. In the former German Democratic Republic (GDR), there was considerable political repression by the state. The present study examines the influence of political marginalization in the GDR on later satisfaction with life and how this association is mediated by social support and anxiety.

Methods: Data is analyzed from the cohort study of the Leipzig Research Center for Civilization Diseases. The sample includes $n = 230$ adults who reported political marginalization in the GDR and a matched group of $n = 230$ adults who did not experience such marginalization. Participants self-reported on their current state of satisfaction with life, social support, and anxiety. Gender stratified mediation models were conducted using the R package lavaan.

Results: The study sample consisted of $N = 460$ participants (gender: $n = 274$, 59.6% women; age: mean = 59 years, standard deviation = 11.3). Generally, participants reporting political marginalization have higher levels of anxiety as well as lower satisfaction with life and social support. The mediation results show that for men, the relationship between political marginalization and satisfaction with life was mediated by anxiety symptoms, whereas this was not the case for women. Social support was not a mediator.

Conclusion: Previous findings on political persecution are replicated here. The mixed results are discussed in the light of gender differences in the ways in which men and women experienced marginalization as well as the different likelihood of being detained. Although no association with social support is found, we caution against over-interpreting this finding, as other studies clearly show the importance of social support.

KEYWORDS

German Democratic Republic, political persecution and marginalization, social support, anxiety, satisfaction with life

1 Background

Political persecution and marginalization of people is both a historical and a contemporary issue. Marginalization is the process by which individuals are excluded or pushed to the margins of society, often because of their identities and experiences, leading to perceived and real discrimination and repression that affects their lives (Dwivedi et al., 2007; Hall et al., 1994).

One such historical context that continues to affect German society today is the division of Germany between 1945 and 1990. Under the Soviet occupation zone and the German Democratic Republic (GDR), classified as a one-party dictatorship, political persecution and repression by the state authorities, in particular by agents of the increasingly powerful state security police (known as the Stasi), was a daily reality for those who opposed official state policy or attempted to flee the GDR (Maercker and Guski-Leinwand, 2018; Maercker and Schützwohl, 1997). The term "Stasi persecution syndrome" was coined to describe the symptoms of persecution and repression by the former GDR state security police (Peters, 1991). The long-term mental health effects of political repression (both "milder" forms such as marginalization and "extreme" forms of persecution, including imprisonment), include sleep disturbance, depressed mood, anxiety, especially of the paranoid type, somatoform complaints, and post-traumatic symptoms (Bauer et al., 1993; Denis et al., 1997; Gallistl and Frommer, 2020; Maercker et al., 2013; Maslahati et al., 2022; Spitzer et al., 2007; Weißflog et al., 2010). These mental health sequelae have been found in other populations of survivors of political persecution, e.g., former Romanian political prisoners (Bichescu et al., 2005), political activists in Turkey (Başoglu et al., 1994), Tibetan refugees fleeing to India (Crescenzi et al., 2002; Sachs et al., 2008), and former political prisoners of the Guantanamo Bay US Naval Base (Brenner, 2010). Willis et al. (2015) conducted a systematic review on the effect of political imprisonment on mental health which summarizes the research in this field. Among the studies included, two reported gender differences: women showed higher rates of psychiatric disorders (Denis et al., 1997) and anxiety (Weißflog et al., 2010) compared with men.

Moreover, political persecution and repression in the GDR was exacerbated by the Stasi, who integrated and instrumentalised the social environments of individuals they repressed. Specifically, "Zersetzung", the decomposition of personality (Maercker and Guski-Leinwand, 2018), a preferred operative instrument of repression used by the Stasi, was designed to undermine people's self-esteem and their sense of social embeddedness and cohesion, as well as cause fear and confusion through an intrusion into their personal relationships (Spitzer et al., 2007; Marheinecke et al., 2023; Trobisch-Lütge, 2006, 2016).

As a result of political repression in general as well as methods such as the decomposition of personality, there was a persistent distrust of close social relationships and of government officials, including the police, even after the political system changed with the unification of Germany in 1990 (Peters, 1991; Pingel-Schliemann, 2004). In a more recent study analyzing the long-term costs of state surveillance, Lichter et al. (2021) showed that higher levels of spying led to persistently lower levels of interpersonal and institutional trust in post-unification Germany. It is therefore possible that low levels of social support may have contributed to the persistence of psychiatric disorders or, conversely, that the social integration problems of the repressed and marginalized may have been exacerbated by some of the psychiatric symptoms (Bauer et al., 1993; Denis et al., 1997). This is especially relevant, as theories of social support assume that there is both a direct effect and a buffering effect between stressful life events and negative outcomes, such as mental health issues or lower satisfaction with life (Cohen, 2004; Cohen and Wills, 1985; Lakey and Orehek, 2011). Results from various studies of diverse fields clearly show that there is a negative association between social support and poor mental health (Pinto et al., 2017; Robinaugh et al., 2011; Weinberg, 2017). Furthermore, social support is positively associated with satisfaction with life among younger and older people (Hidalgo-Fuentes et al., 2024; Ozer, 2024; Yotsidi et al., 2023).

Despite these many negative influences and consequences, some individuals report transforming outcomes from their experience of political persecution. For example, in an exploratory study conducted by Denis et al. (1997), participants who had been imprisoned for anti-state behavior reported that they considered this to be a "school of life" experience (Denis et al., 1997, p. 526), that they had gained an understanding of human nature, that they had become sensitive in their judgement of people, and that the experience had changed their subjective values. They also reported strong feelings of friendship and solidarity with other fellow prisoners. Correspondingly, results of a meta-analysis could show a moderate positive association between social support and post-traumatic growth after a stressful life event (Ning et al., 2023).

Based on this, we ask the following research question: How does political marginalization, as a specific sub-form of political persecution, influence later satisfaction with life, and is this influence mediated by resources and risk factors?

The following mediation hypotheses are proposed and summarized in Figure 1:

1. Political marginalization (a) negatively influences later satisfaction with life, (b) negatively influences social support, and (c) positively influences later life anxiety.
2. (a) Social support positively influences and (b) anxiety negatively influences later satisfaction with life.
3. Social support and anxiety mediate the impact of political marginalization on satisfaction with life.

Given the potential influence of gender, all analyses will be stratified by gender.

2 Methods

2.1 Sample

The LIFE-Adult-Study is a longitudinal cohort study conducted by the Leipzig Research Center for Civilization Diseases that aims to describe the risk factors of common diseases. In the initial survey phase, conducted between August 2011 and November 2014, data were gathered from medical examinations, interviews, and questionnaires completed by a randomly selected population of over 10,000 individuals aged 18–79 who resided in Leipzig,

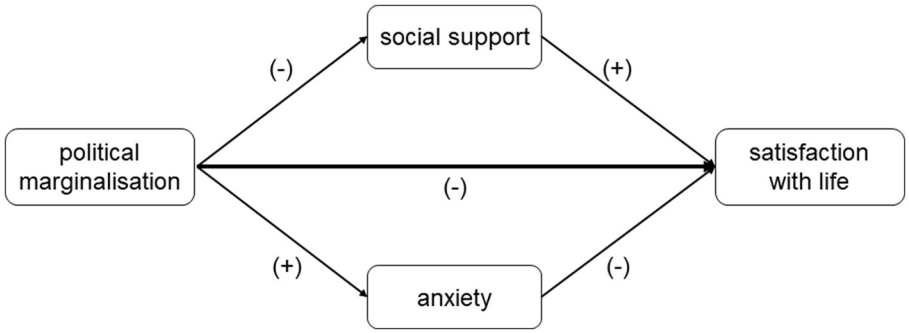

FIGURE 1
Mediation hypothesis, summarized.

Germany (Loeffler et al., 2015). A follow-up survey was conducted between October 2017 and August 2021 (Engel et al., 2023), during which questions pertaining to political marginalization in the GDR, social support, anxiety, and satisfaction with life were assessed.

Participants received the questionnaires via official postal services and completed them at their leisure. After exclusion, our data consisted of $N = 2{,}875$ participants of which $n = 230$ had experienced political marginalization. After propensity score matching with a 1:1 ratio between the experimental group (who experienced political marginalization) and the matched control group (who did not experience political marginalization), the final sample size consisted of $n = 460$ participants.

2.2 Measures

The LIFE-Adult-Study assessed a variety of sociodemographic variables. **Age** was assessed using the month and year of birth, recoded to age at assessment time (range: 36–80 years). **Gender** was assessed in a binary manner (men/women). **Education** and **income** were assessed using different standardized questions. For the analysis, data on education was recoded into years in school, with the categories being less than 10 years, an average of 10 years, and more than 10 years in school. Income was recalculated controlling for the participants' current living conditions, i.e., the number of people living in the household, to assess the monthly equivalent net income (range: 520€ to 7,500€). **Family status** was assessed via two questions. The first asked, "what is your family status?" with the response options "married and living with my spouse", "married, living apart from my spouse", "single", "divorced", and "widowed". The second asked, "do you live with a partner?" with the response options "yes" and "no". The two responses were cross-checked, and for the analysis family status was recoded into a binary variable indicating whether participants were living with a partner (yes/no).

Political marginalization in the GDR was assessed using three questions asking about whether the participant had experienced marginalization and possible imprisonment: (1) "were you politically persecuted after 1945 or in the later GDR?", (2) "were you imprisoned because of political persecution?", and (3) "did you suffer social or other disadvantages after 1945 or within the GDR because of your political, religious, or other convictions?". The participants could select from the options 0 (no) and 1 (yes), as well as different not applicable options such as "don't know", "does not apply", and "unknown". If the participant answered 1 (yes) they were allocated to the "experimental group".

Satisfaction with life was assessed using the German version of the Satisfaction with Life Scale (SWLS; Diener et al., 1985; Glaesmer et al., 2011). Participants indicated how much they agree with five statements, for example, "in most ways my life is close to my ideal", by selecting one of the response options on a 7-point Likert scale, from 1 (strongly disagree) to 7 (strongly agree). Internal consistency measured in this sample was very good ($\alpha = 0.91$). A sum score was calculated and used in the analysis (range: 5–35).

Social support, i.e., the quality of one's social network, was assessed using the German version of the ENRICHD Social Support Inventory (ESSI-D; Kendel et al., 2011; Mitchell et al., 2003). This assessed structural and emotional support using questions such as "Is there someone available to whom you can count on to listen to you when you need to talk?". Participants could select response options based on a 5-point Likert scale, from 1 (never) to 5 (always). Internal consistency measured in this sample is very good ($\alpha = 0.91$). A sum score was calculated and used in the analysis (range: 5–25).

Symptoms of anxiety were assessed using the German version of the Generalized Anxiety Disorder-7 tool (GAD-7; Spitzer et al., 2006). Participants indicated the frequency with which they experienced symptoms of anxiety over the previous 2 weeks, e.g., "feeling nervous or anxious". They could select one of the following response options: 0 (not at all), 1 (some days), 2 (more than half of the days), and 3 (almost every day). Internal consistency measured in this sample is very good ($\alpha = 0.83$). A sum score was calculated and used in the analysis (range: 0–21).

2.3 Statistical analysis and power analysis

To compose the study sample propensity score, matching was used with a 1:1 ratio (n *experiment* $= 230$, n *control* $= 230$) between the groups with and without experienced political marginalization. As in other studies, the matching variables were age and gender (Maercker and Schützwohl,

1997; Bichescu et al., 2005). Propensity score matching was conducted using the R package MatchIt version 4.5.5 (Ho et al., 2011).

There is missing data concerning the variables SWLS (n = 6, 1.3%), ESSI-D (n = 2, 0.4%), and GAD-7 (n = 16, 3.5%). Nevertheless, the proportion of participants with missing data was less than 5%. Consequently, the data could be excluded from the respective analysis (van Buuren, 2018).

Descriptive statistics were conducted comparing the different two groups with and without experienced political marginalization. In addition, further analyses were performed stratifying comparisons by participant gender. Means (M) and standard deviation (SD) were reported for continuous variables, frequencies and proportions (%) for categorical variables. Wilcoxon rank sum tests (non-normal distribution) and X^2-tests were conducted to analyse group differences.

Multiple regressions were conducted, including ESSI-D and GAD-7. The effect sizes β (95% confidence intervals) and R^2 were reported. The mediator effects are the product of the effect of the independent variable and the mediator and the effect of the mediator on the dependent variable (Baron and Kenny, 1986). Following Preacher and Hayes (2008), bootstrapping was used to estimate standard errors for direct and indirect effects. Data was stratified by gender (men/women). In addition, sensitivity analyses were conducted by excluding participants from the analyses if they experienced political imprisonment (item 2), as this was interpreted as a more extreme experience than discrimination or felt persecution. Mediation was conducted using the R package lavaan 0.6–18 (Rosseel, 2012).

All analyses were performed using the open source statistics software R (R Core Team, 2023). Power analysis was computed using the software G*Power (Faul et al., 2007) estimating a necessary sample size of $N = 262$ for the regression analysis (small to medium effect size $f^2 = 0.05$, $\alpha = 0.05$, power = 0.95, number of predictors = 9).

3 Results

3.1 Sample characteristics

Sociodemographic characteristics for all participants are summarized in Table 1. A majority of the participants are women (n = 274, 59.6%) and the mean age is 59 years (SD = 11.3). The vast majority of participants had an average of 10 or more years of education. Participants who had experienced political marginalization were slightly more likely to have higher education, but these differences were not statistically significant. There are no significant differences in equivalence household net income or whether participants lived alone in their household.

Only a small percentage of the population-based sample (N = 2,875) self-reported that they had experienced political imprisonment (n = 17, 0.59%), political persecution (n = 51, 1.77%), or disadvantages (n = 216, 7.51%).

3.2 Sub-group comparisons

There are significant differences in terms of anxiety (GAD-7), social support (ESSI-D), and satisfaction with life (SWSL) when comparing the groups who reported political marginalization compared to no marginalization: GAD-7 scores are higher and ESSI and SWLS scores were lower for participants who experienced marginalization (see Table 1).

Concerning the further analysis comparing the groups by gender, the results are more differential and correspond to the mediation analyses (see Section 3.3.). First, concerning GAD-7 there is only a difference when regarding men (ΔM = 0.6; p = 0.014) but not women. Second, concerning ESSI-D there is only a difference when regarding women (ΔM = 1.0; p = 0.051) but not men. Third, concerning SWLS there is only a difference when regarding women (ΔM = 2.1; p = 0.009) but not men.

3.3 Mediation analyses

Analyses were conducted separately for women (Figure 2) and men (Figure 3). In addition, sensitivity analyses were conducted after excluding participants who had experienced imprisonment. There are some important differences between the genders. For women there is a direct effect on satisfaction with life (β = −0.141; p = 0.063), but for men there is no direct effect (β = 0.001; p = 0.991). For the mediator social support, there are no significant effects of having experienced political marginalization. For the mediator anxiety, there is a significant gender difference: for men, having experienced political marginalization influences anxiety, whereas this is not the case for women. Furthermore, anxiety mediates the effect of political marginalization on satisfaction with life only for men (p = 0.061). Finally, the total effect, which is the sum of the direct path and the products of the mediators, is statistically significant for women (p = 0.036) but not for men (p = 0.275). To summarize the results, the model analyzing the associations for women shows a direct effect of political marginalization on later life satisfaction with 76.27% of the influence explained by the direct path. In comparison, the model analyzing the associations for men shows a mediated, indirect effect via anxiety with 78.10% of the influence explained by the mediated path.

Regarding the control variables (age, monthly equivalent net income, education, and living with partner), only equivalence income has a significant influence on satisfaction with life. However, the influence is more pronounced for women (women: β = 0.314, p < 0.001, men: β = 0.159, p = 0.009; see Supplementary material). In addition, the models explained different amounts of variance for SWLS between women (R^2= 0.385) and men (R^2= 0.275).

4 Discussion

The main aim of this study was to examine the association between political marginalization in the former GDR and later satisfaction with life. Furthermore, a hypothesized mediation effect via social support and anxiety stratified by gender was

10.3389/frsps.2025.1659017

TABLE 1 General sample characteristics and descriptive analyses comparing the two groups.

Variables	Total sample	Experienced political marginalization	Did not experience political marginalization
N	460	230	230
Gender[a]			
Women	274 (59.6%)	137 (59.6%)	137 (59.6%)
Men	186 (40.4%)	93 (40.4%)	93 (40.4%)
Age[a]	59 (SD = 11.3)	59 (SD = 11.3)	59 (SD = 11.3)
Education[y]			
<10 years	26 (5.7%)	9 (3.9%)	17 (7.4%)
10 years	228 (49.6%)	108 (47.0%)	120 (52.2%)
>10 years	205 (44.6%)	113 (49.1%)	92 (40.0%)
Living together with partner[y]	400 (87.0%)	194 (84.4%)	206 (89.6%)
Monthly equivalent net income[z]	2'034 (983)	2122 (1096)	1950 (855)
GAD-7[z]	3.2 (3.1)	3.5 (3.0)**	2.9 (3.2)**
ESSI-D[z]	22.7 (3.4)	22.3 (3.6)*	23.0 (3.1)*
SWLS[z]	27.1 (5.4)	26.6 (5.4)*	27.6 (5.4)*

(a), The samples were propensity score matched using the variables gender and age, wherefore no group difference indicate a successful matching.
(y), χ2-Test; *N* (%) are reported;
(z), Wilcoxon rank sum test, *M* (*SD*) are reported; *$p < 0.05$ and **$p < 0.01$;
"education, years", recoded into years in school, for international reporting; "living together with partner", this included individuals who were married as well as not married and living together with their partner; "monthly equivalent net income", household income is adjusted for people living in household, in €;
GAD-7: Generalized Anxiety Disorder, 7-item scale, German version; ESSI-D: ENRICHD Social Support Inventory, 5-item scale, German version; SWLS: Satisfaction with Life Scale, 5-item scale, German version.

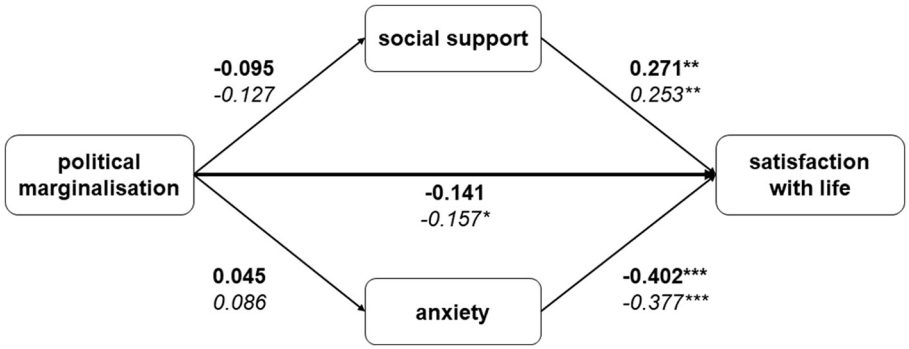

FIGURE 2
The impact of political marginalization, mediated by social support and anxiety, on satisfaction with life; stratified by gender, results for women.
Note. Direct path with its two mediators social support and anxiety. $R^2 = 0.385$ for satisfaction with life. β printed cursive = results of the sensitivity analysis after exclusion of participants who experienced imprisonment. *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

analyzed. These findings are based on a population-based sample, which did not specifically recruit people who had experienced political repression in response to the discussion that previous findings may be partly due to sample selection bias (Bichescu et al., 2005). Furthermore, the results are discussed in the light of the more general literature on political persecution, although some of our items assess persecution in a broad sense, i.e., political marginalization. For this reason, sensitivity analyses were conducted.

Comparing the propensity matched groups, there are significant differences. Anxiety is expressed significantly more, while social support and satisfaction with life are expressed significantly less by participants who have experienced some form of political marginalization, be it persecution, imprisonment, or discrimination. However, the analysis shows that the difference for anxiety is only due to the significant difference between men, and the differences for social support and satisfaction are only due to the significant difference between women who have experienced marginalization. This might indicate an important gender difference, which is discussed below.

Corresponding to the comparative results, the results of the mediation analyses are mixed dependent on gender. As the

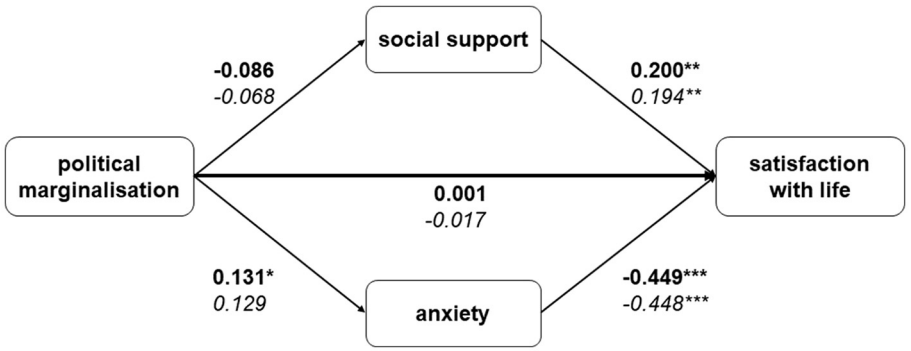

FIGURE 3
The impact of political marginalization, mediated by social support and anxiety, on satisfaction with life; stratified by gender, results for men.
Note. Direct path with its two mediators social support and anxiety. $R^2 = 0.275$ for satisfaction with life. β printed cursive = results of the sensitivity analysis after exclusion of participants who experienced imprisonment. *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

sensitivity analysis shows that the direction and effect sizes of the effects are similar whether or not the imprisoned participants are included, the results are discussed together. The conventional p-value of <0.05 is sometimes reached, sometimes it is slightly higher, which we attribute to the small sample size (Cohen, 1994; Wasserstein et al., 2019).

For social support there was no association with political marginalization. This contradicts previous findings that there was a persistent distrust of close social relationships, even after German unification, in the East German population among those who had experienced persecution (e.g., Peters, 1991; Pingel-Schliemann, 2004; Lichter et al., 2021). However, two important differences to the previous studies are noted. Recruitment for the follow-up of the LIFE-Adult-Study took place in 2017, 27 years after unification, and only a small percentage of the population-based sample self-reported that they had experienced political persecution, imprisonment, or disadvantages. Although another study discusses the likelihood that long-term psychological consequences may outlast changes in a political system (Bichescu et al., 2005), it is likely that too much time has passed for there to be a negative impact of political persecution or experienced disadvantage on social support. It may also be worth mentioning that political persecution in the GDR was dealt with publicly after German unification. This included compensation payments and the cancellation of prison sentences. This may be an important consideration, leading to different associations for political persecution in the GDR than in other studies referred to here (e.g., Bichescu et al., 2005; Crescenzi et al., 2002; Brenner, 2010).

For anxiety, the results are different for men and women. For women there is no association between political marginalization and later anxiety, whereas for men there is a small association. This also seems to confirm previous findings reporting such gender differences (see systematic review, Willis et al., 2015). However, it is important to note that most studies specifically considered people who had been imprisoned (e.g., Weißflog et al., 2010). Of the individuals who had experienced political persecution in the LIFE-Adult-Study sample, 10.22% of men ($n = 14$ of $n = 137$) and 3.23% of women ($n = 3$ of $n = 93$) had been imprisoned. In comparison, 91.97% of men ($n = 126$ of $n = 137$) and 96.77% of women ($n = 90$ of $n = 93$) had reported experiencing disadvantages. The ratio of individuals imprisoned is higher for men, which could explain the gender differences analyzed here. The disproportionate ratio of men and women who had been political prisoners in the GDR can be corroborated in the more general literature (e.g., Schröder and Wilke, 1998).

Critically, this means that the results between men and women should be interpreted cautiously as they might be due to the different ratios of the subsample who experienced imprisonment. However, as the GDR relied on political repression and persecution in the form of "operative psychological" mechanisms such as "Zersetzung" (the decomposition of personality, Maercker and Guski-Leinwand, 2018), the findings here complement the more specific findings on political imprisonment by analyzing those individuals who self-reported experiencing political marginalization in a broader sense.

Gender differences could be explained by looking at the socioeconomic and cultural conditions for men and women in eastern Germany, especially considering the change in sociopolitical systems before and after German unification. Historically, East Germany has had a more egalitarian approach to womens' participation in the labor market, accompanied by more positive attitudes toward womens' employment during motherhood (Maier, 1993; Rainer et al., 2018; Zoch, 2021). However, after German unification there were high unemployment rates and increased divorce rates, as well as social isolation and overall negative changes for individuals and families (Bohley et al., 2016; Meyer and Schulze, 1998). In addition, the unification process has been criticized by some authors for being carried out through colonializing mechanisms, where West Germany superimposed its own laws, rules, and norms (Christ et al., 1991; Cooke, 2005; Pizer, 2017), for example, the gender norms regarding female employment and motherhood. Therefore, compared to men, women would have had to adapt to both the changing political system and the changing cultural system. For women who had experienced social or other disadvantages, this problem may have been exacerbated, resulting in lower life satisfaction, even 27 years after unification.

In addition, the gender differences in the findings may be attributed to certain gendered narratives of (non-)conformity and disclosure norms. While men may experience less pressure to (socially) conform than women, they may be less able to disclose personal issues and problems for fear of social sanctions, such as being perceived as weak or sensitive (e.g., Wagner and Reifegerste, 2024, on male non-disclosure norms). On the one hand, this may enable men to rebel against the system and reframe these experiences of political non-conformity in a "hero narrative" (e.g., Boon, 2005, on the hero narrative). On the other hand, it may lead to a repression of the feelings that most likely accompanied their experiences of political non-conformity, and, in extreme cases, of their political imprisonment (e.g., Maercker and Schützwohl, 1997; Bauer et al., 1993). Therefore, the effect on later satisfaction with life could be mediated by anxiety because their feelings of anxiety due to their political persecution (imprisonment or experienced disadvantages) are not disclosed.

4.1 Strengths and limitations

There are some important strengths and limitations that must be discussed. The study sample is based on the LIFE-Adult-Study, which is a population-based sample. Therefore, there will be no direct selection bias due to the subject matter, as the main reasons for the study were LIFE-Adult-Study aims and not to study political marginalization. However, there might be a response bias, as some individuals might have skipped the question or answered falsely as a means to repress or ignore their previous experiences. Also, the sample used in this study cannot be directly compared to most of the more specific samples analyzed in the literature concerning (the repercussions of) political persecution. The results discussed in the previous section must therefore be regarded as supplementary to most of the previous research. We think this is an important addition to current research, as there are few epidemiological studies or samples without selection bias in which a comparison group could be matched.

Moreover, the time-and-place context is relevant for the results, as the LIFE-Adult-Study data came from individuals based in Leipzig, East Germany, and were acquired 27 years after German unification. Therefore, the findings are restricted to Leipzig and, given the city's unique historical role as the center of the Peaceful Revolution in the GDR (1989), their transferability to other East German regions is limited.

Additionally, in a study conducted among individuals who had been imprisoned, no significant association was found between the severity of symptoms and the time that had elapsed between release from prison and the time of the study (Bauer et al., 1993). However, this might not be transferable to the "milder" issues surrounding experienced marginalization, operationalized as already discussed, compared to persecution in the form of imprisonment. For this reason, the sensitivity analyses were carried out without the item assessing the experience of imprisonment. However, the questions used cover a broad range of potential disadvantages, which means that very different experiences may have been subsumed under the term "marginalization". Because no information was available on the duration or intensity of persecution, the effects may be underestimated; a more differentiated assessment could reveal stronger associations.

Furthermore, individuals who had experienced more severe political persecutions might have been displaced (to West Germany by the respective German governments before unification) or decided to flee/leave their homes (both before and after unification). Internal migration might therefore be a factor that could not be considered in this study since participants were acquired locally in Leipzig.

Finally, the data stem from a cross-sectional survey, which limits causal inference, even though political marginalization preceded the measurement of life satisfaction. As mediators and outcomes were collected in the same wave, reverse causality or recall bias cannot be ruled out. Nevertheless, the theoretical rationale and temporal ordering support the proposed causal model. Future longitudinal studies with earlier measurements of mediators could provide stronger evidence for these findings.

4.2 Conclusion

This study analyses and interprets the relationship between political marginalization in the former GDR and later satisfaction with life. The analyses included social support and anxiety as mediator variables and were conducted separately for men and women. The results indicate that in the German-German context, political marginalization affects later life satisfaction, anxiety, and social support. However, the effects are different for men and women. For men there seems to be a mediated effect through anxiety and for women a direct effect.

In addition to the discussion above, we think it would be prudent to consider the associations discussed here in other national contexts, as well as in both population-based and specific samples. The association between political marginalization and social support was not significant in this study. Given the methods and mentioned limitations of this study, we caution against over-interpreting these results, as Peters (1991) clearly found that the consequences of persecution and repression were exacerbated by the lack of understanding of both social peers and new government officials. It is therefore worth exploring how understanding of people with negative experiences of political persecution can be fostered within their social groups and the wider sociopolitical environment.

Data availability statement

Publicly available datasets were analyzed in this study. This data can be found here: Access to and use of LIFE-Adult-Study can be obtained via an electronic application portal (https://ldp.life.uni-leipzig.de/).

Ethics statement

The studies involving humans were approved by the Ethics Committee of the Medical Faculty of the University of Leipzig

approved the study (registry numbers: 263-2009-14122009, 263/09-ff, 201/17-ek). The data protection officer approved the data protection and safety concept (Engel et al., 2023; Enzenbach et al., 2019). All is in accordance with national law and with the Declaration of Helsinki of 1975 (in the current, revised version). The studies were conducted in accordance with the local legislation and institutional requirements. Written informed consent for participation was not required from the participants or the participants' legal guardians/next of kin in accordance with the national legislation and institutional requirements.

Author contributions

TM: Writing – original draft, Writing – review & editing. TF: Formal analysis, Methodology, Writing – original draft, Writing – review & editing. TS: Writing – original draft, Writing – review & editing. AW: Writing – review & editing. MB: Writing – review & editing. CU: Writing – review & editing. AH: Data curation, Writing – review & editing. NR: Data curation, Writing – review & editing. SZ: Data curation, Writing – review & editing. GS: Project administration, Writing – review & editing. SS: Project administration, Writing – review & editing.

Funding

The author(s) declare that financial support was received for the research and/or publication of this article. Analysis for this study was conducted with data from the LIFE-Adult-Study (https://www.uniklinikum-leipzig.de/einrichtungen/life). The LIFE-Adult-Study was supported by the Leipzig Research Centre for Civilization Diseases, an organizational unit affiliated to the Medical Faculty of the University of Leipzig. The project is funded by means of the European Union, by the European Regional Development Fund (ERDF), by funds of the Free State of Saxony within the framework of the excellence initiative (project numbers 713–241202, 713–241202, 14505/2470, 14575/2470), by funds of the Medical Faculty of Leipzig University and by own funds of the participating institutions.

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.

Generative AI statement

The author(s) declare that no Gen AI was 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

Supplementary material

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/frsps.2025.1659017/full#supplementary-material

References

Baron, R. M., and Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: conceptual, strategic, and statistical considerations. *J. Pers. Soc. Psychol.* 51, 1173–1182. doi: 10.1037/0022-3514.51.6.1173

Başoglu, M., Paker, M., Paker, O., Ozmen, E., Marks, I., Incesu, C., et al. (1994). Psychological effects of torture: a comparison of tortured with nontortured political activists in Turkey. *Am. J. Psychiatry* 151, 76–81. doi: 10.1176/ajp.151.1.76

Bauer, M., Priebe, S., Blaring, B., and Adamczak, K. (1993). Long-term mental sequelae of political imprisonment in East Germany. *J. Nerv. Ment. Dis.* 181, 257–262. doi: 10.1097/00005053-199304000-00007

Bichescu, D., Schauer, M., Saleptsi, E., Neculau, A., Elbert, T., Neuner, F., et al. (2005). Long-term consequences of traumatic experiences: an assessment of former political detainees in romania. *Clin. Pract. Epidemiol. Ment. Health* 1:17. doi: 10.1186/1745-0179-1-17

Bohley, S., Kluttig, A., Werdan, K., Nuding, S., Greiser, K. H., Kuss, O., et al. (2016). Changes of individual perception in psychosocial stressors related to German reunification in 1989/1990 and cardiovascular risk factors and cardiovascular diseases in a population-based study in East Germany. *BMJ Open* 6:e008703. doi: 10.1136/bmjopen-2015-008703

Boon, K. A. (2005). Heroes, Metanarratives, and the Paradox of Masculinity in Contemporary Western Culture. *J Men's Stud. Juni* 13, 301–312. doi: 10.3149/jms.1303.301

Brenner, G. H. (2010). The expected psychiatric impact of detention in guantanamo bay, cuba, and related considerations. *J. Trauma Dissoc.* 11, 469–487. doi: 10.1080/15299732.2010.496074

Christ, P., Neubauer, R., and Schmidt, H. (1991). *Kolonie im eigenen Land: die Treuhand, Bonn und die Wirtschaftskatastrophe der fünf neuen Länder*. Berlin: Rowohlt.

Cohen, J. (1994). The earth is round (p <0.05). *Am. Psychol.* 49, 997–1003. doi: 10.1037/0003-066X.49.12.997

Cohen, S. (2004). Social relationships and health. *Am. Psychol.* 59, 676–684. doi: 10.1037/0003-066X.59.8.676

Cohen, S., and Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychol. Bull.* 98, 310–357. doi: 10.1037/0033-2909.98.2.310

Cooke, P. (2005). *Representing East Germany Since Unification: From Colonization to Nostalgia*. Oxford; New York, NY: Berg. doi: 10.5040/9781350214811

Crescenzi, A., Ketzer, E., Van Ommeren, M., Phuntsok, K., Komproe, I., De Jong, J. T. V. M., et al. (2002). Effect of political imprisonment and trauma history on recent Tibetan refugees in India. *J. Trauma Stress* 15, 369–375. doi: 10.1023/A:1020129107279

Denis, D., Eslam, J., and Priebe, S. (1997). Psychische Störungen nach politischer Inhaftierung in der Sowjetischen Besatzungszone und der ehemaligen DDR von 1945-1972. *Fortschritte Neurol. · Psychiatr.* 65, 524–530. doi: 10.1055/s-2007-996359

Diener, E., Emmons, R. A., Larsen, R. J., and Griffin, S. (1985). The satisfaction with life scale. *J. Pers. Assess.* 49, 71–75. doi: 10.1207/s15327752jpa4901_13

Dwivedi, O. P., Khator, R., and Nef, J. (2007). "Marginalization and exclusion," in *Managing Development in a Global Context* (London: Palgrave Macmillan UK), 62–79. Available onlione at: http://link.springer.com/10.1057/9780230627390_5 (Accessed June 23, 2025).

Engel, C., Wirkner, K., Zeynalova, S., Baber, R., Binder, H., Ceglarek, U., et al. (2023). Cohort profile: the LIFE-adult-study. *Int. J. Epidemiol.* 52, e66–e79. doi: 10.1093/ije/dyac114

Enzenbach, C., Wicklein, B., Wirkner, K., and Loeffler, M. (2019). Evaluating selection bias in a population-based cohort study with low baseline participation: the LIFE-Adult-Study. BMC Med. Res. Methodol. 19:135. doi: 10.1186/s12874-019-0779-8

Faul, F., Erdfelder, E., Lang, A. G., and Buchner, A. (2007). G*Power 3: a flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behav. Res. Methods* 39, 175–191. doi: 10.3758/BF03193146

Gallistl, A., and Frommer, J. (2020). Disziplinierung und unrechtserleben – Teil I: gesellschaftliche Ursachen individuellen leidens am beispiel der ehemaligen DDR. *Trauma Gewalt* 14, 18–27. doi: 10.21706/tg-14-1-18

Glaesmer, H., Grande, G., Braehler, E., and Roth, M. (2011). The German version of the Satisfaction With Life Scale (SWLS): psychometric properties, validity, and population-based norms. *Eur. J. Psychol. Assess.* 27, 127–132. doi: 10.1027/1015-5759/a000058

Hall, J. M., Stevens, P. E., and Meleis, A. I. (1994). Marginalization: a guiding concept for valuing diversity in nursing knowledge development. *Adv. Nurs. Sci.* 16, 23–41. doi: 10.1097/00012272-199406000-00005

Hidalgo-Fuentes, S., Martínez-Álvarez, I., Sospedra-Baeza, M. J., Martí-Vilar, M., Merino-Soto, C., Toledano-Toledano, F., et al. (2024). Emotional intelligence and perceived social support: its relationship with subjective well-being. *Healthcare* 12:634. doi: 10.3390/healthcare12060634

Ho, D. E., Imai, K., King, G., and Stuart, E. A. (2011). MatchIt: nonparametric preprocessing for parametric causal inference. *J. Stat. Softw.* 42, 1–28. doi: 10.18637/jss.v042.i08

Kendel, F., Spaderna, H., Sieverding, M., Dunkel, A., Lehmkuhl, E., Hetzer, R., et al. (2011). Eine deutsche Adaptation des ENRICHD Social Support Inventory (ESSI): teststatistische überprüfung an kardialen patienten. *Diagnostica* 57, 99–106. doi: 10.1026/0012-1924/a000030

Lakey, B., and Orehek, E. (2011). Relational regulation theory: a new approach to explain the link between perceived social support and mental health. *Psychol. Rev.* 118, 482–495. doi: 10.1037/a0023477

Lichter, A., Löffler, M., and Siegloch, S. (2021). The long-term costs of government surveillance: insights from stasi spying in East Germany. *J. Eur. Econ. Assoc.* 19, 741–789. doi: 10.1093/jeea/jvaa009

Loeffler, M., Engel, C., Ahnert, P., Alfermann, D., Arelin, K., Baber, R., et al. (2015). u. a. The LIFE-adult-study: objectives and design of a population-based cohort study with 10,000 deeply phenotyped adults in Germany. *BMC Public Health* 15:691. doi: 10.1186/s12889-015-1983-z

Maercker, A., Gäbler, I., O'Neil, J., Schützwohl, M., and Müller, M. (2013). Long-term trajectories of PTSD or resilience in former East German political prisoners. *Torture Q. J. Rehabil. Torture Vict. Prev. Torture* 23, 15–27.

Maercker, A., and Guski-Leinwand, S. (2018). Psychologists' involvement in repressive "stasi" secret police activities in Former East Germany. *Int. Perspect. Psychol.* 7, 107–119. doi: 10.1037/ipp0000085

Maercker, A., and Schützwohl, M. (1997). Long-term effects of political imprisonment: a group comparison study. *Soc. Psychiatry Psychiatr. Epidemiol.* 32, 435–442. doi: 10.1007/BF00789137

Maier, F. (1993). "Zwischen arbeitsmarkt und familie: frauenarbeit in den alten bundesländern," in *Frauen in Deutschland 1945- 1992,* eds. G. Helwig, H. M. Nickel, and Herausgeber (Bonn: Bundeszentrale für Politische Bildung), 257–279 (Schriftenreihe der Bundeszentrale für Politische Bildung Studien zur Geschichte und Politik).

Marheinecke, R., Strauss, B., and Engert, V. (2023). Visible wounds of invisible repression: a perspective on the importance of investigating the biological and psychological impact of political repression. *Psychol. Trauma Theory Res. Pract. Policy* 16, 1242–1251. doi: 10.1037/tra0001548

Maslahati, T., Voß, A. L., Donth, S., Heuser-Collier, I., and Roepke, S. (2022). Gesundheitliche folgen politischer haft in der sowjetischen besatzungszone und der deutschen demokratischen republik. *PPmP – Psychother. · Psychosom. · Med. Psychol.* 72, 283–291. doi: 10.1055/a-1704-8486

Meyer, S., and Schulze, E. (1998). After the fall of the wall: the impact of the transition on East German women. *Polit. Psychol.* 19, 95–116. doi: 10.1111/0162-895X.00094

Mitchell, P. H., Powell, L., Blumenthal, J., Norten, J., Ironson, G., Pitula, C. R., et al. (2003). A short social support measure for patients recovering from myocardial infarction: the enrichd social support inventory. *J. Cardpulm Rehabil.* 23, 398–403. doi: 10.1097/00008483-200311000-00001

Ning, J., Tang, X., Shi, H., Yao, D., Zhao, Z., Li,. J., et al. (2023). Social support and posttraumatic growth: a meta-analysis. *J. Affect Disord.* 320, 117–132. doi: 10.1016/j.jad.2022.09.114

Ozer, S. (2024). Social support, self-efficacy, self-esteem, and well-being during COVID−19 lockdown: a two-wave study of Danish students. *Scand. J. Psychol.* 65, 42–52. doi: 10.1111/sjop.12952

Peters, U. (1991). Über das stasi-verfolgten-syndrom. *Fortschritte Neurol. · Psychiatr.* 59, 251–265. doi: 10.1055/s-2007-1000701

Pingel-Schliemann, S. (2004). *Zersetzen: Strategie einer Diktatur ; eine Studie. 3. Aufl.* Berlin: Robert-Havemann-Ges, 413 (Schriftenreihe des Robert-Havemann-Archivs).

Pinto, R. J., Morgado, D., Reis, S., Monteiro, R., Levendosky, A., Jongenelen, I., et al. (2017). When social support is not enough: trauma and PTSD symptoms in a risk-sample of adolescents. *Child. Abuse Negl.* 72, 110–119. doi: 10.1016/j.chiabu.2017.07.017

Pizer, J. (2017). Imagining resistance to the "colonization" of East Germany by West Germany in novels by Günter Grass, Christa Wolf, and Volker Braun. *Colloq Ger.* 50, 205–227. Available online at: https://www.jstor.org/stable/26756840

Preacher, K. J., and Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behav. Res. Methods* 40, 879–891. doi: 10.3758/BRM.40.3.879

R Core Team (2023). *R: A Language and Environment for [Computer software]*. Available online at: https://www.R-project.org/ (Accessed September 3, 2024).

Rainer, H., Albrecht, C., Bauernschuster, S., Fichtl, A., Hener, T., Ragnitz, J., et al. (2018). *Deutschland 2017: Studie zu den Einstellungen und Verhaltensweisen der Bürgerinnen und Bürger im vereinigten Deutschland: Studie im Auftrag des Bundesministeriums für Wirtschaft und Energie*. München: ifo Institut, 1. (ifo-Forschungsberichte).

Robinaugh, D. J., Marques, L., Traeger, L. N., Marks, E. H., Sung, S. C., Gayle Beck, J., et al. (2011). Understanding the relationship of perceived social support to post-trauma cognitions and posttraumatic stress disorder. *J. Anxiety Disord* 25, 1072–1078. doi: 10.1016/j.janxdis.2011.07.004

Rosseel, Y. (2012). lavaan : an *R* Package for structural equation modeling. *J. Stat. Softw.* 48, 1–36. doi: 10.18637/jss.v048.i02

Sachs, E., Rosenfeld, B., Lhewa, D., Rasmussen, A., and Keller, A. (2008). Entering exile: trauma, mental health, and coping among Tibetan refugees arriving in Dharamsala, India. *J. Trauma Stress* 21, 199–208. doi: 10.1002/jts.20324

Schröder, W. H., and Wilke, J. (1998). Political prisoners in the GDR. An attemped statistic descriptionPolitische Strafgefangene in der DDR. Versuch einer statistischen Beschreibung. *Hist. Soc. Res.* 23:378.

Spitzer, C., Ulrich, I., Plock, K., Mothes, J., Drescher, A., Gürtler, L., et al. (2007). Beobachtet, verfolgt, zersetzt - psychische Erkrankungen bei Betroffenen nichtstrafrechtlicher Repressionen in der ehemaligen DDR. *Psychiatr. Prax.* 34, 81–86. doi: 10.1055/s-2006-940059

Spitzer, R. L., Kroenke, K., Williams, J. B. W., and Löwe, B. A. (2006). Brief measure for assessing generalized anxiety disorder: the GAD-7. *Arch. Intern. Med.* 166:1092. doi: 10.1001/archinte.166.10.1092

Trobisch-Lütge, S. (2006). Politische traumatisierung in der ehemaligen DDR/SBZ und ihre verarbeitung im (post) traumatischen raum des wiedervereinigten deutschlands. *Z. Für. Polit. Psychol.* 14, 171–189.

Trobisch-Lütge, S. (2016). *Psychofolgen bis heute: "Zersetzungs"-Opfer der DDR-Geheimpolizei*. Bpb - Bundeszentrale Für Politische Bildung. Available online at: https://www.bpb.de/themen/deutsche-teilung/stasi/218417/psychofolgen-bis-heute-zersetzungs-opfer-der-ddr-geheimpolizei/ (Accessed September 6, 2014).

van Buuren, S. (2018). *Flexible Imputation of Missing Data, 2nd Edn*. Boca Raton, FL; London; New York, NY: CRC Press; Taylor and Francis Group, 1 S. (Chapman and Hall/CRC Interdisciplinary Statistics Ser). doi: 10.1201/9780429492259

Wagner, A. J. M., and Reifegerste, D. (2024). Real men don't talk? Relationships among depressiveness, loneliness, conformity to masculine norms, and male non-disclosure of mental distress. *SSM – Ment. Health* 5:100296. doi: 10.1016/j.ssmmh.2024.100296

Wasserstein, R. L., Schirm, A. L., and Lazar, N. A. (2019). Moving to a World Beyond " $p < 0.05$". *Am. Stat.* 73, 1–19. doi: 10.1080/00031305.2019.1583913

Weinberg, M. (2017). Trauma and social support: the association between informal social support, formal social support, and psychological well-being among terror attack survivors. *Int. Soc. Work* 60, 208–218. doi: 10.1177/0020872814564704

Weißflog, G., Böhm, M., Klinitzke, G., and Brähler, E. (2010). Erhöhte Ängstlichkeit und Depressivität als Spätfolgen bei Menschen nach politischer Inhaftierung in der DDR. *Psychiatr. Prax.* 37, 297–299. doi: 10.1055/s-0030-1248501

Willis, S., Chou, S., and Hunt, N. C. (2015). A systematic review on the effect of political imprisonment on mental health. *Aggress. Violent Behav.* 25, 173–183. doi: 10.1016/j.avb.2015.08.001

Yotsidi, V., Gournellis, R., Alexopoulos, P., and Richardson, C. (2023). Life satisfaction in a clinical and a nonclinical group of older people: the role of self-compassion and social support. *Gerontol. Geriatr. Med.* 9:23337214231164890. doi: 10.1177/23337214231164890

Zoch, G. (2021). Thirty Years after the fall of the Berlin wall—do East and West Germans still differ in their attitudes to female employment and the division of housework? *Eur. Sociol. Rev.* 37, 731–50. doi: 10.1093/esr/jcab002