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The relationship between childhood gender nonconformity, aversive childhood experiences, and mental health in heterosexual and non-heterosexual cisgender men: The buffering effect of sense of coherence

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Abstract

Childhood gender nonconformity (CGNC) seems to be associated with more mental health problems in adulthood. Previous research has suggested that this link might be mediated via the increased risk for aversive childhood experiences (ACEs) as a negative social reaction to CGNC. However, no study yet examined the role of resilience factors in this relationship. The present study aims to address this gap by examining the potential buffering effect of sense of coherence (SOC). In a German sample of 371 cisgender men, we used mediation models to investigate the relationship between CGNC, ACEs, and mental health problems in adulthood, that is, depressive symptoms, loneliness, and suicidal behavior. We then employed moderated mediation models to examine the buffering effect of SOC on the association ACEs and mental health problems. The results showed that higher levels of CGNC were associated with more severe adult mental health problems, with this link being partially mediated by higher levels of ACEs. For depressive symptoms and suicidal behavior in the last 12 months, we found evidence of a buffering effect of SOC. Higher levels of SOC were associated with a weaker association between ACEs and mental health problems. In contrast, this effect was absent for loneliness and lifetime suicidal behavior. Our study provides evidence that ACEs partly account for the relationship between CGNC and mental health in adulthood. Moreover, we found support for SOC having a buffering effect on this link. Future studies need to examine whether SOC might be an important target for resilience training in those experiencing CGNC. However, sustainable interventions may rather address the negative social reactions to CGNC.

KEYWORDS
aversive childhood experiences, gender nonconformity, mental health, resilience, sense of coherence

1 | INTRODUCTION

Gender nonconformity describes an experience and behavior that diverges from culturally specific gender stereotypes and roles (Plöderl et al., 2007) In childhood, gender nonconforming behavior is manifested, for example, in the preference for opposite-sex play partners or the adoption of stereotypically opposite-sex roles in fantasy games (Rieger et al., 2008; Zucker et al., 2006). The reactions of the social environment to childhood gender nonconformity (CGNC) are often negative, so CGNC is associated with an increased risk of aversive childhood experiences (ACEs). For example, children with higher levels of CGNC report worse relationships with teachers (Chan, 2022), peers (Bos & Sandfort, 2015; Chan, 2022; MacMullin et al., 2021) and their parents (Alanko et al., 2009, 2011). They also experience more peer victimization (Chan, 2022; Toomey et al., 2013, 2014, van Beusekom et al., 2016, 2020; Warren et al., 2019) in particular homophobic name-calling (van Beusekom et al., 2020) and homophobic violence (D'haese et al., 2016) independent of sexual orientation (Ioerger et al., 2015), and more intimate partner violence in adolescence (Adhia et al., 2021). Moreover, CGNC is associated with multiple forms of discrimination (Antebi-Gruszka et al., 2022; Ghavami et al., 2020) and childhood maltreatment (Baams, 2018; M. Zhao et al., 2021), also by parents (Bos et al., 2019; McGeough & Sterzing, 2018). In their meta-analysis, Thoma et al. (2021) summarized findings from 25 studies on the relationship between gender nonconforming behavior and prejudice events, which include ACEs, in lesbian, gay and bisexual (LGB) samples. They found evidence for a significant positive relationship between gender nonconformity and the frequency of prejudice events ($r = 0.19$). In addition, they found evidence for a gender effect, with this relationship being stronger for men ($r = 0.24$) than for women ($r = 0.09$). Furthermore, effect size estimates depended on the precise operationalization of gender nonconformity, with the effects for gender nonconformity during childhood being larger than for current nonconformity. Even not examined in the meta-analysis, these multifaceted exposures to stress may (partly) account for the finding that children with higher levels of CGNC experience more mental health problems (Carver et al., 2003).

Previous studies have pointed to sex differences when it comes to the (non)acceptance of gender nonconforming behavior, with lower acceptance for male than for female children (D'Augelli et al., 2006; Sanborn-Overby & Powlishta, 2020; but see: Warren et al., 2022). Thus, male children with CGNC experience more severe negative social consequences for their behaviors and, consequently, are exposed to higher levels of stress. The experience of CGNC is more common among LGB individuals (Bailey & Zucker, 1995; Jones et al., 2017; Li et al., 2017) and may partly account for their increased risk of mental health problems and suicidal behavior (Martin-Storey & August 2016; Plöderl et al., 2006).

However, irrespective of sexual orientation, CGNC has been discussed as a risk factor for ACEs, that is, high levels of stress exposure during childhood. Given the crucial role of early life stress for the onset and persistence of mental health problems (Hamby

et al., 2021), CGNC has also been proposed as a risk factor for mental health problems later in life (Roberts et al., 2013). For example, CGNC was found to be associated with lower self-esteem (Oginni et al., 2019; for an overview see: Zentner & von Aufsess, 2022), lower life-satisfaction (Toomey et al., 2013), more intense feelings of loneliness (Hart et al., 2019), more worries (Swift-Gallant et al., 2022), higher levels of neuroticism (Swift-Gallant et al., 2022), and separation anxiety (Swift-Gallant et al., 2022). Furthermore, CGNC is related to more depressive symptoms (Chan, 2022; Folkierska-Żukowska et al., 2022; Ghavami et al., 2020; Mustanski & Liu, 2013; Oginni et al., 2019, 2021; Roberts et al., 2013; Toomey et al., 2013; Zhao et al., 2021), increased social anxiety (Folkierska-Żukowska et al., 2022; Ghavami et al., 2020, van Beusekom et al., 2016), more posttraumatic stress symptoms (D'Augelli et al., 2006; Roberts et al., 2012), heavier substance use (Lowry et al., 2018), as well as more suicidal behavior in adolescence (Ioerger et al., 2015; Reinherz et al., 1995; Spivey et al., 2018) and adulthood (Oginni et al., 2019; Plöderl & Fartacek, 2009). Most of these associations are small to medium (Cohen, 1988). Some studies, on the other hand, find no association between (C)GNC and mental health problems (depressive symptoms: e.g., Sandfort et al., 2016; Timmins et al., 2018; social interaction anxiety: e.g., Pachankis & Goldfried, 2006; anxiety: e.g., Sandfort et al., 2016). For example, Cook et al. (2013) did not find a significant association of current gender nonconformity and depressive symptoms, psychological distress as well as wellbeing in a South African population. These heterogenous findings might be explained by cultural (e.g., country-specific stigmatization of homosexuality, gender equality), methodological (e.g., measure used, reference period), as well as statistical reasons (e.g., linear vs. nonlinear association). For instance, Zentner et al. (2022) found the relationship between CGNC and self-esteem to depend on country-level gender equality, with higher equality being associated with weaker associations.

In addition, previous studies have mostly not differentiated between cisgender and gender minorities in their analyses, which may also contribute to the heterogeneity of study results. First, transgender and self-identified gender nonconforming individuals (e.g., gender queer, gender nonbinary) are subject to additional group-specific stressors (Gender Minority Stress Model; Hendricks & Testa, 2012). Second, some of the questionnaires used are not suitable for gender minorities (Berg & Edwards-Leeper, 2018).

Apart from these heterogeneous findings, the majority of studies point to (C)GNC being associated with higher risk of ACEs and worse mental health. Thus, the question arises as to whether and how the negative impact of ACEs on mental health can be reduced, that is, how resilience can be fostered in this high-risk group. Resilience represents the process of maintaining or quickly regaining good mental health during or after exposure to adversity or trauma (Kalisch et al., 2017). Within this framework of resilience, resilience factors are individual resources that converge into higher-level resilience mechanisms (e.g., positive appraisal, regulatory flexibility), which ultimately protect the individual from potentially harmful effects of stressor exposure (Kalisch et al., 2015; Schäfer, Kunzler,

et al., 2022). Sense of coherence (SOC), as the key component of the salutogenesis framework (Antonovsky, 1979, 1987), represents one of the most important resilience factors. SOC is conceptualized as a global orientation that *"expresses the extent to which one has a pervasive, enduring though dynamic feeling of confidence that one's internal and external environments are predictable and that there is a high probability that things will work out as well as* can *reasonably be expected"* (Antonovsky, 1979, p. 10). Individuals with high levels of SOC view their environment as manageable and comprehensible and perceive challenges in life as meaningful (Mittelmark et al., 2022). SOC is supposed to modulate one's position on the continuum between health (*ease*) and *disease* by shaping coping processes and, specifically, the use of internal and external resources for coping (Idan, Eriksson, et al., 2022). Individuals with higher SOC are supposed to use available resources in a flexible and adaptive manner, which results in more successful coping and, in turn, in lower mental distress (Eriksson, 2022). In line with this assumption, recent meta-analyses in adult populations have shown that higher levels of SOC are associated with lower levels of depression and anxiety (del-Pino-Casado et al., 2019) and less severe symptoms of post-traumatic stress (Schäfer et al., 2019). Moreover, a recent meta-analysis covering the age range from childhood to young adulthood, that is, the life phases during which SOC is supposed to develop (see for details on SOC development: Idan, Braun-Lewensohn, et al., 2022) also supported a robust negative association between SOC and psychopathological symptoms at younger ages (Schäfer et al., 2021). Several studies found SOC to show incremental validity beyond other resilience factors (e.g., Grevenstein & Bluemke, 2015; Grevenstein, Bluemke, et al., 2016; Schäfer et al., 2020). To date, the source of SOC's incremental validity is not fully understood but supposed to result from SOC's quality as a composite measure uniquely integrating aspects of control beliefs, self-efficacy and meaningfulness (Grevenstein, Aguilar-Raab, et al., 2016). Individuals with a stronger SOC are more likely to show resilient responses when exposed to stressors; that is, they may experience a mental health shift in the direction of *disease*, but they are more likely to bounce back faster and stronger in the direction of *ease*. In line with this assumption, a recent 1-year prospective study found that SOC buffered the negative mental health impact of the COVID-19 pandemic in the German general population (Schäfer et al., 2020; Schäfer, Sopp, et al., 2022). Moreover, a cross-sectional study of Holocaust survivors found that SOC moderated the impact of childhood trauma on post-traumatic stress symptoms (van der Hal-van Raalte et al., 2008), with a stronger SOC being associated with a less severe impact of childhood trauma on later life post-traumatic stress symptoms. These findings may point to a buffering effect of SOC that might have the potential to inform future prevention measures in groups exposed to high amounts of stress. Especially in these risk groups, resilience interventions that strengthen individuals' internal resources to better cope with future stressors may help to prevent the onset or persistence of mental health problems (Chmitorz et al., 2018).

The current study is the first to examine the buffering effect of SOC in individuals with experiences of CGNC. Based on prior evidence, we aim to replicate previous findings on the association between CGNC, ACEs, and mental health problems in cisgender men. Additionally, our main aim is to research the moderating effects of SOC in the association between ACEs and mental health problems. The study aims lead to the following hypotheses:

1. Cisgender men with higher CGNC scores report higher levels of mental health problems in adulthood, that is, depressive symptoms, feelings of loneliness, and suicidal behavior.
2. The relationship between CGNC and mental health is mediated by ACE, with higher CGNC scores associated with more ACEs, leading to a higher level of mental health problems.
3. The relationship between CGNC, ACEs, and risk of mental illness is moderated by SOC, with a higher SOC reducing the association of ACEs with mental health problems.

2 | METHODS

2.1 | Study design and sample recruitment

Participants were recruited primarily online. As heterogeneous samples may have driven previous inconsistent findings, we decided to focus exclusively on cisgender men for this study. In order to reach both heterosexual and non-heterosexual men, we contacted various German organizations dealing with men's health in general (e.g., Network boys and men's health) and organizations dealing with LGB issues (e.g., Lesbian and Gay Federation in Germany) to share our study advertisement. In addition, we contacted LGB podcasters who then shared our study advertisement in their podcasts. Moreover, study advertisements were posted on webpages addressing students in general (e.g., Facebook groups of German universities and groups for study recruitment) and LGB persons in particular (e.g., Facebook groups of LGB university groups and LGB communities). In addition, paper flyers with the study information were distributed in several German cities. Two versions of the study flyer were used to advertise the study: a neutral version ("Study of Mental Health in Men") and an LGB version ("Study of Mental Health in Homosexual and Bisexual Men") to reach heterosexual, homosexual, and bisexual men. Participants were additionally asked to share the survey link with their male friends. As compensation, twenty €15 vouchers were raffled among the participants. Recruitment took place between February 26 and 30 August 2021. During this period, 376 individuals finished the 40-minute online survey completely. One person indicated to be transgender and was thus excluded our analyses. Two participants were excluded from the sample because they were younger than 18 years and another two were excluded due to missing data for all variables of interest (i.e., childhood gender nonconformity, ACEs, mental health problems, sense of coherence). The final sample comprised 371 participants. The study protocol was reviewed and accepted by the Ethics Committee of the Faculty of Empirical Human Sciences and Economics at Saarland University (reference No. 21-20). All respondents gave their informed consent

by checking a box in the online questionnaire in accordance with the Declaration of Helsinki and its latest revisions (World Medical Association, 2013).

2.2 | Measures

2.2.1 | Sociodemographic data

As part of the online survey, participants indicated their gender and age. Moreover, we assessed educational level on a 7-point scale ranging from "no academic degree" to "having received a doctorate degree" (see Supplementary Material for details).

2.2.2 | Sexual orientation

A modified version of the Kinsey Scale (Kinsey et al., 1949) was used to assess sexual orientation. Subjects could choose between eight response options: exclusively heterosexual, predominantly hetero-sexual, bisexual, pansexual, predominantly homosexual, exclusively homosexual, asexual, and other. If subjects chose other, they were asked to specify their sexual orientation in a text field.

2.2.3 | Childhood gender nonconformity

The Childhood Gender Nonconformity Scale (CGNCS; Rieger et al., 2008) was used for the assessment of CGNC. As a German version of the 7-item scale was not available, we prepared a German translation (for details on the translation process and factorial validity, see Supplementary Material). Subjects were asked to rate their agreement with the items in terms of their experience and behavior up to age 12. All items were rated on a 7-point scale from 1 for "strongly disagree" to 7 for "strongly agree." Item responses were summed, with higher scores indicating greater gender nonconformity. In the present sample, the internal consistency of the scale was good, reflected in a Cronbach's alpha (α) of 0.85 and a McDonald's omega (ω) of 0.86.

2.2.4 | Aversive childhood experiences

The Childhood Trauma Questionnaire (CTQ; Bernstein et al., 2003; Klinitzke et al., 2011) is a 28-item self-report measure designed to assess ACEs up to the age of 18. The CTQ comprises five subscales: emotional abuse (EA), physical abuse (PA), sexual abuse (SA), emotional neglect (EN), and physical neglect (PN). Items are rated on a 5-point scale ranging from 1 for "never true" to 5 for "very often true." For the present study, we used the CTQ total score as a global severity measure of ACEs, with higher scores indicating more severe adversity. In the current sample, internal consistency of the scale was good, with $\alpha = 0.81$ and $\omega = 0.84$.

2.2.5 | Sense of coherence

SOC was assessed using the 9-item German short version (SOC-L9) of the Antonovsky scales (Antonovsky, 1993; Singer & Bräh-ler, 2007). The unidimensional SOC-L9 uses a bipolar 7-point scale with a verbal anchor at each pole. For SOC-L9 items, there is no precise time frame specified as items refer to global orientations in life. Higher scores indicate stronger SOC. In the current sample, SOC-L9 showed good internal consistency, with $\alpha = 0.87$ and $\omega = 0.87$.

2.2.6 | Depressive symptoms

Depressive symptoms within the last 2 weeks were assessed using the 9-item German version of the Patient Health Questionnaire (PHQ-9; Gräfe et al., 2004; Spitzer et al., 1999). Each item is rated on a 4-point scale ranging from 0 (= "not at all") to 3 (= "nearly every day"). PHQ-9 scores range from 0 to 27, with higher scores indicating more severe depressive symptoms. In the present study, the PHQ-9 showed excellent internal consistency, with $\alpha = 0.90$ and $\omega = 0.89$.

2.2.7 | Loneliness

Loneliness was assessed using the German version of the De Jong Loneliness Scale (De Jong Gierveld & Van Tilburg, 2010; Huxhold et al., 2019). The brief 6-item scale assesses emotional and social loneliness using a 4-point scale ranging from 1 for "strongly agree" to 4 for "strongly disagree". A time frame per item is not specified as the scale assesses general feelings of loneliness with higher scores indicating more severe loneliness. In the present study, the De Jong Loneliness Scale showed good internal consistency, with $\alpha = 0.83$ and $\omega = 0.83$.

2.2.8 | Suicidal behavior

Suicidal behavior was assessed using the German version of the Suicidal Behaviors Questionnaire-Revised (SBQ-R; Glaesmer et al., 2018; Osman et al., 2001). The scale comprises four items assessing lifetime suicidal behavior, suicidal behavior in the last 12 months, anticipated likelihood of future suicidal behavior, and threat of suicidal behavior. Items are rated on different scales using verbal anchors. Based on the German validation study of Glaesmer et al. (2018), who found a one-factorial construct for the German version of the SBQ-R, we ran our primary analyses on to-tal scores and examined single item scores by means of post-hoc analyses. For the SBQ-R total score higher scores indicate more severe suicidal behavior. In the present study, the SQB-R showed acceptable internal consistency, with $\alpha = 0.79$ and $\omega = 0.79$.

2.3 | Data analyses

Analyses were conducted using R version 4.1.2 (R Core Team, 2022). Patterns of missing data (i.e., missing completely at random, missing at random, not missing at random) were examined using the *RBtest* package (Rouzinov & Berchtold, 2020). Missing data were handled by full information maximum likelihood (FIML) estimations for mediation models. Correlations were compared using the *cocor* package (Diedenhofen & Musch, 2015).

2.3.1 | Mediation models

To analyze the relationships between CGNC, ACEs, SOC, and mental health problems, we employed simple and moderated mediation models using the *lavaan* package (Rosseel, 2012). All predictors were standardized prior to analysis, all analyses were controlled for the association of age and education with mental health problems, and we report on standardized coefficients. We examined the association between CGNC and ACEs (*a*-path), the association between ACEs and mental health problems (i.e., depressive symptoms, loneliness, and suicidal behavior; *b*-paths), and the relationship between CGNC and symptoms of mental health problems (*c*-paths, i.e., direct effect). Indirect effects were examined as a product of the *a*- and *b*-paths, with a significant *a*b* path coefficient being interpreted as evidence in favor of a mediation (Zhao et al., 2010). Moreover, we calculated the proportion mediated as effect size indicator for the mediation effect, that is, the proportion of the total effect accounted for by the indirect effect (Wen & Fan, 2015).

2.3.2 | Moderated mediation models

Additionally, we examined SOC as moderator of the association between ACEs and symptoms of mental health problems. The importance of SOC as a moderator was examined using the index of moderated mediation, which quantified whether the mediation effect of ACEs on mental health problems was dependent on SOC levels. A significant moderated mediation can be assumed when the 95% confidence interval (CI) of the index of moderated mediation (*IMM*) does not include zero (Hayes, 2017). Following recommendations on the analysis of moderated mediations and to account for potential influences of the sample size (Preacher et al., 2007), we estimated direct, indirect, and total effects, standard errors, and 95% CIs based on 1000 bias-corrected bootstrapped samples. As an indicator of effect sizes for the moderated mediation effect, we examined the indirect effect as well as the proportion mediated at different levels of the moderator (±1 *SD* of SOC) and reported on the difference of the proportion mediated (i.e., Δ proportion mediated).

2.3.3 | Sensitivity analyses

On an exploratory basis, the impact of sexual orientation (exclusive or predominantly heterosexual orientation vs. other sexual orientations) on mediation models was examined by means of multigroup analyses. First, we compared the simple mediation model constraining coefficients to be equal across participants with heterosexual and other sexual orientations using a χ^2 difference test according to the Satorra and Bentler (2001) method. Second, we examined whether the moderator effect of SOC in the moderated mediation model differed between sexual orientations. For this purpose, we compared a model constraining the effect to be equal across sexual orientations with a model allowing the effect to vary between sexual orientations.

3 | RESULTS

3.1 | Sample characteristics

The mean age of respondents included in the analyses (*n* = 371) was 32.5 years (*SD* = 11.79; range: 18–69 years), and all respondents were cisgender men, which means they self-reported to have been born with male sexual characteristics and identified themselves as being men. Of those, 53.4% indicated to be exclusively or predominantly heterosexual, 36.7% reported to be exclusively or predominantly homosexual, 8.4% were bisexual, 1.3% indicated to be pansexual and 0.3% were asexual. Other sociodemographic characteristics are presented in Table 1. In total, 0.3% of the data included in our primary analyses was missing. The regression-based test (RBtest) showed that the missing data for all variables included in the following analyses were at least missing at random, allowing for the use of FIML for mediation models.

3.2 | Comparison of heterosexual participants and other sexual orientations

First, we examined whether the most relevant study variables varied between heterosexual participants and those reporting other sexual orientations (i.e., homosexual, bisexual, and other orientations). When we compared mean levels between both groups (see Table 1), heterosexual men reported lower levels of CGNC experiences and behaviors, *t* (310.93) = −11.76, *p* < 0.001, *d* = 1.33; fewer ACEs, *t* (313.9) = −2.88, *p* = 0.004, *d* = 0.33; and less severe suicidal behavior, *t* (338.73) = −2.26, *p* = 0.025, *d* = 0.25. For depressive symptoms, *t* (351.49) = −1.17, *p* = 0.243, *d* = 0.12; feelings of loneliness, *t* (356.06) = −1.61, *p* = 0.108, *d* = 0.17; and sense of coherence, *t* (358.97) = 0.80, *p* = 0.425, *d* = 0.08, we found no significant between-group differences.

Second, we compared the correlations between relevant study variables for heterosexual participants and those with other sexual orientations. We did not find evidence of a between-group difference

TABLE 1 Sociodemographic characteristics of the total and subsamples

	Total sample (n = 371)	Heterosexual participants (n = 198)	Other sexual orientations (n = 173)	Comparison heterosexual versus other sexual orientations
Age [M (SD)]	32.47 (11.79)	32.75 (11.75)	32.16 (11.85)	$t(361.49) = 0.48$, $p = 0.634$, $d = 0.05$
Educational level [n (%)]				
No academic degree	2 (5.4)	2 (1.0)	0 (0)	$\chi(6) = 13.94$, $p = 0.030$
Lower secondary qualification	10 (2.7)	4 (2.0)	6 (3.5)	
Intermediate secondary qualification	32 (8.6)	10 (5.1)	22 (12.7)	
Vocational diploma	130 (35.0)	67 (33.8)	63 (36.4)	
(Applied) university diploma	175 (47.2)	107 (54.0)	68 (39.3)	
Doctoral degree	10 (2.7)	4 (2.0)	6 (3.5)	
Other degree	5 (1.3)	3 (1.5)	2 (1.2)	
Marital status [n (%)]				
Single, not in a relationship	166 (44.7)	75 (37.9)	91 (52.6)	$\chi(3) = 12.26$, $p = 0.007$
In a relationship, not married	117 (31.5)	63 (31.8)	54 (31.2)	
Married	73 (19.7)	50 (25.3)	23 (13.3)	
Divorced	15 (4.0)	10 (5.1)	5 (2.9)	
Childhood gender nonconformity	20.84 (9.68)	16.05 (6.93)	26.32 (9.48)	$t(310.93) = -11.76$, $p < 0.001$, $d = 1.33$
Aversive childhood experiences [M (SD)]	39.28 (13.80)	37.33 (11.63)	41.50 (15.67)	$t(313.9) = -2.88$, $p = 0.004$, $d = 0.33$
Depressive symptoms [M (SD)]	8.94 (6.21)	8.58 (5.95)	9.34 (6.50)	$t(351.49) = -1.17$, $p = 0.243$, $d = 0.12$
Loneliness [M (SD)]	15.76 (4.02)	15.44 (3.91)	16.12 (4.13)	$t(356.06) = -1.61$, $p = 0.108$, $d = 0.17$
Suicidal behavior [M (SD)]	7.39 (3.62)	7.00 (3.30)	7.85 (3.91)	$t(338.73) = -2.26$, $p = 0.025$, $d = 0.25$
Sense of coherence [M (SD)]	41.87 (10.40)	42.27 (10.32)	41.40 (10.5)	$t(358.97) = 0.80$, $p = 0.425$, $d = 0.08$

for any of the correlations, even without applying a correction for multiple testing (see Table 2).

3.3 | Bivariate relationships

Figure 1 shows the bivariate relationships between all variables included in the present analyses for the total sample. As expected, CGNC showed small associations with ACEs, $r = 0.22$, $p < 0.001$; depressive symptoms, $r = 0.28$, $p < 0.001$; loneliness, $r = 0.23$, $p < 0.001$; suicidal behavior, $r = 0.23$, $p < 0.001$; and SOC, $r = -0.22$, $p < 0.001$. ACEs were associated with depressive symptoms, $r = 0.42$, $p < 0.001$; loneliness, $r = 0.36$, $p < 0.001$; suicidal behavior, $r = 0.47$, $p < 0.001$; and SOC, $r = -0.38$, $p < 0.001$, all showing medium-sized associations. Moreover, SOC showed a large negative association with depressive symptoms, $r = -0.74$, $p < 0.001$; loneliness, $r = -0.64$, $p < 0.001$; and suicidal behavior, $r = -0.57$, $p < 0.001$.

3.4 | Depressive symptoms

3.4.1 | Simple mediation

CGNC significantly predicted[1] ACEs, $a = 0.22$, 95% CI [0.11, 0.33], $p < 0.001$, and ACEs were found to be significantly associated with depressive symptoms, $b = 0.36$, 95% CI [0.25, 0.48], $p < 0.001$, together reflected in a significant indirect effect, $a*b = 0.08$, $p = 0.001$, 95% CI [0.04, 0.13] (see Figure 2 for a graphical illustration). Moreover, there was a significant direct effect of CGNC on depressive symptoms, $c = 0.19$, 95% CI [0.09, 0.29], $p = 0.001$. Of the total effect, 30.2% were accounted for by the indirect effect. Older respondents reported lower levels of depressive symptoms, $g_1 = -0.10$, 95% CI [-0.20, -0.01], $p = 0.034$, and the link between higher educational levels and lower depressive symptoms was close to statistical significance, $g_2 = -0.09$, 95% CI [-0.18, 0.01], $p = 0.052$. Compared to a constrained model, allowing coefficients to vary

A. Pearson correlations	1.	2.	3.	4.	5.	6.
1. Childhood gender nonconformity (CGNC)	-	0.29	0.26	0.29	0.25	−0.22
2. Aversive childhood experiences (ACEs)	0.11	-	0.49	0.43	0.51	−0.43
3. Depressive symptoms	0.32	0.34	-	0.51	0.58	−0.71
4. Loneliness	0.17	0.30	0.62	-	0.39	−0.57
5. Suicidal behavior	0.15	0.41	0.53	0.39	-	−0.57
6. Sense of coherence (SOC)	−0.25	−0.33	−0.74	−0.69	−0.55	-
B. Between-group comparisons (*p*-values)						
1. Childhood gender nonconformity (CGNC)	-					
2. Aversive childhood experiences (ACEs)	0.078	-				
3. Depressive symptoms	0.518	0.073	-			
4. Loneliness	0.211	0.148	0.109	-		
5. Suicidal behavior	0.292	0.212	0.491	0.991	-	
6. Sense of coherence (SOC)	0.801	0.300	0.459	0.064	0.782	-

TABLE 2 Correlations between study variables for heterosexual individuals and individuals with other sexual orientations

Note: A. Pearson correlations (*r*) per subgroup, with correlations for heterosexual participants above the diagonal and those of participants with other sexual orientations below. B. Between-group comparisons of correlation coefficients with *p*-values of respective Fisher's *z* tests (no correction for multiple comparisons has been applied). Non-significant correlations point to no between-group differences between heterosexual men and men with other sexual orientations.
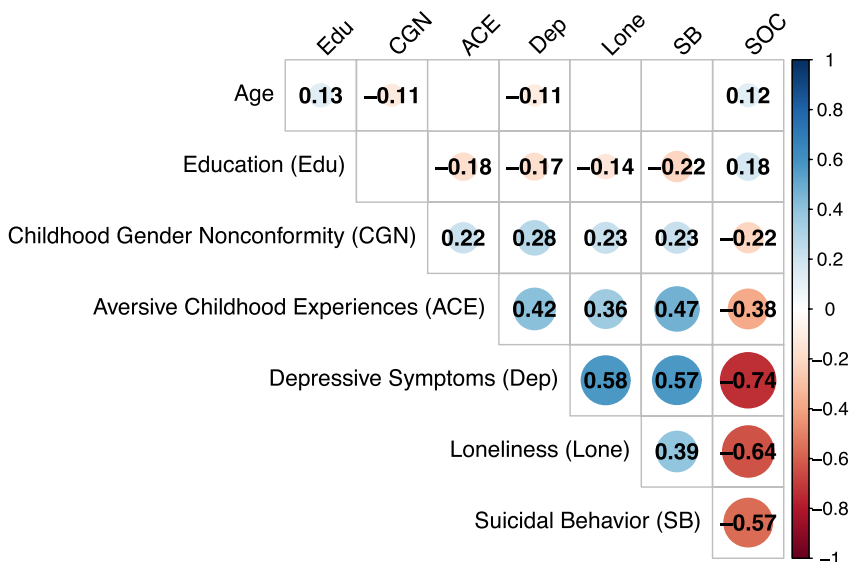

FIGURE 1 Graphical illustration of bivariate Pearson correlations between all study variables, non-significant correlations are blank. All correlations presented in the figure were significant at *p* < 0.05. SOC, sense of coherence.

between sexual orientations did not significantly improve model fit, $\Delta\chi^2$ (5) = 9.51, *p* = 0.090.

3.4.2 | Moderated mediation

In the model including SOC as moderator of the relationship between ACEs and depressive symptoms, the analysis also found a significant indirect effect, *a**b = 0.03, 95% CI [0.00, 0.05], *p* = 0.025, and a direct effect, *c* = 0.12, 95% CI [0.05, 0.20], *p* = 0.002, with 17.5% of the total effect being mediated via ACEs (see Figure 3 for a graphical illustration). Moreover, a significant

interaction term between SOC and ACEs, b_3 = −0.11, 95% CI [−0.18, −0.05], *p* = 0.001, and a significant index of moderated mediation, *IMM* = −0.03, 95% CI [−0.05, −0.01], *p* = 0.015, indicated that SOC had an impact on the relationship between ACEs and depressive symptoms. While the indirect effect at 1 *SD* below average SOC was significant, *a**b = 0.05, 95% CI [0.02, 0.08], *p* = 0.003, proportion mediated: 29.5%; this effect was no longer present at 1 *SD* above average SOC, *a**b = 0.00, *p* = 0.950, 95% CI [−0.03, 0.03]; proportion mediated: 0.7% (Δ proportion mediated: 28.8%). In this model, age and education were not significantly associated with depressive symptoms. For this model, we did not find a significant difference for the moderator effect of SOC
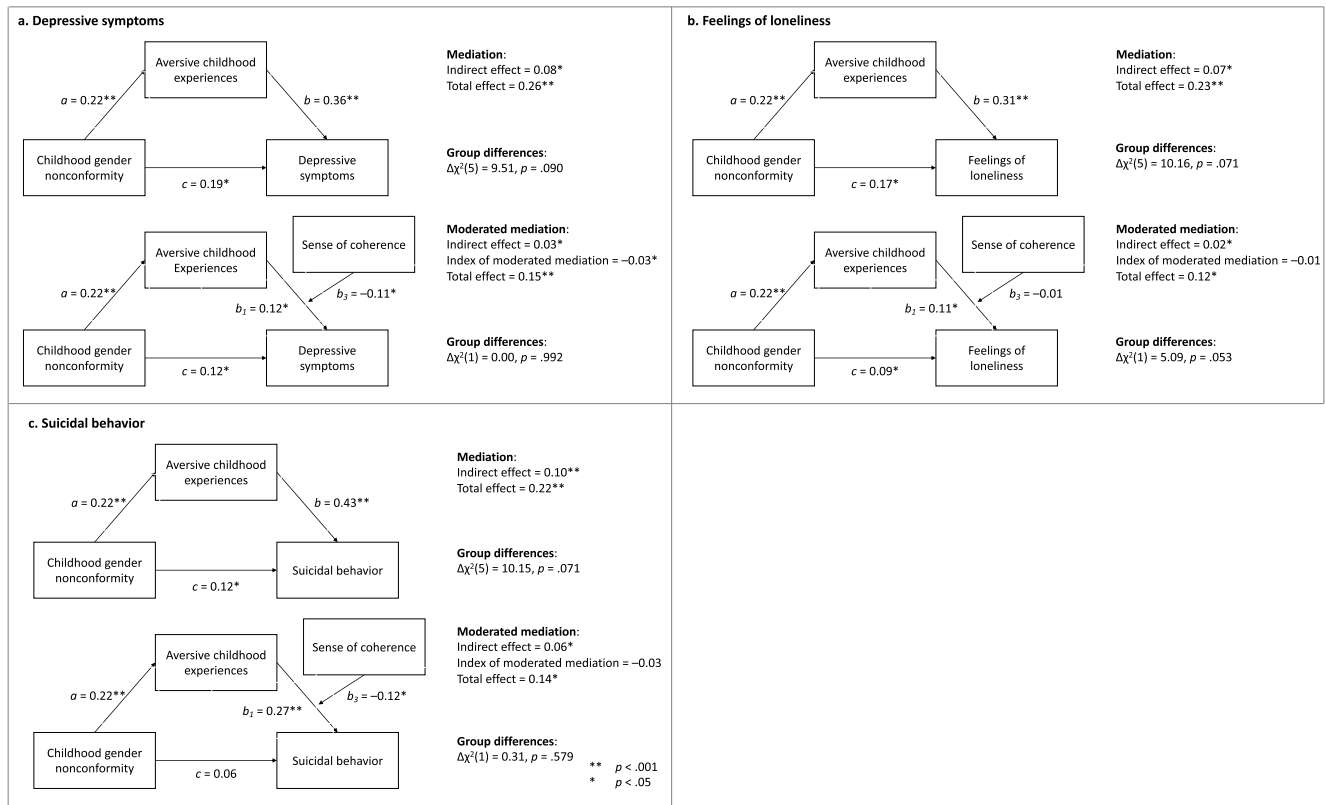
FIGURE 2 Simple and moderated mediation models for depressive symptoms (a), feelings of loneliness (b), and suicidal behavior (c).

between heterosexual participants and those with other sexual orientations, $\Delta\chi^2(1) = 0.00$, $p = 0.992$.

3.5 | Feelings of loneliness

3.5.1 | Simple mediation

The association between CGNC and ACEs remained unchanged, $a = 0.22$, 95% CI [0.12, 0.33], $p < 0.001$, and ACEs were significantly associated with loneliness, $b = 0.31$, 95% CI [0.20, 0.42], $p = 0.001$. The analysis found a significant indirect effect, $a^*b = 0.07$, 95% CI [0.03, 0.11], $p = 0.001$, and a direct effect of CGNC on loneliness, $c = 0.17$, 95% CI [0.07, 0.26], $p = 0.001$. Of the total effect, 29.2% were mediated via ACEs. Age and educational level had no significant association with loneliness in this model. Also for this model, allowing paths to differ between sexual orientations did not result in an improved model fit, $\Delta\chi^2(5) = 10.16$, $p = 0.071$.

3.5.2 | Moderated mediation

In the model including SOC as a moderator of the relationship between ACEs and loneliness, as for the simple mediation, a significant indirect effect was found, $a^*b = 0.02$, 95% CI [0.00, 0.05], $p = 0.045$, with 19.7% of the total effect being accounted for by the indirect

effect. However, SOC did not moderate the relationship between ACEs and loneliness, IMM = −0.01, 95% CI [−0.02, 0.02], $p = 0.780$, $b_3 = -0.01$, 95% CI [−0.11, 0.08], $p = 0.777$. In this model, a higher age was significantly associated with more severe loneliness, $g_1 = 0.12$, 95% CI [0.04, 0.21], $p = 0.005$, while no significant relationship emerged between loneliness and education. Again, we found no significant impact of sexual orientation on the moderator effect of SOC, $\Delta\chi^2(1) = 5.09$, $p = 0.053$.

3.6 | Suicidal behavior

3.6.1 | Simple mediation

Besides the signification association between CGNC and ACEs, $a = 0.22$, 95% CI [0.12, 0.33], $p < 0.001$, a significant association emerged between ACEs and suicidal behavior, $b = 0.43$, 95% CI [0.33, 0.54], $p < 0.001$. The analysis found a significant indirect effect, $a^*b = 0.10$, 95% CI [0.04, 0.15], $p < 0.001$, along with a significant direct effect of CGNC on suicidal behavior, $c = 0.12$, 95% CI [0.03, 0.21], $p = 0.013$. Of the total effect, 44.4% were accounted for by the indirect effect. More severe suicidal behavior was associated with younger age, $g_1 = -0.10$, 95% CI [−0.22, −0.04], $p = 0.025$, and lower educational levels, $g_2 = -0.13$, 95% CI [−0.22, −0.04], $p = 0.007$. For this model, we did not find a significant impact of sexual orientation, $\Delta\chi^2(5) = 10.15$, $p = 0.071$.
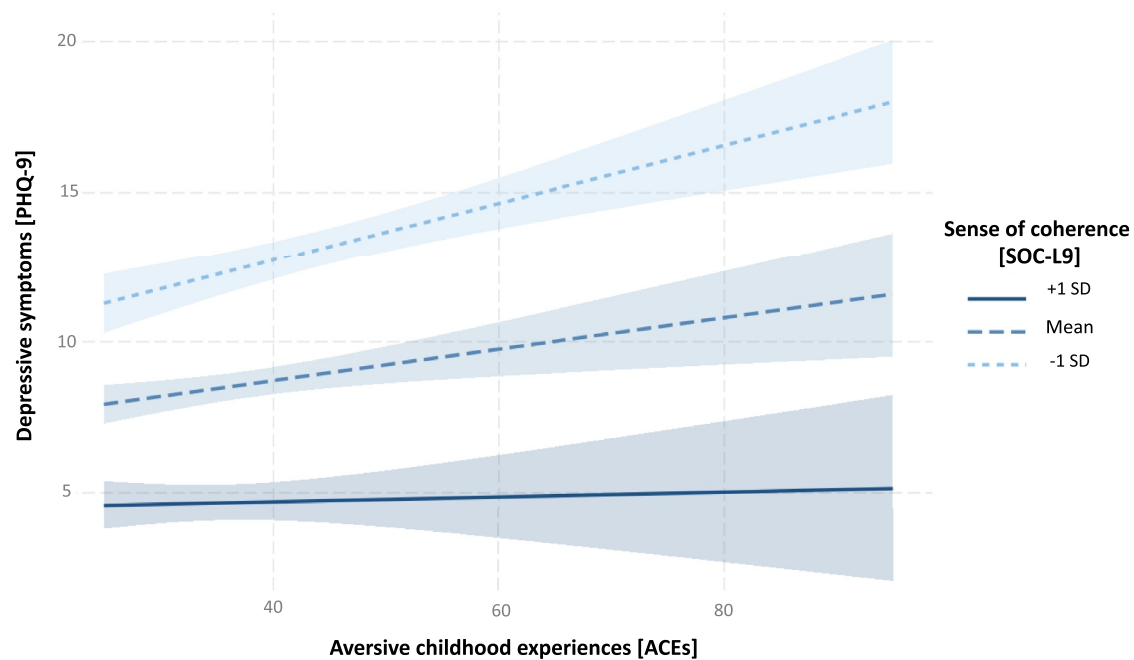
FIGURE 3 Graphical illustration of the moderating effect of sense of coherence (SOC) on the association between aversive childhood experiences and depressive symptoms.

3.6.2 | Moderated mediation

A model including SOC as a mediator of the relationship between ACEs and suicidal behavior revealed mixed results. In this model, the link between CGNC and suicidal behavior was fully mediated via ACEs, $c = 0.06$, 95% CI [−0.02, 0.17], $p = 0.115$; proportion mediated: 43.9%. While there was a significant interaction term between SOC and ACEs, $b_3 = -0.12$, 95% CI [−0.22, −0.03], $p = 0.014$, the *IMM* was only close to significance, $IMM = -0.03$, 95% CI [−0.05, 0.00], $p = 0.058$. The indirect effect at 1 *SD* below average SOC was significant, $a*b = 0.09$, 95% CI [0.03, 0.14], $p = 0.003$, proportion mediated: 53.0%; while this effect was only close to significance at 1 *SD* above average SOC, $a*b = 0.03$, 95% CI [−0.01, 0.07], $p = 0.097$; proportion mediated: 30.3% (Δ proportion mediated: 22.7%). Age was not significantly associated with suicidal behavior, while lower levels of education were associated with more severe suicidal behavior, $g_2 = -0.09$, 95% CI [−0.18, −0.01], $p = 0.048$. In this model, we did not find a significant impact of sexual orientation on the moderator effect of SOC, $\Delta\chi^2$ (1) = 0.31, $p = 0.579$.

3.6.3 | Post-hoc analyses on suicidal behavior

We subsequently examined potential moderated mediations for different aspects of suicidal behavior (for details see Supplementary Material SM2.2–2.5). SOC had no moderating effect on lifetime suicidal behavior, $b_3 = 0.03$, 95% CI [−0.11, 0.17], $p = 0.661$; $IMM = 0.01$, 95% CI [−0.03, 0.04], $p = 0.657$, or threat of suicidal behavior, $b_3 = 0.02$, 95% CI [−0.11, 0.16], $p = 0.716$; $IMM = 0.01$, 95%

CI [−0.02, 0.03], $p = 0.725$. However, SOC was a significant moderator of the association between ACEs and suicidal behavior in the last 12 months, $b_3 = -0.24$, 95% CI [−0.34, −0.15], $p < 0.001$; $IMM = -0.05$, 95% CI [−0.09, −0.02], $p = 0.002$. As for depressive symptoms, the indirect effect was significant at 1 *SD* below average SOC but was non-significant at 1 *SD* above average SOC; that is, for those with above average SOC, higher levels of ACEs were no longer associated with more suicidal behavior. For future suicidal behavior, we found no significant indirect effect of CGNC via ACEs on future suicidal behavior, $a*b = 0.02$, 95% CI [−0.04, 0.05], $p = 0.214$, and thus no effect which could be buffered by SOC. For none of these models, including sexual orientation as grouping variable improved the model fit, $p \geq 0.130$ (for details see Supplementary Material).

4 | DISCUSSION

In this study, we examined the relationships between childhood gender nonconformity (CGNC), ACEs, mental health problems, and SOC in cisgender men. In line with our hypothesis, we found positive associations between CGNC and depressive symptoms, feelings of loneliness, and suicidal behavior. Men with higher levels of CGNC also reported more ACEs and more severe mental health problems, and the relationship between CGNC and mental health problems was partly mediated via ACEs. For depressive symptoms and suicidal behavior in the last 12 months, we found evidence of a buffering effect of SOC on the relationship between ACEs and mental health problems. While in the case of low SOC levels, a significant positive association emerged between ACEs and mental health problems in

the mediation model, this association was no longer present for participants with higher levels of SOC.

Our results regarding the link between CGNC and mental health problems in adulthood were mostly consistent with previous research; for example, Folkierska-Żukowska et al. (2022) found a similar positive association between CGNC and depressive symptoms for homo- and heterosexual men. Also, Roberts et al. (2013) found that individuals with higher CGNC show an increased likelihood of later depression. Furthermore, in a longitudinal study, Oginni et al. (2019) showed that CGNC prospectively predicted later depressive symptoms as well as suicidal behavior. We also expected a positive correlation between CGNC and loneliness, as it is known that persons with high levels of CGNC are more likely to report having been loners as children (Green, 1976). Additionally, Hart et al. (2019) found a positive association between teasing because of CGNC and loneliness in adulthood. Regarding suicidal behavior, the longitudinal study by Oginni et al. (2019) demonstrated that CGNC in infancy prospectively correlated with suicidal behavior in early adulthood. Also, Plöderl and Fartacek (2009) found a comparable significant association between CGNC and current suicidality among homosexual and bisexual individuals, but not for the heterosexual subsample. In contrast to their findings, we found – yet in a relatively small sample which may have been underpowered for multigroup modeling – no significant difference between homo- or bisexual men and heterosexual men in our sample. Thereby, our findings preliminary support another study that found a positive association between CGNC and suicidal behavior irrespective of individuals' sexual orientation (Ioerger et al., 2015). In contrast, some studies found no associations between (childhood) gender nonconformity and depressive symptoms (e.g., Cook et al., 2013; Sandfort et al., 2016; Timmins et al., 2018). So far, it is not clear which factors account for these between-study differences. Thus, future studies – ideally including international samples – need to examine cultural and methodological drivers of these heterogeneous findings.

In summary, the findings suggest that CGNC might be a risk factor for mental health problems, at least in Western high-income countries. In addition, previous studies suggest that this association is present not only for sexual minorities, but also for heterosexual individuals. This implies that the negative mental health consequences of CGNC might be a broader public health issue, which is not limited to LGB individuals (Plöderl, 2016). Individuals with higher levels of CGNC seem to be at higher risk for ACEs and mental health problems in later life, regardless of their sexual orientation. Nevertheless, this particularly affects individuals on the LGB spectrum, as they report much higher levels of CGNC on average compared to heterosexual individuals (Bailey & Zucker, 1995; Jones et al., 2017; Li et al., 2017).

We then examined whether the ACEs statistically mediate the relationship between CGNC and mental health problems. Consistently across all outcomes, we found evidence of a mediating effect of ACEs on the relationship between CGNC and mental health problems. Higher CGNC was associated with more ACEs and, in turn, with higher levels of mental health problems, that is, more depressive

symptoms and feelings of loneliness as well as more intense suicidal behavior. The proportion of the total effects being mediated via ACEs ranged between 29.2% (for feelings of loneliness) and 44.4% (for suicidal behavior). Thus, mediation effects were substantial in all models, yet varied in size and were particularly relevant for suicidal behavior, that is, the most devastating outcome. At the same time, across all models, the direct link of CGNC and mental health outcomes remained larger in size than the indirect path.

These mediator effects are in line with previous research, for instance, Zhao et al. (2021) found that gender nonconformity is associated with adulthood depressive symptoms, which was mediated by childhood victimization in a Chinese sample. Furthermore, Plöderl and Fartacek (2009) found a significant impact of CGNC via childhood maltreatment on suicidal behavior. D'Augelli et al. (2006) also found an association between CGNC, victimization, and subsequent mental health as measured by PTSD symptom severity in an LGB sample. Our findings thus fall in line with previous studies. It should be noted, however, that the direct pathway remains significant in all mediation models, suggesting that additional factors influence the association between CGNC and adult mental health problems. Such factors may be related to additional victimization experiences later in life as a consequence of CGNC, internalized gender stereotypes, or dysfunctional coping strategies (e.g., Thoma et al., 2021).

Finally, we examined the buffering effect of SOC on the link between ACEs and mental health problems in the mediation models. For depressive symptoms, we found evidence of a buffering effect of SOC, with higher levels of SOC being associated with a smaller association of ACEs with depressive symptoms. While we found no significant buffering effect of SOC for feelings of loneliness, our findings on suicidal behavior again pointed to a buffering effect of SOC; however, the moderated mediation index was only close to significance. For both models, differences in the proportion mediated were substantial with 28.8% (for depressive symptoms) and 22.7% (for suicidal behavior) showing that an increase in SOC was associated with a substantial decrease of the relevance of the indirect effect via ACEs. Moreover, post-hoc analyses on suicidal behavior provided further insights: While we found no buffering effect of SOC for lifetime suicidal behavior, we found evidence of a buffering effect for suicidal behavior in the past 12 months. This finding may at first sight be surprising, as SOC is conceptualized as a rather stable global orientation (Antonovsky, 1979, 1987), which should be equally important in terms of past, current, and future suicidal behavior. However, previous studies have found SOC levels to change even over shorter periods of time and to be affected by exposure to stressors (Schäfer et al., 2020; Schäfer, Sopp, et al., 2022; Volanen et al., 2007); thus, current SOC might be more important for current and future mental health than for lifetime suicidal behavior. One explanation for the buffering effect of SOC on the link between ACEs and mental health problems may lie in self-perceived adaptive coping capacities. These were found to be negatively associated with suicidal behavior and depressive symptoms (McLafferty et al., 2019; Ong & Thompson, 2019; Thompson et al., 2010), and SOC—especially its

manageability component—can be viewed as a self-perceived coping capacity (Super et al., 2016). The meaningfulness component might be another reason for SOC's buffering effect; higher levels of meaningfulness are associated with a feeling of purpose in life, which could in turn protect against the negative mental health consequences of stressor exposure during childhood and adolescence (Edwards & Holden, 2001; Hartanto et al., 2020). While our analysis found no indirect link between CGNC and future suicidal behavior via ACEs—and, hence, no buffering effect of SOC—we found SOC to show a relevant bivariate association with anticipated future suicidal behavior, $r = -0.51$ (see Supplemental Material). If future prospective studies provide evidence for SOC's ability to buffer the potentially harmful effects of stressor exposure during childhood and adolescence, this will underline the importance of SOC as a psychosocial resilience factor (Kalisch et al., 2015; Schäfer, Kunzler, et al., 2022).

The buffering effect of SOC found in our study on two mental outcomes is in line with previous prospective studies on other stressors (Schäfer et al., 2020; Schäfer, Sopp, et al., 2022) and with cross-sectional findings on childhood trauma (van der Hal-van Raalte et al., 2008). However, while previous findings were limited to highly specific types of trauma and trauma-related outcomes (i.e., the Holocaust (van der Hal-van Raalte et al., 2008); World War II (Fossion et al., 2014)), our findings transferred the buffering effect of SOC to more diverse stressors (i.e., ACEs associated with the experience of CGNC) and outcomes. Even though these were found cross-sectionally, they may point to the fact that, in people with CGNC who are at increased risk of ACEs, a stronger SOC could help ensure that the well-established negative mental health consequences of ACEs (Hamby et al., 2021) do not materialize.

If this notion is supported by future longitudinal research, SOC might be an important target of prevention measures for those with ACEs in this group. In this case, the theoretical inconsistency in which SOC is found to change even within shorter periods (Schäfer et al., 2020) may point to the potential of SOC-fostering interventions. In line with this possibility, SOC has been found to be positively affected by short-term rehabilitation measures or psychotherapy (Schäfer et al., 2020; Vossler, 2012) as well as resilience-fostering interventions (e.g.; Foureur et al., 2013).

However, to date, a strong evidence base for SOC-fostering interventions in different populations has been lacking, as the findings are partly limited by the rather nonspecific interventions (i.e., interventions not specifically targeting the SOC components, namely manageability, meaningfulness, and comprehensibility) or insufficient study designs (i.e., single-arm trials). A systematic review of SOC-fostering interventions has been pre-registered but is not yet finished (Kotzur et al., 2022). The findings of this review may allow for the development of an evidence-based SOC-fostering intervention that could be used in populations at high risk for mental disorders, such as people with CGNC experiences and behaviors irrespective of their sexual orientation. Moreover, the review on SOC-fostering interventions may also help to gain insights into the important question of intervention timing. So far, it is unknown whether interventions may be more effective when used as a primary or secondary prevention measure or non-indicated (mental) health promotion intervention.

Having the potential benefits of SOC-fostering interventions in mind, our findings in line with previous studies (e.g., Chan, 2022; Plöderl & Fartacek, 2009; Zhao et al., 2021), suggest that the negative mental health consequences of CGNC may (partly) arise from negative social reactions, which are likely not being limited to ACEs. Fostering SOC at individual level may have the potential to buffer the negative mental health consequences for those who have already experienced negative social reactions by a heteronormative environment. However, such interventions should not be misunderstood as transfer of responsibility to individuals with CGNC experiences and behaviors. If further supported by longitudinal research, the link between CGNC and ACEs also raises the questions of what can be done on societal level to protect individuals from negative social reactions to CGNC. The discussion of such interventions is beyond the scope of the current study, but of major importance for intervening before individuals are exposed to ACEs, which in turn put them at a lifelong risk for mental health problems.

4.1 | Limitations

One possible limitation of our study relates to the data collection period, ranging from February to August 2021. During that time, the COVID-19 pandemic was affecting the lives of many people in Germany, which might have biased our results—especially for feelings of loneliness, which were found to increase during the pandemic (Buecker & Horstmann, 2021; Ernst et al., 2022). However, as we were not interested in mean-level comparisons, and associations with mental health problems were comparable to previous studies (e.g., Folkierska-Żukowska et al., 2022; Hart et al., 2019; Plöderl & Fartacek, 2009), the pandemic may not have influenced our findings at large.

Our study may also be at risk for selection bias as we recruited a convenience sample. As the study was advertised for being related to men's health, we cannot exclude that particularly healthy or burdened individuals decided to participate in our study. Both may be plausible as, on the one hand, a study on health may be more salient for those who experience health issues, and on the other hand, those with severe health issues may be too sick to participate in our study. Findings on bivariate associations of CGNC and mental health problems were similar as found in representative cross-sectional samples (e.g., Alanko et al., 2009; Collier et al., 2013; Lowry et al., 2018), however, as our mediation models have not yet been tested in a representative sample, findings may be different in other samples.

However, the most important limitation of our study is its cross-sectional design, which prevents our conclusions from being causal. First, the data on CGNC and ACEs were collected retrospectively and could therefore be biased. Memories may be repressed, forgotten, or faded. For example, ACEs may not be recalled because they occurred in infancy or because they are not considered abusive experiences

(Hardt & Rutter, 2004). In addition, it is reasonable to assume that the quality and accuracy of recall decreases with increasing temporal distance. Thus, it might be more difficult for older subjects to accurately recall memories from childhood. Nevertheless, existing evidence suggests that retrospective recording of objective life experiences, such as ACEs, have good reliability (Hardt & Rutter, 2004). Studies also suggest that affected individuals underestimate rather than overestimate the frequency of ACEs and that there is little critical influence of the current mood state (Hardt & Rutter, 2004; Spinhoven et al., 2010). However, it cannot be ruled out that subjects may make conscious or unconscious false responses, for example, due to social desirability or stereotypical assumptions about themselves. It has been discussed, for example, whether homosexual men stereotypically judge themselves to be more gender nonconforming. However, Plöderl and Fartacek (2009) concluded that evidence speaks against this assumption.

Moreover, we ran sensitivity analyses on the impact of sexual orientation on our models. However, our study was not prospectively designed to allow for these comparisons, which may thus be underpowered. Future studies using larger samples need to examine whether our model comparisons, which were for some models close to significance, may point to small but meaningful differences between sexual orientations.

In addition, we cannot make a statement about the preventive buffering effect of SOC because we had only one period of investigation and could not examine whether an earlier SOC would buffer the effect of later stressors. Moreover, in previous research, SOC itself was also found to decrease following negative life events (Volanen et al., 2007), and it is likely to be negatively impacted by ACEs (Fossion et al., 2014). To make more valid statements about the buffering effect of SOC in this context, future studies should employ longitudinal and, ideally, prospective designs. In this context, it would also be useful to investigate the development of CGNC experiences and behaviors along with SOC during childhood and adolescence. On the one hand, this may be a crucial phase of intervention to prevent the onset of mental disorders after ACEs (i.e., the earlier, the better; Asmussen et al., 2019); on the other hand, a developmental perspective on SOC and its potential buffering effect of major stressors might also provide important insights for the development and improvement of SOC interventions in adults. Prospective studies following a developmental approach may also help to examine the moderators of the effects found in our study, which may include aspects of timing, ACE types, or persons involved in childhood maltreatment and abuse (e.g., parents, peers). Moreover, future studies should also examine which SOC component accounts for the potential buffering effect and whether different components are important for specific stressors and mental health outcomes. In the current study, we used SOC-L9 (Singer & Brähler, 2007) to assess SOC, which did not allow us to examine the SOC components, namely comprehensibility, manageability, and meaningfulness (Antonovsky, 1987). However, knowing which component accounts for the buffering effect would be interesting not only from a theoretical perspective but also from a practical one, as this component might be the most important target for future interventions.

5 | CONCLUSION

In summary, the results of this study on adult cisgender men support the positive association between CGNC and ACEs, which may reflect a negative social reaction to gender nonconforming behavior. Moreover, we found higher levels of CGNC to be associated with more severe depressive symptoms, feelings of loneliness, and suicidal behavior in adults. Moreover, we found the link between CGNC and mental health problems to be partially mediated by ACEs. In cases of depressive symptoms and suicidal behavior during the last 12 months, we found the link between ACEs and mental health problems to be moderated by SOC. For those with higher levels of SOC, a positive association between ACEs and mental health problems was no longer found. In contrast, SOC does not seem to have a protective buffering effect on feelings of loneliness, lifetime suicidal behavior, or threat of suicidal behavior. Thus, our findings provide preliminary evidence for SOC as a promising target for prevention measures and resilience training in people with CGNC experiences and behaviors. However, future prospective studies must examine this buffering effect and its potential use for prevention in greater detail.

CONFLICT OF INTEREST
All authors declare that they have no conflict of interest.

DATA AVAILABILITY STATEMENT
Data available on request from the authors.

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ENDNOTE
[1] Within the Results section, the term "predicted" is used to describe the results of regression models and should not be misinterpreted as a causal relationship.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.