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A healthy context, a just context? The role of classroom-level victimization in the adverse effects of bullying victimization on students' belief in a just world

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ABSTRACT

The phenomenon that victims of bullying experience greater psychological problems in environments with lower levels of victimization is known as the healthy context paradox. The current study investigated the healthy context paradox with respect to students' belief in a just world. Specifically, we examined prospective effects of bullying victimization on personal and general belief in a just world, while taking the classroom level of victimization into account. Based on self-reports from 2010 Finnish 4th to 9th grade students (50.9 % girls, M_{age} = 12.6, SD = 1.71), multilevel models revealed negative prospective associations between bullying victimization and both types of belief in a just world. In addition, classrooms with initially lower levels of victimization subsequently showed higher levels in both types of belief in a just world. Finally, the adverse effects of bullying victimization on both types of belief in a just world were stronger in classrooms with lower levels of victimization. Our results support and extend the healthy context paradox. Implications, particularly for prevention and intervention strategies are discussed.

1. Introduction

Despite extensive efforts in research and practice, bullying remains prevalent in schools (Arnarsson et al., 2020; Madsen et al., 2024). Although school-based anti-bullying prevention programs are considered to be generally effective in establishing a healthier environment by reducing bullying victimization, they might not be helpful for all students (Salmivalli et al., 2021). Recent research from several countries (Netherlands, United States, Finland, and China) suggests that a healthier environment (e.g., characterized by less victimization in classrooms) may even increase the negative impact of victimization on overall mental health (i.e., anxiety and depression) of victimized students (e.g., Garandeau et al., 2018; Laninga-Wijnen et al., 2025; Pan et al., 2021; Xiong et al., 2022). In addition, studies have investigated whether bullying victimization impairs students' cognitions that support mental health and whether this impairment varies depending on the environment. These studies focused on self-cognitions (i.e., self-esteem, social self-

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concept) and found stronger negative effects for victims in healthier environments as well (Huitsing et al., 2019, 2012; Laninga-Wijnen et al., 2025; Pan et al., 2021; Xiong et al., 2023).

Although it is well-known that positive thoughts about oneself are protective factors against psychological problems, individuals not only have a need to consider *themselves* as valuable but also the *environment* in which they find themselves (Jiang et al., 2016). Nevertheless, studies investigating the impact of bullying victimization on cognitions about the outside world - and how these relationships can be influenced by healthier contexts - are scarce. This study addresses this gap by examining whether the potential prospective effect of bullying victimization on a specific type of victims' cognitions about the outside world, namely their belief in a just world, differs depending on the level of victimization in their classrooms.

1.1. The healthy context paradox

Without a doubt, the primary goal of anti-bullying prevention strategies is to promote healthier school contexts by reducing the number of peer-victimized children. Nevertheless, some children and youth remain victimized despite the successful implementation of anti-bullying programs (Kaufman et al., 2018). Paradoxically, victimized children have consistently been shown to experience more difficulties in their psychological and social adjustment in "healthier" contexts (i.e., classrooms with a lower prevalence of victimization; see Garandeau & Salmivalli, 2019) compared to victims in "less healthy" contexts (i.e., classrooms with a higher prevalence of victimization). This phenomenon is known as the "healthy context paradox" (Salmivalli, 2018). Specifically, more depressive symptoms (Garandeau et al., 2018; Huitsing et al., 2012; Laninga-Wijnen et al., 2025; Pan et al., 2021; Xiong et al., 2022; Yun & Juvonen, 2020), higher general (Laninga-Wijnen et al., 2025) and social anxiety (Garandeau et al., 2018) as well as lower peer acceptance (Garandeau et al., 2018; Pan et al., 2021; Sentse et al., 2007) could be observed in victims in classrooms with lower overall victimization levels.

In addition, researchers extended the investigation of the healthy context paradox by testing whether victims' cognitions varied as a function of the classroom level of victimization. In doing so, they focused primarily on self-cognitions. Based on the social comparison theory (Festinger, 1954) and the associated assumption that individuals tend to compare themselves with others, it is argued that the classroom composition (i.e., differences in the prevalence of victimization between classrooms) might have an effect on how victims evaluate themselves. That is, victims in classrooms with higher prevalence of victimization might have the opportunity to compare themselves with others who are sharing their plight, which in turn might help them to maintain a healthy self-image (Garandeau & Salmivalli, 2019; Taylor & Lobel, 1989). On the other hand, victims in settings with lower prevalence of victimization may be more prone to adopting dysfunctional patterns of self-blame, which in turn could have negative consequences for their self-esteem (Garandeau & Salmivalli, 2019; Schacter & Juvonen, 2015).

Indeed, several studies demonstrated that a healthier context might exacerbate victims' negative self-views. For instance, the concurrent negative association between victimization and self-esteem was found to be stronger in classrooms where only few children were nominated as victims (i.e., high centralization of victimization, Huitsing et al., 2012) or with lower average levels of victimization (Xiong et al., 2023). Another study showed that victims who remained or became victimized despite the successful implementation of a school-wide anti-bullying intervention appeared to have lower self-esteem than victims in schools without an anti-bullying program (Huitsing et al., 2019). Only two studies have tested these effects longitudinally: Pan et al. (2021) found that the prospective negative effect of victimization on social self-concept one year later was stronger in classrooms with a lower prevalence of victimization. Finally, Laninga-Wijnen et al. (2025) showed that in classrooms with lower victimization, victims not only experienced more negative self-esteem over time compared to others (between-person changes), but also lower self-esteem than before (absolute within-person changes). Taken together, these findings highlight the importance of the interaction between individual and environmental factors in explaining negative consequences of bullying victimization on self-cognitions.

According to the shattered assumptions theory (Janoff-Bulman, 2010), individuals hold views both about themselves (e.g., feeling worthy, feeling competent about oneself) *and* about the outside world (e.g., perceiving the world as benevolent). A positive manifestation of *both* of these cognitions is beneficial for individuals' psychological functioning and well-being (Edmondson et al., 2011; Janoff-Bulman, 2010; Weinberg et al., 2023). Although there is a growing body of empirical evidence that healthier contexts exacerbate victims' negative self-cognitions, the healthy context paradox remains understudied with respect to cognitions about the outside world. One example of cognitions about the outside world that has been recently discussed in relation to the healthy context paradox is the *belief in a just world* (see Garandeau & Salmivalli, 2019).

1.2. Belief in a just world

The belief in a just world can be defined as a "positive illusion" that the world is a just place and that people get what they deserve and deserve what they get (see Dalbert, 1999; Taylor & Brown, 1988). Prior studies have suggested two dimensions of this construct: the personal (i.e., the world is just *for me*) and the general (i.e., the world is just *in general*) belief in a just world (Dalbert, 1999; Dalbert, 2009; Lipkus et al., 1996). This self-other distinction is supported by findings that individuals' personal beliefs in a just world are typically stronger, and also more strongly related to well-being, than their general beliefs in a just world (Dalbert, 1999; Lipkus et al., 1996).

According to the justice motive theory, individuals have a fundamental need to believe in a just world (Lerner, 1980). When this belief is threatened by awareness of negative events (e.g., witnessing a bullying incident), they employ defense mechanisms to maintain their worldview (Dalbert, 2009; Furnham, 2003; Lerner, 1980). These mechanisms include behavioral restoration of justice (e.g., by defending the victim) or psychologically reinterpreting perceived injustices (e.g., by blaming the victim, Dalbert, 2001; Hafer

& Gosse, 2011; Voss & Newman, 2021). They serve to uphold the belief in a just world, helping individuals perceive their environment as controllable and orderly (Dalbert, 2001). Indeed, recent findings indicate that belief in a just world is closely linked to perceived control (Goodwin & Williams, 2023), suggesting that it may serve both as a personal resource and, to some extent, as a coping mechanism in the face of unjust events (Correia et al., 2024). However, when perceived injustices surpass a certain subjective threshold (e.g., not just witnessing an incident of bullying, but becoming a victim), defense mechanisms maintaining belief in a just world may fail, resulting in its decline (Corey et al., 2015; Cubela Adoric & Kvartuc, 2007). This aligns with the shattered assumptions theory, which posits that experiencing negative events can fundamentally disrupt individuals' core beliefs about the world (Janoff-Bulman, 2010). Individual experiences of bullying victimization, characterized by repeated harm within the context of a power imbalance (Olweus, 1993), may be particularly likely to undermine belief in a just world due to their severity and chronic nature (Cubela Adoric & Kvartuc, 2007).

Although research on the impact of bullying victimization on both types of belief in a just world is limited, some authors suggest that bullying is particularly likely to affect victims' *personal* belief in a just world. They argue that bullying victimization is a highly personal experience where victims often feel specifically targeted for malicious treatment, leading to a more significant disruption in their perception of personal justice (Cubela Adoric & Kvartuc, 2007). However, despite evidence that the distinction between personal and general belief in a just world contributes to a better understanding of just world theory (Dalbert, 1999; Dalbert, 2009; Lipkus et al., 1996), other studies showed that both types of belief in a just world are based on a common latent factor and are correlated with each other (e.g., Hafer et al., 2020). Therefore, it can be assumed that both personal and general belief in a just world comprehensively determine a person's sense of justice and are jointly influenced by experiences of bullying victimization, with victims' personal beliefs in a just world possibly being affected more strongly.

Examining the healthy context paradox in relation to the belief in a just world might profit from a clear distinction between individual and contextual perspectives. On an individual level, it is assumed that the belief in a just world contributes to psychological well-being by making people's lives more predictable and controllable, which gives them confidence in the future and helps them in the pursuit of long-term goals (Dalbert, 2009; Donat et al., 2012; Hafer & Rubel, 2015; Hafer & Sutton, 2016; Yu et al., 2018). Conversely, on a contextual level, others' strong beliefs in a just world could have negative social consequences for victimized individuals. In particular, a strong belief in a just world might be considered as a cognitive bias, that leads individuals to believe that victims deserve their maltreatment (victim derogation, Garandeau & Salmivalli, 2019, De Judicibus & McCabe, 2001; Montada, 1998). This could be especially relevant with regard to the general belief in a just world: individuals who strongly believe that the world is a just place tend to think that others get what they deserve (Voss & Newman, 2021). Supporting this view, various studies have shown that high levels of general belief in a just world were related to harsh social attitudes (e.g., Sutton & Douglas, 2005). Notably, a series of studies demonstrated that high levels of general belief in a just world were associated with a tendency to blame victims across a broad range of domains, including survivors of rape, individuals with AIDS, cancer, or disabilities, people involved in accidents, and those facing poverty (Montada, 1998).

Conversely, beyond the notion that high levels of belief in a just world may facilitate the *denial of injustice*, Dalbert (1999) also suggests a link between a high belief in a just world and *prosocial commitment*. She argues that a high belief in a just world constitutes a personal contract between the individual and the social world, obliging individuals to intervene when witnessing injustices (Dalbert, 2001). This perspective has been substantiated by several studies as well. Without distinguishing between personal and general belief in a just world, some research has found that a high belief in a just world was related to the intention to engage in certain prosocial behaviors, such as donating blood for research purposes or donating money after a natural disaster (see Igou et al., 2021). Overall, Igou et al. (2021) suggest that whether individuals with a high belief in a just world display prosocial or derogatory tendencies towards victims depends on several factors: Whether they believe that their own potential prosocial behavior would be effective and helpful in resolving the situation (see also Miller, 1977), and whether the provision of support would require them to sacrifice their own justly acquired resources (see also Holmes et al., 2002).

In bullying situations, it is still unclear whether a strong belief in a just world predominantly leads to prosocial (e.g., defending) or unsupportive, harmful (e.g., victim derogation) behaviors among peers, but some evidence suggests the latter. First, some studies indicate that witnesses of bullying intervene in relatively few instances (Hawkins et al., 2001; Nishina & Bellmore, 2010). Second, high levels of personal belief in a just world were shown to be unrelated (Correia & Dalbert, 2008) or even negatively associated (Wolgast et al., 2023) with defending behaviors. Third, personal belief in a just world was shown to be positively associated with victim blaming (Chapin & Coleman, 2017). One reason why students with high belief in a just world may be more likely to psychologically reinterpret perceived injustices in bullying situations (e.g., blaming the victim) instead of behaviorally resolving them (e.g., defending) could be that bullying perpetration is often associated with power and social dominance (i.e., popularity norms, see Veenstra & Lodder, 2022). Indeed, several studies have found that bullies are perceived as highly popular by their peers (e.g., Guy et al., 2019; Pouwels et al., 2018) and that peers were less likely to defend victims in classrooms where bullies were more popular (Pouwels et al., 2019). The high popularity of bullies could lead peers to fear high social costs for their intervention (Pouwels et al., 2019). In addition, they may perceive a power imbalance and therefore feel less likely to be effective in defending the victim, which in turn might diminish defending behavior (Chen et al., 2023). For individuals who strongly believe in a just world, these effects may be particularly pronounced. They may be more sensitive to the potential costs of defending (i.e., they may think "why should I risk my justly earned status"), and not only fail to intervene due to their lower perceived self-efficacy (Chen et al., 2023), but blame the victim in order to maintain their worldview.

1.3. Why would victimization reduce belief in a just world more in classrooms with lower levels of victimization

According to the shattered assumptions theory, assumptions about the environment might change due to negative events such as bullying victimization (Janoff-Bulman, 2010). Consistent with this theory, recent findings have shown a negative prospective association between bullying victimization and the overall belief in a just world (general and personal scales combined, Zhang et al., 2022) as well as concurrent negative associations between bullying victimization and both types of belief in a just world (Xiong et al., 2022), as well as between cyberbullying and general belief in a just world (Bai et al., 2021).

The negative consequences of bullying victimization on the victims' personal and general belief in a just world may be exacerbated by the classroom composition (i.e., differences in the prevalence of victimization) due to two possible mechanisms. First, according to cognitive dissonance theory (Festinger, 1957), victims' expectations about their environment may be more likely to be shattered in classrooms with lower levels of victimization. In such classrooms, victimized students might have higher expectations of being treated well and yet experience victimization. Larger gaps between victims' expectations about the environment and perceived reality in lower-victimization classrooms could in turn further shatter existing assumptions and contribute to a stronger decrease in personal and general belief in a just world (see also Xiong et al., 2022). Second, a contextual effect of belief in a just world itself might explain why the individual impact of bullying victimization on victims' belief in a just world might be stronger in classrooms with lower overall victimization. That is, in classrooms with lower rates of victimization, where the majority is not experiencing victimization and non-victimization is the norm, it is likely that students on average tend to see the world as more just. As described above, this could lead to a higher likelihood of victim derogation (i.e., in classrooms with lower rates of victimization more peers could think that the victims deserve to become victimized) and a less prosocial class climate towards the victims, which in turn could increase the negative consequences of bullying and further mitigate victims' belief in a just world (see Garandeau & Salmivalli, 2019).

1.4. The present study

The present study aims to examine how bullying victimization can influence individuals' personal and general belief in a just world depending on how prevalent victimization is in their classroom. Based on previous empirical findings (Bai et al., 2021; Xiong et al., 2022; Zhang et al., 2022) and our considerations above, we expect that bullying victimization reduces the personal and the general belief in a just world (hypothesis 1a and 1b). Furthermore, we hypothesize that higher levels of classroom-level victimization will be associated with subsequent lower classroom-level personal and general belief in a just world (hypotheses 2a and 2b). This implies that in classrooms with less victimization, students are likely to maintain stronger beliefs in a just world, as their assumptions about fairness are less frequently challenged. Consequently, these stronger beliefs in classrooms with lower victimization levels might intensify the impact of individual bullying experiences on victims' beliefs in a just world (e.g., Garandeau & Salmivalli, 2019). Finally, in line with the healthy context paradox (Salmivalli, 2018), we expect that the negative prospective associations between bullying victimization

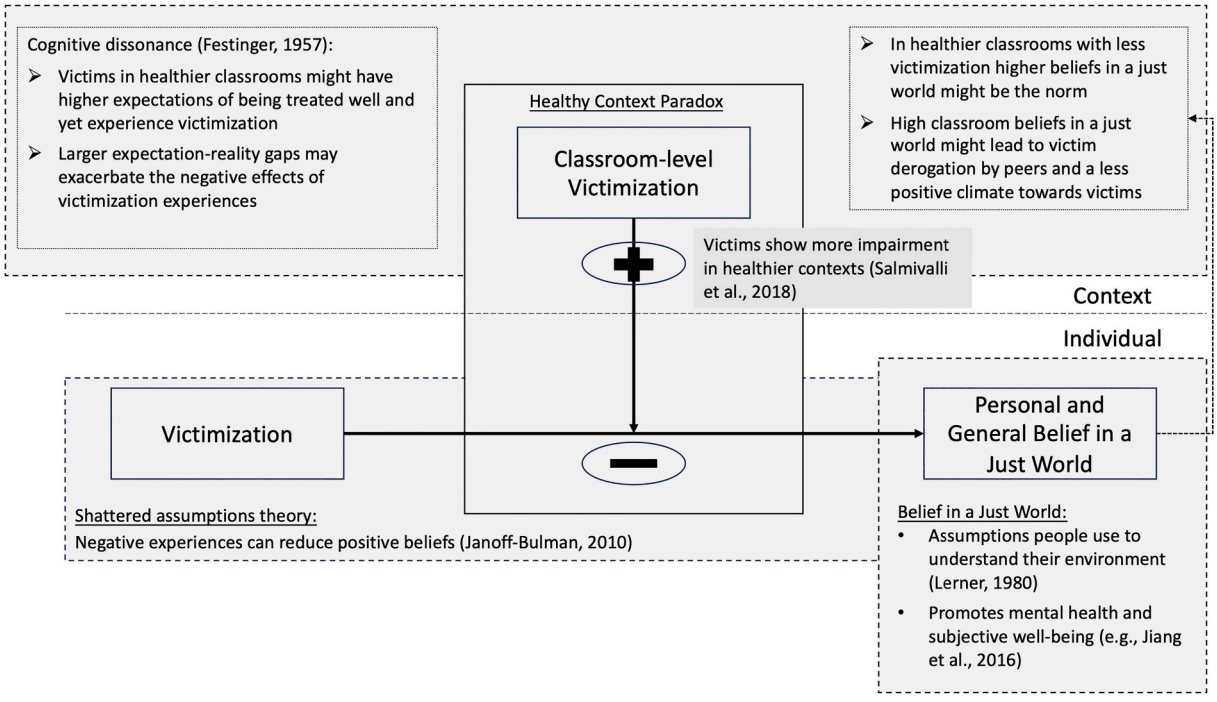

Fig. 1. Integration of theoretical frameworks informing the research questions and explanations why healthier contexts might exacerbate the reduction in belief in a just world among victims.

and personal and general belief in a just world are exacerbated in classrooms with lower levels of victimization (hypothesis 3a and 3b).

Since research has shown gender differences in victimization (e.g., Iossi Silva et al., 2013; Obregon-Cuesta et al., 2022; Smith et al., 2019) – with boys being more likely to be victimized, and has produced mixed findings regarding gender differences in the belief in a just world (Bègue & Bastounis, 2003; Hayes et al., 2013; Kong et al., 2021; O'Connor et al., 1996) – with some studies finding no substantial gender differences but others suggesting that boys show a slightly higher belief in a just world, we control for self-reported gender. Furthermore, we control for age to account for normative age-related changes in bullying victimization (Sánchez-Queija et al., 2017) and the belief in a just world (Dalbert, 2001). Fig. 1 depicts the integration of the theoretical frameworks informing the research questions in this study.

2. Method

2.1. Participants

The hypotheses of this study were tested using two waves of data collected in Finnish primary and secondary schools within one academic year (2020−2021): October (Wave 1) and January (Wave 2). The data are part of a larger project (i.e., the Challenge Project) that aimed, among other things, to investigate how the harmful consequences of persistent bullying can be reduced. Only students who obtained active parental consent and provided their own assent were included in this study. In addition, only data from students who provided information on at least one of the variables of interest in both waves were analyzed. In order to enhance reliability and validity of the classroom-level variables, we included only classrooms with at least 10 respondents (cf. Laninga-Wijnen et al., 2025). In total, 2010 participants (girls = 50.9 %, M_{age} = 12.6, SD = 1.71) from 21 schools and 148 classrooms with an average of 7.05 classrooms per school (range: 2–16 classrooms per school) were included in our study. The number of respondents in each classroom ranged between 10 and 28 (M = 13.6, SD = 3.46). For 91.0 % of the students, Finnish was the main language spoken at home (including Finnish sign language in 0.1 % of the cases). For 4.1 % of the students, Finnish and another language was spoken at home (e.g., Swedish). In 4.9 % of the cases, Finnish was not the first language spoken at home.

2.2. Measures

The present study was part of a larger research project that aimed to answer questions that go beyond the ones investigated here. Due to busy school schedules and in order to maintain the motivation and attention of the students, care was taken to keep the questionnaire battery as short as possible. For this reason, only selected items and not the complete scales were administered for bullying victimization and personal and general belief in a just world. In the following section, we explain the criteria on which the selection of the items was based and report the items we used as well as two types of reliability (Cronbach's α and McDonald's ω). The instruments were presented in the order reported.

2.2.1. Bullying victimization

At the beginning of the questionnaire, participants were given a definition of bullying that included the criteria of repetition, power imbalance and intentionality. Bullying victimization was measured at Wave 1 via five items of the revised Olweus Bully/Victim Questionnaire (OBVQ-R, cf. Solberg & Olweus, 2003), measuring specific forms of bullying victimization (i.e., physical, verbal, relational, social exclusion, and being bullied online). On a five-point response scale (1 = not at all to 5 = several times a week), participants indicated how often they had experienced victimization "at school, in the last couple of months" (items: "I was hit, kicked or pushed", "I was called mean names, was made fun of, or teased","Other pupils spread lies or rumors against me", "I was purposefully excluded or ignored by my classmates", and "I was bullied with mean or hurtful messages, calls or pictures, or in other ways on cell phone or over the Internet"). Participants' responses were averaged across the five items. Evidence for the construct validity of the OBVQ-R has been repeatedly demonstrated (see Breivik & Olweus, 2015; Kyriakides et al., 2006; Solberg & Olweus, 2003).

The original OBVQ-R scale additionally includes items on (a) taking money or damaging belongings; (b) threatening; (c) making racist comments; and (d) making sexual remarks or gestures (see e.g., Gaete et al., 2021). We decided to omit these particular items because they cover behaviors that occur relatively rarely (e.g., taking money or damaging belongings), relate to motivation and overlap with other (e.g., verbal) forms (e.g., making racist comments; making sexual remarks or gestures) and/or overlap significantly with the measured behaviors (e.g., threats can be shown verbally, physically or online). The combination of items we utilized were already used in other studies focusing on the healthy context paradox (see Laninga-Wijnen et al., 2025). The five-item scale used in this study showed acceptable reliability in our sample (Cronbach's $\alpha = 0.77$; McDonald's $\omega = 0.78$) and results of the CFA ($\chi^2(11) = 26.73$, $p = .005$, CFI = 0.982, TLI = 0.968, RMSEA = 0.026, and SRMR = 0.023) were satisfactory.

2.2.2. Classroom-level victimization

Following previous studies, individual victimization scores at Wave 1 were averaged per classroom to obtain a classroom-level indicator of bullying victimization (e.g., Gini et al., 2020; Pan et al., 2021; Xiong et al., 2023, 2022; Yun & Juvonen, 2020). Higher scores indicate higher average victimization in the classroom.

2.2.3. Belief in a just world

The personal and general belief in a just world were measured at each wave via three items per dimension based on Dalbert's general and personal belief in a just world scale (see Dalbert, 1999). The original scale consists of 13 items (i.e., seven for personal and

six for general belief in a just world) and showed evidence for construct validity in several studies (e.g., Bègue & Bastounis, 2003; Dalbert, 1999). Due to time constraints, only three items per subscale were used. The items were selected according to aspects of face validity and linguistic comprehensibility for the target group of adolescents. Participants had to indicate on a six-point response scale (1 = strongly disagree to 6 = strongly agree) how much they agreed with each statement (items for personal belief in a just world: "I believe that most of the things that happen in my life are fair"; "I believe that I usually get what I deserve"; "I am usually treated fairly"; Items for general belief in a just world: "I think basically the world is a just place"; "I believe that, by and large, people get what they deserve"; "I am convinced that in the long run people will be compensated for injustices"). For each type of belief in a just world, the answers were averaged across items. Higher scores indicate a stronger personal and general belief in a just world, respectively. The scales showed acceptable reliability in our sample for both Waves (Cronbach's α for personal belief in a just world: 0.77 and 0.78; Cronbach's α for general belief in a just world: 0.77 and 0.78; McDonald's ω for personal belief in a just world: 0.77 and 0.78; and McDonald's ω for general belief in a just world: 0.78 and 0.79). The CFA with personal and general belief in a just world in the same two-factor model showed satisfactory results for Wave 1 ($\chi^2(8) = 37.22$, $p < .001$, CFI = 0.985, TLI = 0.972, RMSEA = 0.043, and SRMR = 0.021) as well as for Wave 2 ($\chi^2(8) = 58.13$, $p < .001$, CFI = 0.976, TLI = 0.955, RMSEA = 0.056, and SRMR = 0.022).

2.2.4. Control variables

Gender was coded as 0 for girls and 1 for boys. Students who indicated that they did not want to respond to this question or selected the option "I do not feel as a boy nor a girl" had their values set as missing due to their low percentage (3.4 %). Age was determined by calculating the number of days between participants' birth date and their login date at Wave 1. Days were converted into years by dividing the number of days by 365.25.

2.3. Measurement invariance

A series of multilevel confirmatory factor analyses (Hox et al., 2017) was conducted in Mplus 8.8 (Muthén & Muthén, 2017) using robust maximum likelihood estimation method to evaluate cross-level measurement invariance for bullying victimization (Jak, 2019) and longitudinal scalar measurement invariance within classrooms (Jebb et al., 2019) for personal and general belief in a just world. Measurement invariance was evaluated using a model selection method based on the Bayesian information criterion (BIC). Note that the BIC is recommended when the goal is to filter trivial non-invariance since the BIC showed a low rejection rate to no or small non-invariance in a simulation study (Liang & Luo, 2020). Full information maximum likelihood (FIML) was used to deal with missing data in order to use all information available without imputing values (Enders, 2022).

Results showed that cross-level measurement invariance, in which factor loadings are constrained to be equal across levels, was tenable for victimization and longitudinal scalar measurement invariance, in which factor loadings and intercepts are constrained to be equal across time, was tenable for personal and general belief in a just world (see Table 1). Moreover, model fit of all measurement models showed an acceptable model fit, i.e., CFI and TLI > 0.90 and RMSEA and SRMR <0.08 (Little, 2013), indicating sound measurement properties of all scales used in the current study. Thus, mean scale scores were computed for all scales, which were subsequently used in the main analysis.

2.4. Procedure

All Finnish schools that were registered users of the KiVa anti-bullying program in spring 2020 (986 schools) were invited via a newsletter that is sent to them regularly to take part in a large research project (i.e., the Challenge Project). Moreover, an advertisement of the research project was distributed via social media. Out of 40 schools who initially accepted to take part, 23 schools were recruited. When selecting the schools, care was taken to ensure that they were located in all six regional administrative areas on the

Table 1
Multilevel confirmatory factor analysis results: model fit summary of the measurement models for victimization, personal, and general belief in a just world.

	χ^2 (df)	p	CFI	TLI	RMSEA	$SRMR_W$	$SRMR_B$	BIC
Cross-Level Measurement Invariance								
Victimization								
Configural Invariance	26.73 (11)	0.005	0.982	0.968	0.026	0.023	0.074	15,499.63
Metric Invariance	31.17 (15)	0.008	0.982	0.976	0.023	0.023	0.139	15,475.24
Longitudinal Measurement Invariance								
Personal BJW								
Configural Invariance	3.21 (5)	0.668	1.00	1.00	0.000	0.007	0.000	29,782.66
Metric Invariance	4.57 (7)	0.712	1.00	1.00	0.000	0.009	0.000	29,769.22
Scalar Invariance	5.90 (9)	0.750	1.00	1.00	0.000	0.009	0.000	29,754.16
General BJW								
Configural Invariance	4.38 (5)	0.497	1.00	1.00	0.000	0.008	0.000	32,378.89
Metric Invariance	8.44 (7)	0.296	0.999	0.999	0.010	0.012	0.000	32,369.93
Scalar Invariance	10.83 (9)	0.288	0.999	0.999	0.010	0.012	0.000	32,354.73

Note. N = 1957–2010 students from 147 to 148 classrooms. In the longitudinal measurement models, residual covariances between the same items at different time points were included because the item-specific variances were expected to correlate with each other (Little, 2013).

Finnish mainland. Of these, one school dropped out. Furthermore, one school could not fulfill the inclusion criteria we specified for our analyses (a minimum of 10 respondents per class), resulting in 21 schools being included in our study.

The school staff received a clear introduction to the research project and detailed instructions on how to conduct the data collection approximately two weeks before the data collection began. A consent form was sent to all students' caregivers in participating schools to ask for their child's participation. The students whose caregiver filled in the consent form (regardless of whether consent was given) were involved in a raffle for movie tickets. After providing assent to take part in the study, students answered online questionnaires during regular school hours. Each student received an individual ID assigned by the online data collection platform via which the data was matched across waves. Trained teachers were present at all times. The students were assured that the privacy of their responses would be protected, and they were informed that they had the option to withdraw from the study at any point. The Ethical Board of the University of Turku granted approval for this study.

As the data collection took place during the COVID-19 pandemic 2020–2021, it should be noted that school closures in Finland only took place in spring 2020. At the time of data collection in fall 2020, there were no more nationwide school closures and schools were functioning normally. Despite the pandemic, Finland attached great importance to face-to-face teaching, so we assume that our results were generally not influenced by school irregularities. Nevertheless, the fact that the data collection took place during the COVID-19 pandemic should be kept in mind (see also Discussion).

2.5. Analytic strategy

A series of multilevel models at two levels (individual at Level 1, classroom at Level 2) using Mplus version 8.8 (Muthén & Muthén, 2017) were conducted to test the hypotheses of this study. The assumptions of multilevel modeling (i.e., sufficient sample size, linear relationships, absence of multicollinearity, and normality for dependent variables, see Hox et al., 2017, p. 235) were checked and confirmed. The results of the assumption checks are presented in the supplementary materials (S1).

First, we tested the associations between victimization and personal and general belief in a just world at the student level. Specifically, on Level 1, we specified the pathway from bullying victimization at Wave 1, and personal and general belief in a just world at Wave 2, while controlling for age, gender, and prior personal and general belief in a just world (Hypotheses 1a and 1b). We allowed the intercepts and slopes to vary between classrooms. On Level 2, we tested the effects of classroom-level victimization at Wave 1 on personal and general belief in a just world at Wave 2, while controlling for age and gender composition (Hypotheses 2a and 2b). Second, to examine the moderating role of classroom-level victimization in the association between individual bullying victimization at Wave 1 and personal and general belief in a just world at Wave 2 (Hypotheses 3a and 3b), we added cross-level interactions between classroom- and individual-level victimization to the previous model.

The Bayesian Markov Chain Monte Carlo (MCMC) estimation method was utilized, employing non-informative prior distributions based on the program's default settings. To assess model convergence, the Gelman-Rubin criterion was employed with a threshold value of 0.01, following the approach outlined by Hox et al. (2012). Mplus, by default, employs the Gelman-Rubin method to detect the convergence of Bayesian estimates. This method compares the variability of parameter estimates within and between chains (Gelman et al., 2013). For the Gibbs sampler - a MCMC technique that iteratively draws on a sequence on parameters, latent variables, and missing observations to construct the posterior distribution, based on the observed data and specifications of the parameters - eight chains were requested (Asparouhov & Muthén, 2010). A minimum of 10,000 iterations was specified, with starting values derived from the maximum likelihood estimates of the model parameters. To ensure convergence, trace plots were manually inspected for all parameters.

Predictor variables at the individual level were group mean centered. Predictor variables at the classroom-level were grand mean centered (Enders & Tofighi, 2007). Since we formulated one-sided hypotheses, we report one-sided credible intervals for all results that test specific hypotheses (i.e., we report $-\infty$ as lower and ∞ as upper borders depending on the direction of the specific hypothesis). Furthermore, R^2 (based on the proportional reduction of unexplained variance after adding predictors on the individual and classroom level (Raudenbush & Bryk, 2002), see Table 3) and standardized estimates (Std. Est.) are reported to take the effect sizes into account.

2.6. Missing data

In total, 1.9 % of the data stemming from 203 incomplete records were missing. The percentage of missing values across the 7 variables ranged from 0.0 % to 4.6 %. A series of Welch's test with Bonferroni-Holm correction was conducted to examine whether students with complete data differed from students with incomplete data on all study variables.

Results showed statistically significant differences between students with complete and students with incomplete data in personal belief in a just world at both waves and general belief in a just world at Wave 2. On average, students with incomplete data had lower values in both types of the belief in a just world. Effect sizes showed medium sized group differences with Cohen's *d*s ranging between 0.30 and 0.41. Bayesian estimation was used to deal with missing data, where missing values are predicted at each iteration of the estimation process based on the model specification, the parameter estimates obtained from the previous iteration, and the observed data (Winter & Depaoli, 2022).

2.7. Transparency and openness

This article complies with the Journal Article Reporting Standards (Kazak, 2018). All decisions related to the dataset used in this study are reported. The study has not been preregistered. The syntax required to reproduce the analysis are available upon reasonable

request. The data cannot be publicly shared as consent was not obtained from the participants.

3. Results

3.1. Descriptive statistics

Table 2 displays the means, standard deviations, intraclass correlation coefficients, and bivariate correlation coefficients among the study variables at the student- and classroom level. At the student level, victimization at Wave 1 was negatively correlated with personal, and general belief in a just world at Wave 1 and Wave 2. At the classroom level, victimization at Wave 1 was negatively related with age at Wave 1. Intraclass correlation coefficients (ICCs) showed that 5.4 % of the variance in victimization at Wave 1, and 7.1 % and 6.3 % of the variance in the personal belief in a just world at Waves 1 and 2 respectively, as well as 14.8 % and 11.6 % of the general belief in a just world at Waves 1 and 2 respectively, were at the classroom level. Note that reported means for age and gender are based on Bayesian posterior estimates and may slightly differ from raw sample means reported earlier.

3.2. Prospective effects of victimization on personal and general belief in a just world

The results of the multilevel model *without cross-level interactions* showed that, at the individual level, victimization at Wave 1 negatively predicted personal belief in a just world (hypothesis 1a, Est. = −0.26, 95 % CI [−∞, −0.16], Std. Est = −0.12), and general belief in a just world (hypothesis 1b, Est. = −0.18, 95 % CI [−∞, −0.07], Std. Est = −0.07) at Wave 2 while statistically controlling for Wave 1 personal and general belief in a just world, age, and gender. That is, more frequently victimized students at Wave 1 had a stronger rank-order decrease in personal and general belief in a just world between Wave 1 and Wave 2 than less frequently victimized students. Regarding the effect of individual victimization, effect sizes can be considered as medium for general, and high for personal belief in a just world (Orth et al., 2022). The random slopes for the associations between Wave 1 victimization and Wave 2 personal (Est. = 0.14, 95 % CI [0.06, 0.27]), and general (Est. = 0.11, 95 % CI [0.04, 0.24]) belief in a just world varied significantly between classrooms. At the classroom level, victimization at Wave 1 negatively predicted personal (in line with hypothesis 2a, Est. = −0.85, 95 % CI [−∞, −0.57], Std. Est = −0.51) and general (in line with hypothesis 2b, Est. = −0.91, 95 % CI [−∞, −0.55], Std. Est = −0.36) belief in a just world, while statistically controlling for average age and proportion of boys in classrooms at Wave 1. The effect sizes for the associations between victimization and both types of belief in a just world at the classroom level can be considered as moderate to high (Cohen, 1988).

3.3. Moderating role of classroom-level victimization in associations between victimization and personal and general belief in a just world

The results of the multilevel model *including the cross-level interactions* between classroom- and individual-level victimization are presented in Table 3 and Fig. 2. As expected, classroom-level victimization at Wave 1 moderated the individual-level relationships between victimization at Wave 1 and personal belief in a just world (Hypothesis 3a, Est. = 0.86, 95 % CI [0.60, ∞], Std. Est = 0.33), and general belief in a just world (Hypothesis 3b, Est. = 0.96, 95 % CI [0.68, ∞], Std. Est = 0.39) at Wave 2, while statistically controlling for average age and proportion of boys in classrooms at Wave 1. In line with our hypotheses, the negative effects of victimization on both types of belief in a just world were stronger in classrooms with lower levels of victimization (see Fig. 3). For all moderation effects, effect sizes can be regarded as moderate (Mathieu et al., 2012).

Table 2
Descriptive statistics, bivariate correlation coefficients, and intraclass correlation coefficients.

Variable	1.	2.	3.	4.	5.	6.	7.
1. W1 Victimization		−0.21	−0.34	0.07	−0.12	**−0.47**	0.11
2. W1 Personal BJW	**−0.34**		**0.76**	**0.73**	**0.60**	**−0.48**	0.19
3. W2 Personal BJW	**−0.26**	**0.50**		**0.55**	**0.70**	**−0.34**	0.17
4. W1 General BJW	**−0.18**	**0.50**	**0.33**		**0.84**	**−0.80**	0.12
5. W2 General BJW	**−0.15**	**0.29**	**0.52**	**0.54**		**−0.66**	0.12
6. W1 Age	0.01	0.00	0.02	−0.02	−0.03		−0.17
7. Gender	−0.01	**0.07**	**0.05**	**0.08**	**0.07**	0.03	
M	1.21	4.69	4.65	4.16	4.12	12.73	0.47
SD_{Within}	0.44	0.84	0.87	0.95	0.98	0.51	0.49
$SD_{Between}$	0.10	0.23	0.23	0.40	0.35	1.74	0.11
ICC(1)	0.054	0.071	0.063	0.148	0.116	0.920	0.047
ICC(2)	0.438	0.509	0.479	0.702	0.640	0.994	0.402

Note. N = 2010 students from 148 classrooms; BJW = Belief in a just world; Gender: 0 = girl, 1 = boy; ICC(1) = intraclass correlation coefficient 1 (proportion of between-classroom variance in total variance); ICC(2) = intraclass correlation coefficient 2 (reliability of aggregated variable); statistically significant correlation coefficients at α = .05 are in boldface. Numbers below the diagonal represent within-classroom correlations, and numbers above the diagonal represent between-classroom correlations.

Table 3
Multilevel models without and with cross-level interactions: unstandardized and standardized bayesian posterior median estimates.

	Without Cross-Level Interactions				With Cross-Level Interactions			
	W2 Personal BJW		W2 General BJW		W2 Personal BJW		W2 General BJW	
	Est. (SD)	Std. Est.	Est. (SD)	Std. Est.	Est. (SD)	Std. Est.	Est. (SD)	Std. Est.
Level 1 – Student Level								
W1 Victimization	**−0.26**	**−0.12**	**−0.18**	**−0.07**	**−0.33**	**−0.15**	**−0.26**	**−0.11**
	(0.06)		(0.07)		(0.07)		(0.08)	
W1 Personal BJW	**0.43**	**0.40**	0.00	0.00	**0.43**	**0.40**	−0.00	0.00
	(0.03)		(0.03)		(0.03)		(0.03)	
W1 General BJW	**0.09**	**0.10**	**0.54**	**0.51**	**0.09**	**0.10**	**0.54**	**0.51**
	(0.02)		(0.02)		(0.02)		(0.02)	
W1 Age	0.04	0.02	−0.05	−0.02	0.03	0.02	−0.05	−0.02
	(0.03)		(0.04)		(0.03)		(0.04)	
Gender (0 = girl, 1 = boy)	0.02	0.01	0.05	0.02	0.01	0.01	0.05	0.02
	(0.04)		(0.04)		(0.04)		(0.04)	
Level 2 – Class Level								
W1 Classroom victimization	**−0.85**	**−0.51**	**−0.91**	**−0.36**	**−0.82**	**−0.50**	**−0.89**	**−0.35**
	(0.17)		(0.21)		(0.17)		(0.21)	
W1 Average age	**−0.07**	**−0.45**	**−0.16**	**−0.70**	**−0.06**	**−0.44**	**−0.16**	**−0.70**
	(0.02)		(0.02)		(0.02)		(0.02)	
Proportion of boys	0.11	0.08	0.08	0.04	0.11	0.08	0.08	0.04
	(0.14)		(0.17)		(0.14)		(0.17)	
Cross-Level Interaction								
W1 Classroom victimization x W1 Victimization					**0.86**	**0.33**	**0.96**	**0.39**
					(0.40)		(0.41)	
W1 Average age x W1 Victimization					0.04	0.19	0.07	0.31
					(0.04)		(0.04)	
Proportion of boys x W1 Victimization					0.04	0.02	−0.06	−0.03
					(0.40)		(0.37)	
Variance Components								
Level 1 – Student Level	**0.53**		**0.66**		**0.53**		**0.66**	
Level 2 – Class Level	**0.04**		**0.07**		**0.04**		**0.07**	
Slope for W1 Victimization					**0.13**		**0.10**	
R-Squared (R^2)								
R^2 at the Student Level	**0.289**		**0.305**		**0.301**		**0.314**	
R^2 at the Class Level	**0.352**		**0.492**		**0.341**		**0.487**	
R^2 Slope W1 Victimization					**0.158**		**0.241**	

Note. $N = 2010$ students from 148 classrooms; BJW = Belief in a just world; Est. = Unstandardized Bayesian posterior median estimate; *SD* = Standard deviation of the posterior distribution; Std. Est. = Standardized estimate; Statistically significant results at $\alpha = .05$ are in boldface.

4. Discussion

This study examined the prospective effects of bullying victimization on students' personal and general belief in a just world. Moreover, based on the healthy context paradox, it took into account the classroom context in which victimization takes place. The results show adverse effects of bullying victimization on both types of belief in a just world on the individual- as well as on the classroom level. Furthermore, the results indicate that the individual adverse effects of bullying victimization on both types of belief in a just world are worse for students in classrooms with lower overall victimization levels. To the best of our knowledge, this is the first study that examines the prospective effects of bullying victimization on belief in a just world within the framework of the healthy context paradox.

We believe that the interval we used in this study (October–January) is appropriate to test our hypotheses for several reasons. First, we think that a shorter interval is suitable to examine changes in cognitions. Longer timeframes in turn would be adequate to examine health-related outcomes or maladjustment that might develop based on these adverse cognition changes (e.g., depression; anxiety). Second, with an increasing timeframe, more distortion might be introduced regarding the effects we were interested in. Third, we operationalized classroom-level victimization by averaging individual victimization per classroom at T1. Longer timeframes would be prone to changes in classroom composition.

4.1. Bullying victimization shatters personal and general belief in a just world

On an individual level, our results demonstrate that more frequently victimized students at the beginning of the school year showed a stronger decrease in their personal and general belief in a just world four months later. This effect was stronger for personal compared to general belief in a just world. That is, while the negative impact of victimization on victims' views of the world as a *generally* just place can be considered as moderate, the negative impact of victimization on victims' views of the world as a just place for *themselves* can be considered as high. Given that both types of belief in a just world are related to well-being (Dalbert, 2009; Donat et al., 2012;

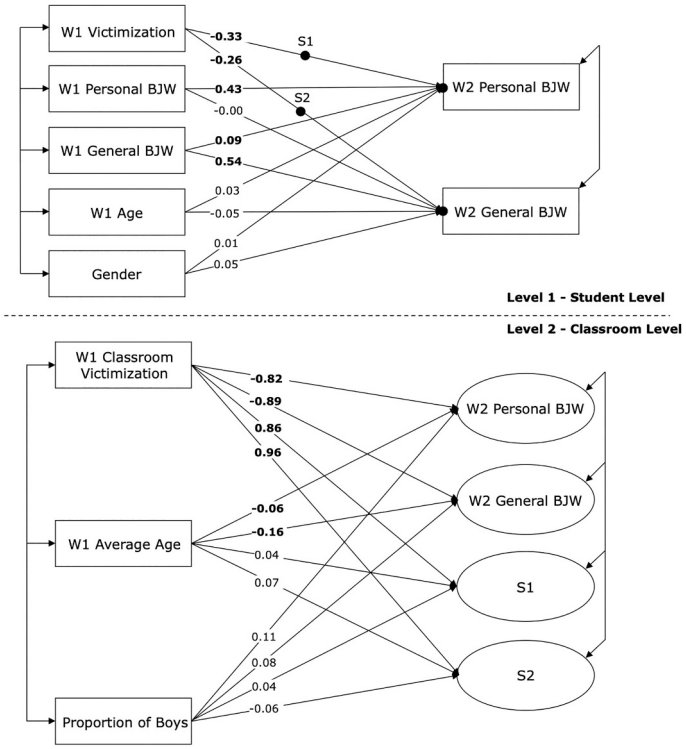

Fig. 2. Graphical representation of the multilevel model with cross-level interactions: unstandardized Bayesian posterior median estimates. Note. BJW = Belief in a just world; The filled circle at the student level represents a random intercept or random slope. Statistically significant results at α = .05 are in boldface.

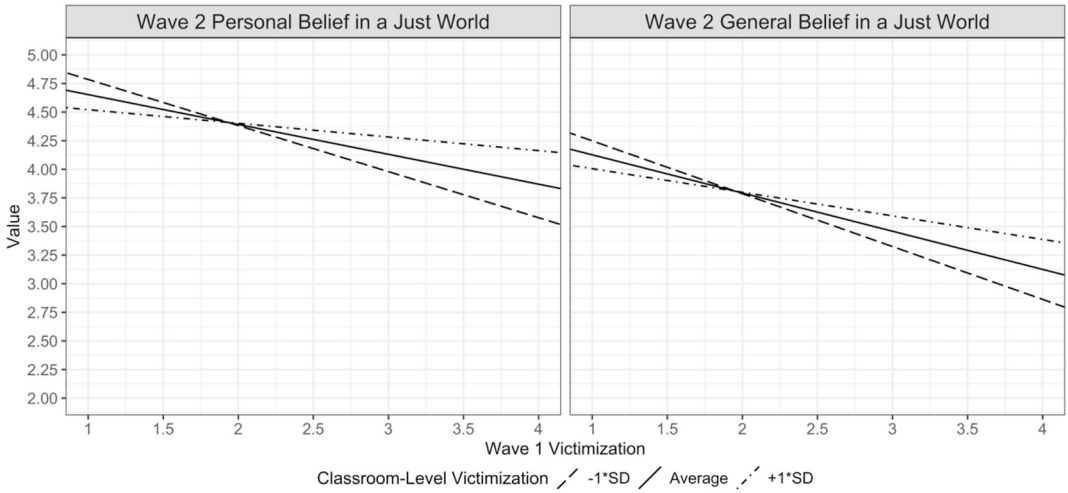

Fig. 3. The moderating role of classroom-level victimization in the relationship between victimization and belief in a just world.

Hafer & Rubel, 2015; Hafer & Sutton, 2016; Yu et al., 2018) and the personal belief in a just world to school-related factors such as better grades and less distress at school (Dalbert & Maes, 2002; Dalbert & Stoeber, 2005), our results suggest to take the effect of bullying victimization on belief in a just world into account when designing anti-bullying measures (see also practical implications).

On the classroom level, our findings show that classrooms with initially lower prevalence of victimization had subsequently higher classroom levels in both types of belief in a just world. This result suggests that in classrooms with lower levels of victimization, most (non-victimized) students believe in a just world, while the belief in a just world is most strongly reduced among victims in such classrooms. A high belief in a just world among the classmates of victims can be seen as a cognitive bias leading them to think that good things happen to good people and bad things happen to bad people (Lerner, 1980). Our findings indicate that lower levels of

victimization in the classroom facilitate this cognitive bias and its potential negative consequences for victims (see also Garandeau & Salmivalli, 2019).

4.2. Bullying victimization reduces belief in a just world more in classrooms with lower levels of victimization

This study also found evidence supporting the moderating role of classroom-level victimization in the prospective effect of victimization on both types of belief in a just world. Compared to victims in higher-victimization classrooms, victims in lower-victimization classrooms were found to be at greater risk to develop the perspective that the world is an unjust place in general and especially for themselves. This could indicate that students who are victimized in healthier classrooms are more likely to perceive their environment with mistrust and have a lower sense of belongingness and security (Dalbert, 2009; Donat et al., 2012; Hafer & Rubel, 2015; Hafer & Sutton, 2016).

We interpret these findings in terms of two potential mechanisms. First, in classrooms characterized by low levels of victimization, students may generally expect to be treated fairly. However, experiencing victimization in such a setting may lead to cognitive dissonance (Festinger, 1957), as expectations contrast with reality. Experiencing cognitive dissonance, in turn, may lead to a stronger decrease of positive expectations towards the outside world as a coping mechanism and thereby reduce belief in a just world. Future studies could investigate this mechanism by testing whether the expectations of being treated fairly mediate the association between victimization and belief in a just world. Moreover, they could examine whether this indirect effect is moderated by classroom-levels of victimization (i.e., moderated mediation).

Second, our finding that lower classroom levels of victimization were associated with higher classroom levels of belief in a just world may provide an additional explanation. That is, higher classroom levels of belief in a just world in low-victimization classrooms could lead to a less prosocial climate towards the victims due to victim derogation, prevent peers from supporting the victims (e.g., peers could feel less responsible to defend the victims), and hence, exacerbate the negative effects of victimization on victims' belief in a just world. Future research could support this hypothesis by investigating whether the moderating effect of classroom-level victimization on the individual link between victimization and belief in a just world is mediated by classroom-level belief in a just world. Furthermore, future studies could examine the role of classroom-level belief in a just world in defending.

4.3. Limitations

Like any study, the present study has several limitations. First, this study followed a variable-oriented approach. Therefore, we are not able to draw conclusions for the examined relationships among specific subgroups of adolescents, such as bully-victims. Second, we relied exclusively on self-reports. Utilizing self-reports provides the advantage of considering subjective experiences of victims as well as accounting for (subjective) frequencies of victimization (Bouman et al., 2012; Juvonen et al., 2001). Measuring subjective experiences might be particularly important as the meaning of bullying situations may be construed differently depending on the respondent (Teräsahjo & Salmivalli, 2003). At the same time, assessing subjective experiences has drawbacks, as the perspectives of a single person could be biased. For example, self-reported victims might misinterpret the situation or not report their experiences for fear of consequences (Bouman et al., 2012). Future studies could extend and replicate our findings using additional informants (e.g., peers and teachers) and/or experimental settings (e.g., vignettes). Third, our missing data analyses showed that students with incomplete records tended to have lower scores on both types of belief in a just world. Therefore, the results should be interpreted with caution as they may not be fully transferable to students who scored low on belief in a just world. Fourth, our study examined the healthy context paradox in terms of cognitions about the outside world. Future studies could extend our findings and investigate how the mechanisms revealed in this study affect self-cognitions (e.g., self-esteem, social self-concept) and broader psychological adjustment problems, such as anxiety and depression. So far only one study demonstrated that reductions in personal belief in a just world could explain the link between victimization and depressive symptoms (Xiong et al., 2022). However, Xiong et al. (2022) measured the association between victimization and belief in a just world at the same time. To the direction of effects, more longitudinal research is needed to substantiate whether the reduction in belief in a just world following victimization can indeed lead to broader adjustment problems (i.e., victims learn that the world is unjust and uncontrollable and subsequently develop adjustment problems) or if the reduction in belief in a just world may even be advantageous to some extent (i.e., victims cope better with the situation by attributing victimization to external factors). Finally, as our data collection took place during the COVID-19 pandemic, which can be seen as a global negative event, students' belief in a just world may have been generally lower as a consequence. However, this effect should have applied to the entire population and therefore not lead to a systematic bias in our results.

4.4. Practical implications

The findings of this study may inform the design and evaluation of anti-bullying strategies. Since past research suggests that prevention and intervention programs could benefit from taking into account the attributions of victims and peers (see Garandeau & Salmivalli, 2019), victims could be helped by assuring them that the cause of their victimization does not lie within themselves (Perren et al., 2013; Schacter & Juvonen, 2015). On the contrary, the *perpetrators* should be held responsible for their antisocial behavior (Garandeau et al., 2014, 2016; Johander et al., 2022). At the same time, however, we suggest that care should be taken to ensure that victims - while learning to externalize the attribution of their victimization experiences - actually refer only to the bullying situation itself (i.e., "in this situation I was treated unfairly by the perpetrator") and do *not generalize* their experiences to the outside world and the way they are treated in other situations and domains (i.e., "the world is an unfair place in general" or "I am always treated

unfairly"). This approach could help mitigate the negative effects of victimization, such as the undermining of basic beliefs about fairness, trust, and safety as suggested by shattered assumptions theory, and contribute to a more positive development despite the negative experience. It should also be made clear to *peers*, especially in classrooms with high levels of belief in a just world, that those who are responsible for the situation are the bullies and that the victims in no way deserve their suffering. In general, this could create a prosocial climate towards the victims in which peers are supportive and take responsibility to protect the victims.

Adverse attribution patterns of both victims and peers could be improved through the curricular integration of role-play scenarios that re-enact bullying situations and subsequent discussions about the justice and fairness of such situations (Donohoe, 2020; Salmivalli, 1999). Generalized perspectives associated with victimization (e.g., the notion that unfair treatment in bullying situations is transferable to other areas of life) could be elaborated and reframed to increase students' collective understanding of the harmful and wide-reaching effects of bullying situations and to foster resilience. In addition, peers' harmful assumptions and worldviews about why victims are victimized and implicit theories about why victims may deserve their suffering could be addressed and resolved in such discussions.

Given our findings regarding the stronger effects of victimization on belief in a just world for students in low-victimization classrooms (i.e., the healthy context paradox), we argue that specific targeted interventions should be considered in addition to universal anti-bullying measures (targeted at all students). That is, additional measures should be put in place that empower teachers, classmates, and parents to carefully identify and to systematically tackle bullying cases that persist even after the implementation of universal measures in order to protect in particular those victims who are at risk to suffer the most. For instance, to detect bullying cases, anonymous feedback mechanisms could be installed where students can safely share their experiences of bullying or concerns about fairness without fear of retaliation (Messman et al., 2024). Moreover, when a bullying incident is brought to the attention of an adult, implementing restorative justice circles (Lodi et al., 2022; Marcucci, 2021), in which students who have either experienced or witnessed bullying can discuss the incident in a secure and supportive setting, may contribute to repairing harm, fostering understanding, and encouraging positive behavioral changes among peers. Furthermore, teachers who have already successfully implemented anti-bullying interventions and/or teach in classrooms with low rates of bullying should not only focus on maintaining low prevalence rates, but also address students' potentially heightened sensitivity to victimization in such classrooms. Teachers could use a variety of methods to show their students that, in healthy classrooms, those who deviate from the norm and experience bullying are particularly affected. For example, students could participate in social and emotional learning activities (Durlak et al., 2011), such as group work, in-class debates or reflection sessions (i.e., sessions where students can discuss their personal experiences with fairness and justice in the classroom) that allow them to take the perspective of potential members of an outsider group, which helps them to better understand and appreciate the feelings and needs of their peers and minimize tolerance of harmful bullying behavior.

Finally, in assessing the efficacy of interventions, it might be insufficient to merely observe a reduction in the overall prevalence of victimized students, as this reduction might coincide with heightened suffering among the few who continue to experience victimization despite the intervention (see Garandeau & Salmivalli, 2019). Therefore, when evaluating the effects of antibullying interventions, it might also be important to consider the adjustment of those who remain victimized (Garandeau & Salmivalli, 2019; Juvonen et al., 2016).

5. Conclusion

Previous studies provide evidence of the healthy context paradox in relation to psychological and social adjustment problems. In addition, there is a growing body of research demonstrating the healthy context paradox in relation to self-cognitions (i.e., self-esteem and social self-concept). Although both self-cognitions and cognitions about the outside world play an essential role in an individual's well-being, the healthy context paradox remains understudied in relation to the latter. The present study addresses this gap and investigates to what extent the prospective effects of bullying victimization on a specific type of cognitions about the outside world, namely the belief in a just world, depend on overall victimization levels in the classroom context. The results show that bullying victimization reduces belief in a just world at the individual and classroom levels. Furthermore, in line with the healthy context paradox, the effects at the individual level are shown to be stronger in healthier classrooms (i.e., where the overall level of victimization is lower). The results could be explained on the basis of cognitive dissonance theory (i.e., the greater discrepancy between expectation and reality among victimized students in healthier classrooms could explain the stronger negative effects of victimization on victims' beliefs in a just world) and on the finding that lower levels of victimization in the classroom are associated with higher classroom levels of belief in a just world (i.e., higher levels of belief in a just world in classrooms with lower levels of victimization could lead to victim derogation and a less prosocial climate towards the victim, which could exacerbate the negative effects of victimization). The results of this study provide useful information for the design and evaluation of anti-bullying prevention and intervention strategies.

CRediT authorship contribution statement

Daniel Graf: Writing – review & editing, Writing – original draft, Methodology, Conceptualization. **Takuya Yanagida:** Writing – original draft, Methodology. **Lydia Laninga-Wijnen:** Writing – review & editing, Supervision, Conceptualization. **Claire F. Garandeau:** Writing – review & editing, Supervision, Conceptualization. **Christina Salmivalli:** Writing – review & editing, Supervision, Resources, Funding acquisition, Conceptualization.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jsp.2025.101472.

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