



Forms of Peer Victimization and School Adjustment Among Japanese Adolescents: A Multilevel Analysis

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Abstract

The psychosocial correlates and consequences of peer victimization are well documented. However, there is limited knowledge about whether different forms of peer victimization (relational and physical) are predictive of school-based social and motivational factors among adolescents from non-Western cultures. The present study examined the relationship between individual and school-level forms of peer victimization and school adjustment among Japanese adolescents, and the mediating role that these factors may play. The Japanese sample ($N = 6109$ from 185 schools, $M_{\text{age}} = 15.78$, $SD = 0.29$, 51% girls and 49% boys) was drawn from a large international dataset, the Organization for Economic Cooperation and Development (OECD) Programme for International Student Assessment (PISA) 2018. Results showed that school-level relational victimization was associated with individual-level relational victimization, and school-level physical victimization was associated with individual-level physical victimization, after controlling for age, gender, and socioeconomic status. Individual-level relational victimization was also uniquely associated with indices of school adjustment (negative affect, positive affect, and fear of failure) over and above physical victimization. While controlling for relational victimization, individual-level physical victimization was associated with indices of school adjustment (positive affect and meaning in life). In further findings, school-level relational and physical victimization were indirectly, but not directly, related to some of students' school adjustment through individual-level relational and physical victimization. These parallel and differential associations suggest the importance of considering the role of relational and physical victimization in school adjustment among Japanese adolescents.

Keywords Relational and physical victimization · School adjustment · Multilevel analysis · Culture

Introduction

Historically, peer victimization has been studied as a whole, combining all forms of victimization. However, a growing number of studies have examined different forms of victimization—relational (being excluded or ignored by peers and being the target of rumors) and physical (being hit, punched, and threatened). Previous research has demonstrated the unique role of each form of victimization in social-psychological adjustment problems (Casper & Card, 2017). While mental health problems have been the focus of most studies in this area of research (Ostrov & Kamper, 2015), knowledge about the role of relational and physical

peer victimization in school, academic, and motivational factors is quite limited. During middle and high school, students learn and work together in the classroom, which requires greater social skills and competence to interact with peers in a harmonious yet assertive manner. At the same time, they may need to experience academically challenging developmental tasks (i.e., participating in more complex school classes and training that require advanced cognitive skills; Eccles & Roeser, 2011). Students' competition with peers in academic or non-academic contexts (e.g., extra-curricular activities in culture and sports clubs) may also be intense, as self-evaluation relative to peers becomes more salient (Eccles & Roeser, 2011). Thus, it may be useful to consider not only adolescents' mental health problems, but also their social, academic, and motivational factors when examining negative peer experiences. Using nationally representative cross-sectional data (PISA), the present study examined the association between forms of peer victimization (relational and physical) and school adjustment and

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whether school-level factors, in addition to individual-level factors, play a role in school adjustment among Japanese adolescents.

Contextual School-Level Factors and Forms of Peer Victimization

Research in this area has primarily focused on the relationship between individual-level forms of peer victimization and adjustment. However, an emerging body of research suggests the importance of considering multiple levels of developmental contexts, including classrooms and schools, when studying peer victimization (Hong & Espelage, 2012). This view is plausible given that peer relationships are central to students' daily lives, and classrooms and schools may serve as larger socialization contexts for their learning and peer interactions. Within these academic settings, some adolescents enjoy interacting with peers who value their schooling, while others are likely to associate with peers who struggle with academic and social functioning and inadvertently model negative thoughts and behaviors exhibited by their peers. According to social learning theory, when adolescents observe the behaviors of their peers, they tend to learn certain behaviors, whether those behaviors appear to be positive or negative (Bandura, 1977a). Specifically, the idea of "deviancy training" or "peer contagion" demonstrates how adolescents in the peer group influence the behavior of those around them, resulting in changes in one's own behavior over time (Dishion & Tipsord, 2011). Therefore, when assessing peer victimization, it is prudent to consider what peers typically behave and experience in class or at school as a contextual factor (e.g., classroom or school norms).

Given the growing understanding of the importance of classroom and school effects, a few studies have examined the relevance of classroom and school-level factors for aggression, victimization, and adjustment. One study using multilevel analyses to account for nested data found that higher classroom means of relational aggression (perpetration of relational aggression) were associated with higher levels of student-level relational aggression (Kuppens et al., 2008). In addition, children who initially exhibited low levels of relational or physical aggression increased their aggressive behavior with higher levels of classroom relational or physical aggression (Rohlf et al., 2016). Similarly, adolescents who were in classrooms with higher levels of aggression were more likely to engage in aggressive behavior and experience victimization than those who were in classrooms with lower levels of aggression (Mercer et al., 2009). These findings suggest that the classroom norm of relational and physical aggression may be a contextual factor for individual-level changes in adolescents' relational and physical aggression. However, there is a lack of

research examining whether classroom-level victimization (receipt of aggression) is a factor for individual-level victimization and the relationship between individual-level victimization and school adjustment.

The Association Between Forms of Peer Victimization and School Adjustment

Well-being

Accumulating evidence suggests that forms of peer victimization are detrimental to adolescent mental health. One meta-analysis found that overt victimization (physical and verbal) was more strongly associated with overt aggression, whereas relational victimization was more robustly associated with internalizing problems, including anxiety, depression, and social withdrawal (Casper & Card, 2017). The correlates and consequences of victimization may reflect how victimized youth respond cognitively and emotionally to such peer adversity. As peer groups become more central to their sense of self and identity, youth tend to use peer experiences, whether positive or negative, as feedback to evaluate themselves (Zimmer-Gembeck, 2016). Due to weak interpersonal functioning, victimized youth tend to view the social world negatively (van Geel et al., 2018), worry about rejection, ruminate, avoid peer interactions, and engage in emotional coping (Zimmer-Gembeck, 2016). Relationally victimized youth may be even more emotionally reactive, in part because they often feel insecure about their social status in terms of how unpopular they are relative to their peers (Long et al., 2020). The present study examined positive and negative affect as indicators of adolescent well-being.

Self-efficacy

During adolescence, larger academic contexts, such as classrooms and schools, become more important environments for developing the emotional and social skills needed to connect meaningfully with others and to acquire new knowledge and learning to achieve future goals (Eccles & Roeser, 2011). Self-efficacy, defined as the ability to manage courses of action, achieve specific career goals, and organize social, emotional, and psychological functioning, plays a critical role in accomplishing the above developmental tasks (Bandura, 1977b). Self-efficacy has been shown to predict a wide range of social and cognitive competencies, including positive adjustment to school, the formation of healthy peer relationships, and higher academic achievement in adolescence (Kokkinos & Kipritsi, 2012). Because self-efficacy helps adolescents interact harmoniously with peers, it is reasonable to expect a negative relationship between self-efficacy and peer

difficulties, such as rejection and victimization. Indeed, peer victimization was negatively correlated with three dimensions of self-efficacy, including social (the ability to interact positively with peers), academic (the ability to regulate one's learning behavior and excel academically), and affective (the ability to inhibit negative emotions; Kokkinos & Kipritsi, 2012). It is plausible that those who experience peer victimization, possibly both relational and physical victimization, may not perceive themselves as possessing such skills and motivations necessary to form healthy peer relationships and achieve academic success (Laith & Vailancourt, 2022). In terms of assessing self-efficacy, the present study considered academic-related skills—work mastery (the ability to manage and complete a task) and fear of failure (the ability to control negative emotions in the face of academic challenges).

Meaning in life

Another developmental task for adolescents is to develop their self and identity, and to seek their future careers and goals that may align with their interests and motivations (Eccles & Roeser, 2011). In order to achieve this or find a way to live, it is crucial for them to have a purpose or meaning in their lives (Martela & Steger, 2016; Schippers & Ziegler, 2019). Meaning in life has been studied extensively in young adults, but increasingly in adolescents (Steger et al., 2021). Research in this area suggests that, in general, meaning in life is associated with more positive health and well-being and fewer mental health problems (Glaw et al., 2017). More specifically, findings on the relationship between lack of meaning in life and self-harm/suicidality suggest that those who are unable to find meaning in their lives may believe that there is little or no reason for them to exist (Henry et al., 2014). Meaning in life was found to mediate the association between peer victimization and suicidality, at least for girls, such that peer victimization was negatively associated with meaning in life, which in turn led to higher suicidality (Henry et al., 2014). Peer victimization, especially chronic victimization, is a potentially life-threatening event or source of interpersonal trauma from which many adolescents experience significant stress and damage to their physical and mental health (Idsoe et al., 2021). Thus, it is possible that those who are exposed to peer victimization, or at least some who are extremely vulnerable to it, may lack meaning in their lives. This is presumably because they may find it very difficult to have a hope or dream for their future and, more specifically, to identify careers and goals that will make their future brighter or give them a sense of purpose in their continued lives (Steger et al., 2021). Overall, life purpose may be an important indicator of adolescents' school adjustment. Examining whether negative peer experiences make their

lives less meaningful may shed light on how and why some victimized youth appear hopeless in their daily lives, which is an understudied area of research in the social sciences.

Demographic Covariates

Adolescents become more independent from their parents as they seek peer groups and friendships to belong to at school or outside the family context (Dahl et al., 2018). As they spend more time with their peers, they may have more opportunities to acquire positive outcomes (e.g., perspective-taking skills, prosocial behavior, and sociability). At the same time, they may experience more negative peer interactions, such as relational and physical victimization, and unfortunately remain in peer groups that are perceived to be harmful to them. In fact, the stability of peer victimization has been found to increase with age (Pouwels et al., 2016). Due in part to biological and social changes in relationships, gender socialization is also prominent for adolescents. Gender differences in relational and physical victimization have been well documented in many studies, and it is recommended that gender and gender-specific factors, such as gender identity, be included in future peer victimization research (Ostrov & Kamper, 2015). Finally, it is suggested that the study of peer victimization and its association with social-psychological adjustment problems be contextualized, for example, in terms of school, culture, and poverty as it relates to socioeconomic status or SES (Ostrov & Kamper, 2015). Although relatively little is known about the role of SES in relational and physical victimization, a meta-analysis found an inverse association between family social class and antisocial behavior among children and adolescents (Piotrowska et al., 2015).

The Context of Japanese Culture

In a Japanese school context, research has been conducted to understand the frequency and severity of bullying victimization (*ijime*) as a collective form of victimization among children and adolescents. *Ijime*, which includes various forms of victimization such as physical, verbal, relational, and sexual victimization, has been a major problem in schools for decades, and many intervention efforts have been made to reduce such behavioral problems (Toda, 2019). Although its frequency has decreased over the years, a significant number of students are still exposed to bullying victimization. A large cross-sectional study of 2334 students in grades 4–9 found that nearly 36% of students had experienced bullying victimization in the past few months, and nearly 33% of students had previously seen their peers engaging in some form of bullying (Osuka et al., 2019). This higher than expected number of victims of any form of

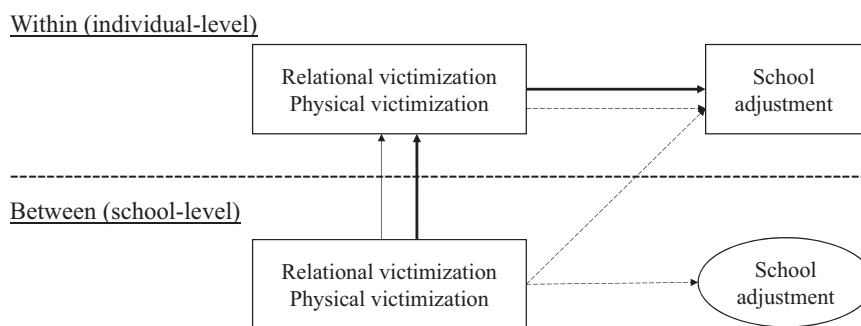


Fig. 1 The hypothesized model of relational victimization and physical victimization at the individual and school levels. Note: A solid arrow indicates the association between school-level victimization and individual-level victimization (Hypothesis 1). Dotted arrows indicate

the association between both school-level and individual-level victimization and school adjustment (Hypothesis 2). Bold arrows indicate the indirect effect of school-level victimization on school adjustment through individual-level victimization (Hypothesis 3)

aggression is a warning sign of how many students in Japanese schools may feel unsafe and potentially develop social and interpersonal stress from interactions with their peers. However, research examining the associations and mechanisms of peer victimization in general, or relational and physical victimization in particular, has been largely limited to Western populations (Kawabata, 2018; Ostrov & Kamper, 2015).

With rapid economic, social, and structural changes, adolescents in Japan tend to acquire individualistic values (e.g., personal uniqueness) in a collectivist society that continues to favor group harmony and relationships (Sugimura, 2020). There, adolescents typically focus on peer groups and friendships during their school years, while developing their identities in the relationships that surround them. In this regard, they may develop relational interdependence, which reflects the extent to which they see themselves in the context of relationships, including peer relationships and friendships (Kawabata & Onishi, 2017). Because of the emphasis on relationships and the development of relational interdependence, damaging these relationships and the associated self-construal may be detrimental to school adjustment (Kawabata, 2018). Peer groups and friendships can be positive social contexts for learning and support. However, when they are disrupted, it can be a different story. For example, your friend often helps you solve problems or provides support when you need it. At other times, the friend you trust may be angry with you and try to ignore you or exclude you from the peer group. The latter experience, relational victimization, can leave victims feeling sad, angry, and vengeful and make it difficult to regulate these emotions (McLaughlin et al., 2009). Supporting this view, a longitudinal study of Japanese adolescents found that relational victimization was more strongly associated with internalizing problems (anxiety and depressive symptoms) than overt victimization over three school years (Kawabata et al., 2024). Taken together, those who experience peer victimization,

especially relational victimization, may not be able to socialize well with their peers, resulting in poor adjustment to school life.

Current Study

Previous studies have largely established the association between forms of peer victimization and social-psychological adjustment problems in Western populations. However, relatively little is known about the role of multilevel (i.e., individual and school-level) relational and physical victimization on school adjustment in general, but particularly in non-Western cultures, such as the Japanese culture. Based on the literature review, it was hypothesized that, after controlling for age, gender, and socioeconomic status, school-level relational victimization would be associated with individual-level relational victimization and school-level physical victimization would be associated with individual-level physical victimization (Hypothesis 1). In addition, while controlling for the contributions of demographic factors, individual-level relational and physical victimization would be uniquely associated with indices of school adjustment, including positive and negative affect, fear of failure, work mastery, and meaning in life (Hypothesis 2). School-level relational and physical victimization would also be associated with the indices of school adjustment through individual-level relational and physical victimization (Hypothesis 3). Figure 1 describes all of the hypothesized associations.

Methods

Participants

The Japanese sample ($N = 6109$ from 185 schools) was drawn from a large international dataset, the Organisation

for Economic Co-operation and Development (OECD) Programme for International Student Assessment (PISA) 2018 (OECD, n.d.). PISA was conducted to examine the academic achievement and cognitive, social, and emotional functioning of middle and high school students in different countries (OECD, 2019a). The age of the participants ranged from 15 to 16 years ($M_{\text{age}} = 15.78$, $SD = 0.29$). The gender distribution of the sample was 51% girls and 49% boys. The SES of the participants' families was estimated to be middle class, based on the education of the mothers and fathers (80.5% of mothers and 78.6% of fathers received an education that prepared them for college or a college degree).

Measures

Relational and physical victimization

Participants' relational and physical victimization was assessed through a series of questions asking about the frequency of each form of peer victimization (During the past 12 months, how often have you had the following experiences in school? OECD, n.d.). Two items for relational victimization include experiences of social exclusion and being the target of rumors. Three items for physical victimization include being threatened and hit by peers and having one's belongings destroyed. Similar items were used in the well-known existing scale of self-reported relational and physical victimization for adolescents (Prinstein et al., 2001) as well as in the scale recently validated with a Japanese sample (Kawabata et al., 2024). Responses were rated on a 4-point Likert scale ranging from 1 (*never or almost never*) to 4 (*once a week or more*). Mean scores were used for subsequent analyses. The reliability of the construct was acceptable ($\alpha = 0.71$ and 0.72 , for relational victimization and physical victimization, respectively). Confirmatory factor analysis indicated that the two-factor model with relational victimization and physical victimization as separate constructs was superior to the one-factor model with all items combined (Table S1).

Positive and negative affect

Positive and negative affect was assessed as an indicator of students' feelings about themselves (OECD, n.d.). The scale consists of 9 items (5 positive affect items and 4 negative affect items) containing words representing positive and negative emotions (Thinking about yourself and how you usually feel: How often do you feel as described below?). Five positive affect items include happy, lively, proud, joyful, and cheerful. Four negative affect items include scared, miserable, afraid, and sad. The survey used a 4-point Likert scale ranging from 1 (*never*) to 4 (*always*). The item

scores for each affect were first summed and then divided by the number of items to obtain the average score. The reliability of each construct was acceptable ($\alpha = 0.78$ and 0.76 , for positive and negative affect, respectively). Confirmatory factor analysis showed that positive affect was a separate construct from negative affect (Table S2).

Fear of failure

PISA 2018 also assessed participants' fear of failure, which is the extent to which students are afraid of failing in the future (OECD, n.d.). The scale consists of three items (e.g., When I am failing, I worry about what others think of me.) with a 4-point Likert scale ranging from 1 (*strongly disagree*) to 4 (*strongly agree*). Fear of failure item scores were averaged to obtain mean scores. Reliability for this construct was good ($\alpha = 0.80$). In the current sample, the one-factor model with all three items together was fully assessed and confirmed (Table S3).

Work mastery

Participants' work mastery was assessed with a series of questions that asked about their attitudes toward completing work, studies, or assignments (OECD, n.d.). A total of four items were used in the OECD survey (e.g., "I find satisfaction in working as hard as I can."). Responses were scored on a 4-point Likert scale ranging from 1 (*strongly disagree*) to 4 (*strongly agree*). Mean scores were used in subsequent analyses. This construct was reliable ($\alpha = 0.81$). A one-factor model with all items showed a good fit (Table S4).

Meaning in life

Participants' meaning in life was assessed using three items related to the meaning and quality of their lives (e.g., I have discovered a satisfactory meaning in life; OECD, n.d.). The items selected for the OECD survey are very similar to the scale widely used to assess the meaning of life for adults (Steger et al., 2006). A 4-point Likert scale ranging from 1 (*strongly disagree*) to 4 (*strongly agree*) was used for scoring. Mean scores were obtained for subsequent analyses. The reliability of this construct was good ($\alpha = 0.86$). In the current sample, the one-factor model with all three items together was fully evaluated and confirmed (Table S5).

Demographic covariates

Age, gender (1 = girl, 2 = boy), and socioeconomic status (maternal and paternal education) were assessed as demographic covariates. Maternal and paternal education was assessed using the International Standard Classification of Education (ISCED) categories as follows (1 = ISCED level

3A or preparation for university education, 2 = ISCED levels 3B and 3C or preparation for vocational education or work, 3 = ISCED level 2 or lower secondary education, 4 = ISCED level 1 or primary education, 5 = did not complete ISCED level 1).

School characteristics

The following school characteristics were used in the current analyses: city size (the number of residents in the city where the school is located), class size (the number of students per classroom, with higher scores indicating a larger classroom), school-level relational victimization (school-level average of aggregated individual-level relational victimization), and school-level physical victimization (school-level average of aggregated individual-level physical victimization). City size was coded with higher scores indicating a larger city [(1 = village, hamlet or rural area (fewer than 3000 people), 2 = small town (3000 to about 15,000 people), 3 = town (15,000 to about 100,000 people), 4 = city (100,000 to about 1,000,000 people), 5 = large city (over 1,000,000 people)].

Procedure

The Organization for Economic Co-operation and Development Programme for International Student Assessment (PISA, 2018) used a two-stage stratified sampling design (OECD, 2019a). This cluster-stage sampling is useful when one plans to collect data from samples that are representative of the population in which the survey is administered (e.g., within a country). In the first stage of sampling, schools were systematically selected within the country, taking into account the eligibility of students (i.e., the number of students who are 15 years old). In PISA, a minimum of 150 schools and 6300 students per country were expected to be recruited. In the second sampling stage, all 15-year-old students in each school were listed and 42 students (as a minimum requirement per school) were randomly selected as potential participants. If there were fewer than 42 students in the school, all 15-year-old students were recruited and contacted. If the overall response rate was greater than 80%, which was the case for the Japanese data, responses were weighted based on the probability of selection of schools and students. This recruitment process ensures that the data collected in each country are representative of 15-year-old students in that country.

Data Analysis Plan

To examine whether school-level relational and physical victimization were associated with individual-level

relational and physical victimization (Hypothesis 1), a multilevel regression model with a random intercept was estimated as follows. Age, gender, and socioeconomic status (maternal and paternal education), individual-level relational victimization, and individual-level physical victimization were entered as individual-level (within) factors. School-level relational victimization, school-level physical victimization, class size, and city size were entered as school-level (between) factors.

Another multilevel random intercept regression model was estimated to test whether individual-level and school-level relational and physical victimization were associated with school adjustment (Hypothesis 2). Age, gender, socioeconomic status (maternal and paternal education), individual-level relational victimization, and individual-level physical victimization were entered as individual-level (within) covariates. School-level relational victimization, school-level physical victimization, class size, and city size were entered as school-level (between) factors. A multilevel regression model was estimated for each dependent variable (negative affect, positive affect, fear of failure, work mastery, and meaning in life). Individual-level relational and physical victimization were grand mean centered and school-level relational and physical victimization were group mean centered prior to analysis.

The indirect effect of school-level victimization on school adjustment via individual-level victimization (Hypothesis 3) was examined in a multilevel mediation model that included an independent variable, a mediator, and a dependent variable at levels 1 and 2 (Preacher et al., 2010). For example, a mediation model was estimated that included forms of school-level peer victimization (level 2), forms of adolescent peer victimization (level 1), and each school adjustment (level 1) (e.g., school-level relational victimization → individual-level relational victimization → negative affect; or school-level physical victimization → individual-level physical victimization → meaning in life; 2-1-1 design; Fig. 1). To avoid unnecessary multiple testing, the indirect effect was estimated if at least two associations were significant (i.e., the association between school-level relational and physical victimization and individual-level relational and physical victimization, and the association between individual-level relational and physical victimization and indices of school adjustment).

All multilevel regression models were run using Mplus 8.6 with (Muthén & Muthén, 1998–2021). To account for the nested nature of the data and to obtain correct standard errors and chi-squares, a two-level regression analysis with cluster (school), weight (school), and weight (student) was used. Due to the nature of multilevel analysis, missing cases were handled by MLR (maximum likelihood with robust standard errors). The MLRs are robust to non-normality of the variables and non-independence of the data.

Table 1 Correlations between study variables

Variables	1	2	3	4	5	6	7	8	<i>M</i>	<i>SD</i>
1. Relational victimization									1.20	0.49
2. Physical victimization	0.57***								1.14	0.40
3. Negative affect	0.21***	0.13***							2.70	0.59
4. Positive affect	−0.13***	−0.12***	0.04**						3.09	0.54
5. Fear of failure	0.13***	0.06***	0.41***	−0.08***					2.89	0.74
6. Work mastery	−0.04**	−0.06***	−0.02	0.32***	0.06***				2.84	0.64
7. Meaning in life	−0.04**	−0.05**	−0.08***	0.31***	−0.10***	0.37***			2.46	0.75
8. School relational victimization	0.20***	0.14***	0.05**	−0.05***	−0.02†	−0.05***	−0.02		1.20	0.10
9. School physical victimization	0.12***	0.22***	0.01	−0.05***	−0.04*	−0.04**	−0.01	0.63***	1.14	0.10

† $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Results

Correlational Analysis

The results of the correlational analysis (see Table 1) indicated that relational victimization and physical victimization were positively correlated with negative affect and fear of failure, and negatively correlated with positive affect, work mastery, and meaning in life. School-level relational victimization was positively correlated with relational and physical victimization and negative affect, and negatively correlated with positive affect and work mastery. School-level physical victimization was also positively correlated with relational and physical victimization and negatively correlated with fear of failure and work mastery. A correlation table, including all covariates, is provided in the Supplemental Material (Table S6).

Multilevel Regression Analysis (Hypothesis 1)

The model was identified with no degrees of freedom and its model fit could not be assessed; $\chi^2(0) = 1.06$, CFI = 1.00, TLI = 1.00, RMSEA = 0.00, SRMR = 0.00. School-level relational victimization was significantly associated with individual-level relational victimization ($\beta = 1.0$, $p < 0.001$), but not with individual-level physical victimization ($\beta = 0.00$, n.s.). School-level physical victimization was significantly associated with individual-level physical victimization ($\beta = 0.96$, $p < 0.001$), but not with individual-level relational victimization ($\beta = 0.05$, n.s.). These findings suggest a form-specific contextual effect, i.e., each form of school-level peer victimization was uniquely and independently predictive of each form of individual-level peer victimization. Gender was also a significant predictor of individual-level physical victimization, such that boys experienced more physical victimization than girls ($\beta = 0.11$, $p < 0.001$). No other demographic variables (age, maternal education, and paternal education) and school-level variables (class size and city size) were significant.

Intraclass correlations for relational victimization and physical victimization were 0.04 and 0.08, respectively.

Multilevel Regression Analysis (Hypothesis 2)

The results of the model including all outcome variables are summarized at Table 2. All path models were just identified with many parameters to be tested; $\chi^2(0) = 0.00$, CFI = 1.00, TLI = 1.00, RMSEA = 0.00, SRMR = 0.00. This showed a perfect model fit, but the model fit could not be assessed. The intraclass correlations were 0.02 for negative affect, 0.02 for positive affect, 0.01 for fear of failure, 0.02 for work mastery, and 0.02 for meaning in life.

Negative affect

Individual-level relational victimization, but not physical victimization, and gender were significant factors of negative affect ($\beta = 0.18$, $p < 0.001$; $\beta = -0.15$, $p < 0.001$, for relational victimization and gender, respectively). Girls displayed higher levels of negative affect than boys. Students who were exposed to relational victimization showed higher levels of negative affect, including scarcity and sadness, than their peers. At the school-level, class size predicted negative affect ($\beta = 0.46$, $p < 0.01$), suggesting that students in a larger classroom were more likely to exhibit negative affect than those in a smaller classroom.

Positive affect

Individual-level relational and physical victimization and gender were significant predictors of positive affect ($\beta = -0.08$, $p < 0.01$; $\beta = -0.06$, $p < 0.01$, and $\beta = -0.11$, $p < 0.001$, for relational victimization, physical victimization, and gender, respectively). Compared to boys, girls showed higher levels of positive affect. Students exposed to relational and physical victimization displayed lower levels of positive affect, including joy and happiness, than their peers.

Table 2 Multilevel regression analyses of individual- and school-level relational victimization and physical victimization

	Negative affect			Positive affect			Fear of failure			Work mastery			Meaning in life		
	β	SE	<i>p</i> -value	β	SE	<i>p</i> -value	β	SE	<i>p</i> -value	β	SE	<i>p</i> -value	β	SE	<i>p</i> -value
Individual-level															
Age	0.01	0.02	0.616	0.02	0.02	0.238	-0.02	0.02	0.405	0.03	0.02	0.176	0.01	0.02	0.743
Gender	-0.15	0.02	<i>p</i> < 0.001	-0.11	0.02	<i>p</i> < 0.001	-0.13	0.02	<i>p</i> < 0.001	-0.04	0.02	<i>p</i> < 0.05	0.04	0.02	<i>p</i> < 0.05
Maternal education	-0.01	0.02	0.557	-0.05	0.03	<i>p</i> < 0.10	0.00	0.03	0.998	-0.04	0.03	0.22	0.02	0.02	0.514
Paternal education	-0.01	0.02	0.742	0.01	0.02	0.63	-0.02	0.02	0.393	0.00	0.02	0.874	-0.01	0.02	0.75
Relational victimization	0.18	0.02	<i>p</i> < 0.001	-0.08	0.03	<i>p</i> < 0.01	0.14	0.03	<i>p</i> < 0.001	-0.02	0.03	0.427	0.01	0.03	0.736
Physical victimization	0.03	0.03	0.17	-0.06	0.02	<i>p</i> < 0.01	0.00	0.03	0.942	-0.04	0.02	0.106	-0.05	0.03	<i>p</i> < 0.05
R-square	0.06	0.01	<i>p</i> < 0.001	0.03	0.01	<i>p</i> < 0.001	0.04	0.01	<i>p</i> < 0.001	0.01	0.00	<i>p</i> < 0.10	0.00	0.00	0.159
Residual variance	0.94	0.01	<i>p</i> < 0.001	0.97	0.01	<i>p</i> < 0.001	0.96	0.01	<i>p</i> < 0.001	0.99	0.00	<i>p</i> < 0.001	1.00	0.00	<i>p</i> < 0.001
School-level															
Relational victimization	0.22	0.26	0.388	0.16	0.16	0.301	-0.50	0.32	0.121	-0.44	0.22	<i>p</i> < 0.05	-0.01	0.16	0.967
Physical victimization	0.04	0.30	0.908	-0.57	0.23	<i>p</i> < 0.05	0.07	0.33	0.833	-0.10	0.29	0.722	-0.11	0.24	0.63
Class size	0.46	0.15	<i>p</i> < 0.01	0.19	0.15	0.218	0.36	0.26	0.17	0.33	0.15	<i>p</i> < 0.05	-0.21	0.21	0.303
City size	0.07	0.15	0.629	0.25	0.15	0.096	-0.13	0.28	0.639	0.11	0.20	0.577	0.12	0.20	0.55
R-square	0.27	0.14	<i>p</i> < 0.10	0.38	0.23	<i>p</i> < 0.10	0.35	0.42	0.4	0.47	0.17	<i>p</i> < 0.01	0.05	0.08	0.511
Intercept	28.05	8.83	<i>p</i> < 0.01	36.74	11.94	<i>p</i> < 0.01	57.42	23.89	<i>p</i> < 0.05	21.08	13.29	0.113	21.49	9.13	<i>p</i> < 0.05
Residual variance	0.74	0.14	<i>p</i> < 0.001	0.62	0.23	<i>p</i> < 0.01	0.65	0.42	0.12	0.53	0.17	<i>p</i> < 0.01	0.95	0.08	<i>p</i> < 0.001

Standardized coefficients are reported. Significant results for independent variables are shown in bold

At the school-level, physical victimization predicted positive affect ($\beta = -0.57, p < 0.05$), indicating that students in a classroom with a high prevalence of physical victimization were less likely to exhibit positive affect than students in a classroom with a low prevalence of physical victimization.

Fear of failure

Individual-level relational victimization, but not physical victimization, and gender were significant predictors of negative affect ($\beta = 0.14, p < 0.001; \beta = -0.13, p < 0.001$, for relational victimization and gender, respectively). Girls had higher levels of fear of failure than boys. Students who were exposed to relational victimization showed higher levels of fear of failure than their peers. No significant school-level factors were found.

Work mastery

Gender was a significant covariate of work mastery ($\beta = -0.04, p < 0.05$). Girls had higher work mastery than boys. At the individual-level, relational and physical victimization were not significant. At the school-level, relational victimization and class size predicted work mastery ($\beta = -0.44, p < 0.05; \beta = 0.33, p < 0.05$). Students with a high prevalence of relational victimization were less likely to demonstrate work mastery than those with a low prevalence of relational victimization. Those in a larger classroom were more likely to demonstrate work mastery than those in a smaller classroom.

Meaning in life

Individual-level physical victimization, but not relational victimization, and gender were significant predictors of meaning in life ($\beta = -0.05, p < 0.05; \beta = 0.04, p < 0.05$, for physical victimization and gender, respectively). Boys displayed higher meaning in life than girls. Students who were exposed to physical victimization had lower levels of meaning in life than their peers. No significant school-level factors were found.

Multilevel Mediation Analysis (Hypothesis 3)

As discussed earlier, the indirect effect of school relational and physical victimization was tested when the association between school-level victimization and individual-level victimization as well as the association between individual-level victimization and each of the school adjustment were found to be significant.

Based on the results of earlier multilevel regression analyses, the indirect effects of school-level relational victimization on negative affect, positive affect, and fear of failure through individual-level relational victimization were estimated. These indirect effects were significant ($\beta = 0.24, SE = 0.02, p < 0.001, 95\% CI [0.20, 0.28]; \beta = -0.14, SE = 0.03, p < 0.001, 95\% CI [-0.19, -0.09]; \beta = 0.21, SE = 0.03, p < 0.001, 95\% CI [0.15, 0.27]$, for negative affect, positive affect, and fear of failure, respectively). That is, the pathways of school relational victimization \rightarrow adolescent relational victimization \rightarrow school

adjustment factors were demonstrated. Specifically, higher levels of school relational victimization were associated with higher levels of adolescent relational victimization, which in turn led to lower positive affect, higher negative affect, and higher fear of failure.

Similarly, the indirect effects of school-level physical victimization on positive affect and meaning in life through individual-level physical victimization were tested and found to be significant ($\beta = -0.17$, $SE = 0.03$, $p < 0.001$, 95% CI $[-0.22, -0.11]$; $\beta = -0.07$, $SE = 0.04$, $p < 0.10$, 95% CI $[-0.15, 0.01]$, for positive affect and meaning in life, respectively). In other words, the pathways of school physical victimization \rightarrow adolescent physical victimization \rightarrow positive affect and meaning in life, albeit marginal, were found. Specifically, school physical victimization was associated with adolescent physical victimization, which in turn was predictive of lower positive affect and lower meaning in life, although it was a trend.

Discussion

Previous studies have examined the relationship between individual-level forms of peer victimization and social-psychological adjustment problems, mostly in Western populations. Considerably less is known about the role of multiple levels (individual and school) of relational and physical victimization on school adjustment in general, but particularly in the Japanese cultural context. To address this gap in the literature, the present study used nationally representative cross-sectional data (PISA) to examine the association between individual- and school-level forms of peer victimization (relational and physical) and school adjustment (positive and negative affect, fear of failure, work mastery, and meaning in life) among Japanese adolescents.

The Multilevel Associations of Forms of Peer Victimization (Hypothesis 1)

School-level relational victimization norms predicted higher levels of relational victimization among youth, but not physical victimization. That is, youth who attended schools where relational victimization was more prevalent were more likely to experience relational victimization than those who attended schools where relational victimization was less prevalent. Similarly, school-level physical victimization norms were associated with youth physical victimization but not relational victimization. Youth who attended schools where physical victimization was more prevalent were more likely to experience physical victimization than those who attended schools where physical victimization was less prevalent. These findings regarding the specificity

of the relationship between school-level victimization and student-level victimization reflect the possibility that youth may experience any form of peer victimization that is prevalent in the specific school context. Conceivably, they may develop perceptions that relational and/or physical victimization is acceptable depending on the form of peer victimization norms in the schools they regularly attend. These school norms further influence, or are influenced by, peer group norms in terms of whether relational or physical victimization is prevalent in the peer group or promoted by classmates (Kuppens et al., 2008; Rohlf et al., 2016). These findings are consistent with previous Western studies that have shown that relational or physical aggression at the classroom level, as well as school norms about each form of peer aggression, influence the occurrence of each form of peer aggression at the student-level (Kuppens et al., 2008; Rohlf et al., 2016).

Forms of Peer Victimization and School Adjustment (Hypothesis 2)

The findings regarding the relationship between relational victimization and affect parallel previous studies that have demonstrated the detrimental effects of relational victimization on mental health problems (Cho et al., 2022). Indicators of negative affect are emotional states that are further associated with internalizing problems, including anxiety and depressive symptoms, as well as relational victimization (McLaughlin et al., 2009). Some youth may respond effectively to the experience of peer victimization, but other youth may react emotionally and have maladaptive coping mechanisms to deal with such peer adversity. In this sense, it is possible that not only emotion or mood per se, but also emotion dysregulation may be key to understanding individual differences in response to peer victimization (Adrian et al., 2019). Supporting this view, a short-term longitudinal study found that relational victimization, but not overt victimization, predicted increased emotion dysregulation, which in turn led to more internalizing problems among adolescents (McLaughlin et al., 2009). In some cultures, such as the Japanese culture, which emphasize interpersonal relationships, relational victimization may be an even more robust risk factor for developing negative emotions and impairing healthy emotion regulation. Culturally specific knowledge about the relationship between emotion and peer victimization is lacking. However, previous research suggests that adolescents in Japan are more likely to feel anxious and depressed when they experience peer victimization, especially relational victimization (Kawabata et al., 2024).

Relational victimization was also predictive of fear of failure over and above the contribution of physical victimization. Fear of failure is part of the negative emotions in the academic context, in terms of whether students will

succeed or fail at something they want to achieve. In Japanese culture, it is believed that getting high grades and the best letters of recommendation from school, which will predictably lead to admission to desirable future schools, will eventually create the optimal environment in which they can get the job they want. Thus, academic pressure from parents, teachers, and students themselves is relatively high in middle and high school, and at the same time, schoolwork and assignments are cognitively demanding, especially for seniors (OECD, 2011). Under these circumstances, students may feel extremely pressured to succeed in order to meet the expectations of their parents and teachers. They may also worry that failure to do so will disappoint them and make it difficult to predict their bright future. When exposed to these additional academic stressors, students who experience peer victimization, particularly relational victimization, may develop the negative affect discussed earlier. With negative affect, relationally victimized youth may lose confidence in the academic and social world, which contributes to the manifestation of fear of failure.

Both relational and physical victimization were uniquely associated with lower positive affect. This finding suggests that both forms of peer victimization put adolescents at risk for emotional problems by reducing their positive emotions, such as joy, happiness, and satisfaction. In the 2018 PISA report, there was no significant association between general forms of bullying victimization, including physical, relational, and verbal victimization combined, and positive affect (OECD, 2019b). However, when the forms were disaggregated into relational and physical, the negative effect of each form of peer victimization on positive affect emerged. This provides evidence to support the view that looking at each form of peer victimization may uncover students who were relationally or physically victimized by their peers and were unable to feel positive at school.

Although the negative correlates of relational victimization were pronounced, physical victimization played a unique role in another factor, meaning in life. Specifically, physical victimization was negatively associated with meaning in life over and above relational victimization. Adolescents who experience bullying victimization are often physically and psychologically injured and feel less competent and satisfied with themselves and their lives (Moore et al., 2017). They may even lose positivity or confidence in themselves and begin to question their existence or life (i.e., why they exist, what is the purpose of their life). Meaning in life is a critical part of adolescent development because it gives their lives purpose and guides their future success (Steger et al., 2021). A lack of meaning in life can lead to poor mental health or well-being and discourage students from constructively planning for their future careers and professions (Steger et al., 2021). From

these perspectives, it is plausible that preventing victimization and promoting well-being or meaning in life can help students move smoothly into the next developmental stage, emerging adulthood.

At the school-level, physical victimization was negatively associated with adolescents' positive affect. This finding suggests that adolescents who regularly attend schools with a high prevalence of physical victimization are less likely to exhibit positive affect than those with a low prevalence of physical victimization. Taken together with the other findings in this study, it appears that both individual and school-level physical victimization independently influence positive affect. The larger social context of school may be an environment that unfortunately increases the likelihood that students will witness peers being victimized by other peers and/or experience such victimization themselves. Observing or experiencing such victimization is not pleasant for many students and may even be detrimental to their mental health (Rivers et al., 2009). In turn, it may reduce their ability to feel positive about school in general or about their peers in particular.

Relational victimization at the school-level, but not at the individual level, predicted lower levels of self-efficacy in an academic domain, work mastery. Work mastery is a critical component of student motivation and learning. In particular, students who live in a culture where academic success is highly expected and valued by parents, teachers, and students themselves may find it difficult to lack the ability or desire to master academic tasks. One possible mechanism for this finding is that school-level relational victimization, as a larger negative socialization context, discourages students from pursuing their academic motivation for learning. Relational victimization, including ignoring and spreading rumors, by its very nature can easily spill over into the classroom and school. Unlike physical victimization, which tends to be one-on-one, the behaviors of ignoring and spreading rumors can involve multiple peers who may be aggressors and/or victims across peer groups at school. Bystanders or even uninvolved students may see someone being victimized and vicariously feel hurt and unsafe at school. It stands to reason that students in such an uncomfortable environment may not be able to focus on their schoolwork and may be less motivated to learn.

The Indirect Effect of School-Level Relational and Physical Victimization (Hypothesis 3)

Although school-level relational or physical victimization was not directly and consistently associated with school adjustment indices, its indirect effects on some of them through individual-level relational or physical victimization were evident. For example, school-level relational victimization was associated with student-level relational victimization,

which in turn was predictive of negative and positive affect and fear of failure. It is possible that schools with different levels of overall relational victimization serve as large socializing contexts that influence the extent to which adolescents are exposed to relational victimization and develop further emotional problems. Similarly, school-level physical victimization was associated with student-level physical victimization, which was negatively related to positive affect and meaning in life. This indirect effect of adolescent physical victimization may partially explain how school-level physical victimization as a contextual factor plays a role in reducing student well-being. These findings suggest the importance of considering classroom or school contexts that promote or inhibit relational and physical victimization and change the impact of such negative peer experiences on social-psychological, emotional, and motivational problems.

Limitations

Despite the strength of the findings, several limitations should be noted. The present study used self-report questionnaires, which may be subject to shared method variance or self-report bias. A future study could, if possible, use a multi-informant, multi-method approach in which data are collected from other informants (e.g., peers, teachers, parents) and through multiple methods (e.g., interviews, observations, use of archival records). Due to the scope of the study, the focus was on the victims of aggression rather than the perpetrators. Aggression and victimization can coexist, and the dual influence of both can be explored within students and schools. Although the present study includes a large sample size that is representative of 15- to 16-year-old adolescents in Japan, it is still correlational. Because correlation does not imply causation, no conclusions about causal relationships can be drawn from the results of this study. The data were also collected at one point in time, making it impossible to determine longitudinal changes in victimization and school adjustment.

Future Research

In the current study, it was theorized that the school may be a larger socializing context that sets the norm for victimization. Such normative school-level behavior could become a model that students in the context inadvertently follow and then learn such behavior. It is also possible that individual-level victimization may collectively lead to such a negative school climate for victimization. A future study can explore the complex developmental processes or mechanisms that involve the bidirectional links between forms of aggression, victimization, and school adjustment problems at both the individual and school levels.

Gender could be examined explicitly in a future study. A recent study with a Japanese sample explored gender differences in the longitudinal associations between forms of peer victimization and internalizing problems over 3 years of middle school, but found no gender differences (Kawabata et al., 2024). In this study, however, the researchers did not assess gender-specific variables, but rather gender as a group variable. As suggested by Ostrov and Kamper (2015), it may be more informative to assess gender-related variables, such as gender identity, gender schema, and gender conformity, and relate them to forms of aggression and victimization. With these gender-related factors, it is possible to create a model that will reveal possible gender differences or similarities in the pathways from relational and physical victimization to school adjustment in a future study.

Clinical and Educational Implications

The present study informs us about the role that school norms may play in individual-level experiences of relational and physical victimization and its association with school adjustment among adolescents. This further suggests the need for school-level policies or intervention and prevention programs aimed at reducing relational and physical victimization. In the current Japanese school system, students are required to spend their time interacting with peers in their assigned classrooms. Because they rarely move from one classroom to another during the school year, it is often difficult for them to change peer groups and make new friends if they wish (Kurokawa & Yoshida, 2009). Although high schools are relatively more open than middle schools, most classroom activities and instruction remain within the classroom. This type of classroom or school can be a negative context that perpetuates relational and physical victimization at the classroom or school-level. Providing students with ample opportunities to interact with peers outside of the classroom context (e.g., culture and sports clubs) would help them find the peer group that best fits their interests and goals.

Conclusion

The majority of research in this area has focused on social-psychological adjustment problems in Western cultural contexts. Knowledge about the association between forms of peer victimization and nonclinical outcomes, including social, academic, and motivational outcomes, in non-Western cultural contexts is scarce. The present study, which addressed these research gaps, showed that school-level relational victimization predicted individual-level relational victimization, and school-level physical victimization predicted individual-level physical victimization. In addition, individual-level relational victimization was

uniquely associated with indices of school adjustment (negative affect, positive affect, and fear of failure), and individual-level physical victimization was also uniquely associated with indices of school adjustment (positive affect and meaning in life). Furthermore, school-level victimization was indirectly, not directly, related to students' school adjustment through individual-level victimization. These findings highlight the importance of considering different forms of peer victimization at both the individual and school levels among Japanese adolescents.

Supplementary Information The online version contains supplementary material available at <https://doi.org/10.1007/s10964-024-01967-y>.

Data Sharing and Declaration The data are publicly available at <https://www.oecd.org/pisa/data/2018database>.

Compliance with Ethical Standards

Conflict of Interest The author declares no competing interests.

Ethical Approval Secondary data were used to prepare this manuscript. No human subjects were recruited or consented to participate in this study. The institutional review board of the author's university approved this study with full review. This study used publicly available data. As a secondary data analysis, this study was approved by the author's university.

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