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Association between the time perspective and type of involvement in bullying among adolescents: A cross-sectional study in Japan

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Abstract

Aim: To examine the association between the types of involvement in bullying and the time perspective among Japanese adolescents.

Methods: A questionnaire was conducted among Japanese junior high school students at eight public schools that were located in two cities in Shizuoka Prefecture, Japan. Shirai's Experiential Time Perspective Scale was used, which comprises four subscales: goal-directedness, hopefulness, self-fulfillment, and acceptance of the past. An analysis of covariance was applied, with the time-perspective subscales as the objective variable, type of involvement in bullying as a fixed factor, and grade, family structure, and economic status as the covariates.

Results: The analysis sample included 2630 adolescents (valid response rate: 88.6%). The bullying rate of the boys was 10.8% and 4.1% for the girls, for the male victims it was 10.1% and 14.5% for the female victims, and for both the bully and the victim, it was 8.5% and 5.4%, respectively. The students who were not involved in bullying had the highest scores of hopefulness, self-fulfillment, and acceptance of the past. For both sexes, bullying was significantly associated with hopefulness, self-fulfillment, and acceptance of the past. Goal-directedness was not associated with the type of involvement in bullying.

Conclusions: The victims of bullying had low time perspectives of hopefulness, self-fulfillment, and acceptance of the past. Providing support that increases hopefulness, self-fulfillment, and acceptance of the past might help to prevent pessimistic decision-making, such as that seen in cases of suicide.

Key words: adolescent, bullying, school, suicide, time.

INTRODUCTION

Lewin (1951) defined "time perspective" as the totality of an individual's view of his or her psychological future and his or her psychological past at any given time. Shirai (1994) described the time perspective as a construct of four aspects: goal-directedness, hopefulness, self-fulfillment, and acceptance of the past. Among adolescents, a positive attitude toward the future has been associated with academic achievement (Mello & Worrell, 2006), hope, and life-course decision-making (Minami, Asakawa, & Kishino, 2011). As one's life course is decided in middle school, the time perspective is very important for junior high school students. As compulsory education in Japan ends at junior high school, students in the nineth grade must choose their life course (i.e. admission to higher education or employment).

In previous studies (Henson, Carey, Carey, & Maisto, 2006; Wills, Sandy, & Yaeger, 2001) using the future, hedonistic, and fatalistic time-perspective scales of the Zimbardo Time Perspective Inventory (Zimbardo & Boyd, 1999), a higher level of future

time perspective was related to increased protective health behaviors, such as exercise and condom use, and decreased risk behaviors, such as drinking, smoking, and drug use. Therefore, the time perspective should be considered in the prevention of adolescent risk behaviors. Japanese schools experience problems with bullying, truancy, violence, and delinquency (e.g. smoking, drinking, and substance abuse). Furthermore, suicide that is caused by bullying among adolescents has become a national concern. The leading cause of suicide in students is having problems at school, with bullying comprising 1.8% of the problems at school and discord with schoolmates comprising 8.9% (Ministry of Education, Culture, Sports, Science and Technology, 2013). There are large between-country differences in the prevalence of habitual victims (Due *et al.*, 2005), ranging from 6.3% to 41.4% for boys and 5.1% to 33.8% for girls. Many studies have focused on the psychosomatic problems that are related to bullying (Gini & Pozzoli, 2009). Being bullied is associated with poor mental health, such as suicidal ideation, depression (Kaltiala-Heino, Rimpelä, Marttunen, Rimpelä, & Rantanen, 1999; Saluja *et al.*, 2004), and lower self-esteem (O'Moore & Kirkham, 2001). At school, bullying often occurs in the classroom (Morita, Taki, Hata, Hoshino, & Wakai, 1999). Bullying is a serious public health problem, as well as an abuse in childhood that causes behavioral and psychological problems (Kaplan *et al.*, 1998; Lansford *et al.*, 2002; Saluja, Kotch, & Lee, 2003). However, few studies have examined the association between bullying and the time perspective.

Research on bullying in Japan is extremely limited. Thus far, studies have found associations between the victims of bullying and depression, bullying and anger (Okayasu & Takayama, 2000), and morality and empathy as protective factors against bullying (Honma, 2003). Although being bullied has been associated with suicidal ideation, bullying has not been (Van der Wal, De Wit, & Hirasing, 2003). Although the victims of bullying have had the highest rates of depression, those students who were both bullies and victims, as well as bullies, had higher rates of depression than those who were not involved in bullying (Sasazawa, 2000). In a theoretical model of the school environment, Way, Reddy, and Rhodes (2007) reported that the interpersonal climate (e.g. teacher and peer support), instructional climate (e.g. opportunity for student autonomy), and organizational climate (e.g. clarity and consistency of school rules) were associated with behavioral problems, self-esteem, and depression, respectively.

The authors considered it necessary to add the association between bullying as an aspect of the school environment and the time perspective as a psychological effect. In fact, psychological effects differ by the type of involvement in bullying. It might be expected that bullying is associated with the time perspective. Previously, the authors reported a positive association between the experience of bullying and being bullied, as well as a negative association between self-fulfillment, acceptance of the past, and class cohesion (Mizuta, Okada, & Ojima, 2016). Furthermore, only girls, who were not only the victims and bullies, but also the reinforcers and assistants (e.g. the supporters of bullying behavior), scored high on social rejection (Salmivalli, Lagerspetz, Björkqvist, Österman, & Kaukiainen, 1996). The effects on the time perspective by the type of involvement in bullying was assessed in order to help teachers or health personnel to intervene and provide support to students. The aim of this study was to clarify the association between the type of involvement in bullying and the time perspective.

METHODS

Participants and procedure

A cross-sectional survey of Japanese junior high school students (*n* = 2,968) was conducted from December, 2012 to January, 2013. The participants were seventh, eighth, and ninth graders, aged 12–15 years, at eight public schools in two cities. In Japan, elementary and middle school total 9 years of compulsory education. After excluding 106 students who were absent on the day of the survey, the present study included 2862 participants. Students, guardians, homeroom teachers, and principals were provided a written explanation of the survey procedures. The participants answered the survey during class, with guidance from their homeroom teacher. They also were given the opportunity to ask questions in order to facilitate understanding or to decline to answer. For those students who refused to answer this survey, the questionnaire had space for free text and comments. The completed questionnaires and those of the students who refused to answer the survey then were collected and placed in individually sealed envelopes. The voluntary return of the self-administered questionnaire served as written informed consent. According to the ethical guidelines for epidemiological research in Japan, written informed consent is not necessary for observational research that does not collect human biological specimens.

Measurements

The participants completed an anonymous questionnaire that asked about their sociodemographic characteristics, involvement with bullying as a victim and as a bully, and their time perspective.

The questions about involvement as a bully or victim over the past year were obtained from a questionnaire by Saluja *et al.* (2004). The available survey responses were "never," "less than two times," and "three or more times." "Bully" and "victim" were divided into "never" and "have experienced." Next, a variable for bullying was created that was classified by four types of involvement: bully, victim, both bully and victim, and not involved in bullying.

The time perspective was measured by using the Scale of Experiential Time Perspective (Shirai, 1994), which comprises four subscales: goal-directedness (five items), hopefulness (four items), self-fulfillment (five items), and acceptance of the past (four items). An example of the subscale questions for goal-directedness is "I have a dream of the future;" for hopefulness, "There is hope for my future;" for self-fulfillment, "I am satisfied with my present life;" and for acceptance of the past, "My past is just a painful thing." The responses were recorded by using a five-point Likert scale ("disagree," "slightly disagree," "neither agree nor disagree," "slightly agree," and "agree"), with higher scores indicating higher levels of time perspective. The Experiential Time Perspective subscales exhibited high reliability (Cronbach's α) in a previous assessment by Shirai (goal-directedness: 0.79; hopefulness: 0.67; self-fulfillment: 0.83; and acceptance of the past: 0.67) and in this study's sample (goal-directedness: 0.80; hopefulness: 0.63; self-fulfillment: 0.79; and acceptance of the past: 0.67). The Experiential Time Perspective correlated with the Birleson Depression Scale (Birleson, Hudson, Buchanan, & Wolff, 1987) in our survey (Spearman's $r = -0.66$, $P < 0.001$). Hence, there is appropriate criterion-related validity.

The students were asked to rate all the family members who lived together with them and then the family structure was dichotomized into "two biological parents" and "others" (step-parent etc.). In accordance with a previous study (Bond, Carlin, Thomas, Rubin, & Patton, 2001), separated or divorced families were a risk factor for being bullied, as compared with an intact family. The economic status was based on the Comprehensive Survey of Living Conditions by the Ministry of Health, Labour and Welfare (2011) and was assessed by the question: "How do you rate your family's financial situation?" The responses were recorded by using five items ("difficult," "somewhat difficult," "normal," "somewhat comfortable," and "comfortable").

Statistical analysis

In order to obtain a range of 1–5 in the total scores of the time-perspective subscales, the individual subscale scores were divided by item numbers accordingly. The association between the time-perspective subscales and covariates was tested by using a one-way ANOVA. An ANCOVA also was used to examine the association between the time-perspective subscales and the type of involvement in bullying, adjusted for school grade, family structure, and economic status. Post-hoc comparisons were used to follow up significant ANCOVA values by the Bonferroni multiple comparison procedure. For all the analyses, alpha was 0.05. The analyses were carried out by using IBM SPSS Statistics for Windows v. 22.0J (IBM Corporation, Armonk, NY, USA).

Ethical considerations

This study was approved by the ethical review board of Hamamatsu University School of Medicine (No. 24-147) and conducted in accordance with the 1964 Helsinki Declaration and its later amendments.

RESULTS

Prevalence of bullying

The sample for the analysis totaled 2630 participants (boys: 1302; girls: 1328) and excluded the missing data on all the variables. The validity response rate was 88.6%. Table 1 shows the participants' characteristics by sex. More boys (10.8%) than girls (4.1%) were bullies. More girls (14.5%) than boys (10.1%) were victims. More boys (8.5%) than girls (5.4%) were both bullies and victims. As for the family structure, one out of 5.5 families did not have two biological parents (boys: 17.5%; girls: 17.9%). A difficult economic status was reported by 4.4% of the boys and 3.5% of the girls.

Means of the time-perspective subscale scores

Tables 2 and 3 show the results of the one-way ANOVAs. Goal-directedness was not associated with the type of involvement in bullying. For both sexes, bullying was significantly associated with hopefulness (boys: $P = 0.016$; girls: $P < 0.001$), self-fulfillment (boys and girls: $P < 0.001$), and acceptance of the past (boys and

Table 1 Participants' characteristics by sex

Variable	Boys (*n* = 1302)		Girls (*n* = 1328)		*P*-value
	N/mean	%/SD	N/mean	%/SD	
Time perspective					
Goal-directedness	3.40	0.98	3.51	0.91	0.003
Hopefulness	3.22	0.78	3.17	0.79	0.174
Self-fulfillment	3.51	0.90	3.40	0.96	0.002
Acceptance of past	3.58	0.85	3.41	0.95	<0.001
Bullying					<0.001
Bully	141.00	10.80	55.00	4.10	
Victim	132.00	10.10	193.00	14.50	
Both bully and victim	111.00	8.50	72.00	5.40	
Not involved in bullying	918.00	70.50	1008.00	75.90	
Family structure					0.799
Two biological parents	1074.00	82.50	1090.00	82.10	
Others	228.00	17.50	238.00	17.90	
Economic status					0.037
Difficult	57.00	4.40	46.00	3.50	
Somewhat difficult	204.00	15.70	238.00	17.90	
Normal	814.00	62.50	814.00	61.30	
Somewhat comfortable	165.00	12.70	141.00	10.60	
Comfortable	62.00	4.80	89.00	6.70	
Grade					0.990
Seventh	432.00	33.20	444.00	33.40	
Eighth	438.00	33.60	445.00	33.50	
Ninth	432.00	33.20	439.00	33.10	

t-Test was used for the analysis of a quantitative variable.
The χ^2-test was used for the analysis of the qualitative variables. SD, standard deviation.

girls: *P* < 0.001). The students who were not involved in bullying had the highest scores (mean ± standard deviation) of hopefulness (boys: 3.26 ± 0.75; girls: 3.23 ± 0.77), self-fulfillment (boys: 3.59 ± 0.88; girls: 3.50 ± 0.92), and acceptance of the past (boys: 3.69 ± 0.84; girls: 3.53 ± 0.91). The girls who did not live with two biological parents had significantly lower mean scores of self-fulfillment and acceptance of the past, compared with those girls who were living with two biological parents. The economic status was significantly associated with all the time-perspective subscales, except for goal-directedness in girls. The means of the time-perspective subscales were especially low for those in financial situations that were "difficult" and "somewhat difficult." A higher school grade was associated with higher means of goal-directedness and the association was significant in the girls.

Expectancies of the time-perspective subscale scores by bullying type

Figure 1 shows the mean scores of the time-perspective subscales by the type of involvement in bullying. In the

girls, the victims had significantly lower mean scores of self-fulfillment, acceptance of the past, and hopefulness, compared with those who were not involved in bullying. Both the bully and the victim had significantly lower mean scores of self-fulfillment and acceptance of the past, compared with those who were not involved in bullying. Goal-directedness was not associated with the type of involvement in bullying.

Table 4 shows the differences in the mean time-perspective subscales by the type of involvement in bullying. For the boys, the means of self-fulfillment (Δ = –0.46, *P* < 0.001) and acceptance of the past (boys: Δ = –0.45, *P* < 0.001) showed a large difference between their involvement as bully and victim and no involvement in bullying. The means of self-fulfillment for the girls (Δ = –0.47, *P* < 0.001) and acceptance of the past for both sexes (boys: Δ = –0.50, *P* < 0.001; girls: Δ = –0.62, *P* < 0.001) showed a large difference between involvement as a victim and no involvement in bullying. Moreover, the means of acceptance of the past (Δ = 0.47, *P* = 0.005) showed a large difference between involvement as a bully and involvement as a victim.

Table 2 Means of the time-perspective subscale scores by the boys' characteristics

Variable	Goal-directedness			Hopefulness			Self-fulfillment			Acceptance of past		
	Mean	SD	P-value	Mean	SD	P-value	Mean	SD	P-value	Mean	SD	P-value
Bullying			0.448			0.016			<0.001			<0.001
Bully	3.42	0.97		3.17	0.86		3.46	0.87		3.48	0.87	
Victim	3.50	0.97		3.09	0.83		3.34	0.91		3.20	0.80	
Both bully and victim	3.47	1.06		3.08	0.82		3.13	0.93		3.24	0.77	
Not involved in bullying	3.37	0.97		3.26	0.75		3.59	0.88		3.69	0.84	
Family structure			0.756			0.920			0.518			0.566
Two biological parents	3.40	0.98		3.22	0.78		3.52	0.90		3.58	0.86	
Others	3.38	0.96		3.21	0.75		3.48	0.89		3.55	0.82	
Economic status			0.001			<0.001			<0.001			<0.001
Difficult	3.44	1.09		2.93	0.95		3.13	0.88		3.24	0.94	
Somewhat difficult	3.24	1.02		2.92	0.77		3.09	0.87		3.44	0.90	
Normal	3.38	0.95		3.24	0.72		3.60	0.87		3.59	0.83	
Somewhat comfortable	3.52	0.99		3.38	0.81		3.62	0.87		3.78	0.77	
Comfortable	3.81	1.01		3.61	0.88		3.80	0.98		3.68	1.04	
Grade			0.650			0.114			0.118			0.513
Seventh	3.43	0.99		3.25	0.79		3.57	0.86		3.56	0.83	
Eighth	3.37	0.95		3.24	0.75		3.51	0.92		3.61	0.86	
Ninth	3.39	1.00		3.15	0.80		3.45	0.91		3.55	0.86	

One-way ANOVA. SD, standard deviation.

Table 3 Means of the time-perspective subscale scores by the girls' characteristics

Variable	Goal-directedness			Hopefulness			Self-fulfillment			Acceptance of past		
	Mean	SD	P-value	Mean	SD	P-value	Mean	SD	P-value	Mean	SD	P-value
Bullying			0.104			<0.001			<0.001			<0.001
Bully	3.24	0.84		3.01	0.75		3.21	1.14		3.38	0.95	
Victim	3.58	0.87		2.95	0.79		3.00	0.93		2.89	1.00	
Both bully and victim	3.52	0.88		3.13	0.88		3.16	1.03		3.15	0.81	
Not involved in bullying	3.51	0.92		3.23	0.77		3.50	0.92		3.53	0.91	
Family structure			0.455			0.242			0.001			0.002
Two biological parents	3.50	0.90		3.19	0.79		3.44	0.95		3.45	0.94	
Others	3.55	0.91		3.12	0.78		3.21	0.98		3.24	0.96	
Economic status			0.462			<0.001			<0.001			<0.001
Difficult	3.56	0.88		2.91	0.80		2.70	1.02		2.88	1.10	
Somewhat difficult	3.45	0.96		2.96	0.86		3.03	0.93		3.11	0.93	
Normal	3.50	0.89		3.21	0.76		3.49	0.93		3.51	0.92	
Somewhat comfortable	3.62	0.86		3.30	0.76		3.50	0.90		3.54	0.95	
Comfortable	3.55	0.95		3.32	0.81		3.75	0.91		3.44	0.90	
Grade			0.001			0.774			0.714			0.150
Seventh	3.40	0.88		3.18	0.78		3.41	0.96		3.45	0.93	
Eighth	3.51	0.91		3.15	0.80		3.37	0.98		3.45	0.98	
Ninth	3.62	0.92		3.19	0.79		3.42	0.94		3.34	0.93	

One-way ANOVA. SD, standard deviation.

Error bars were standard error of the mean.
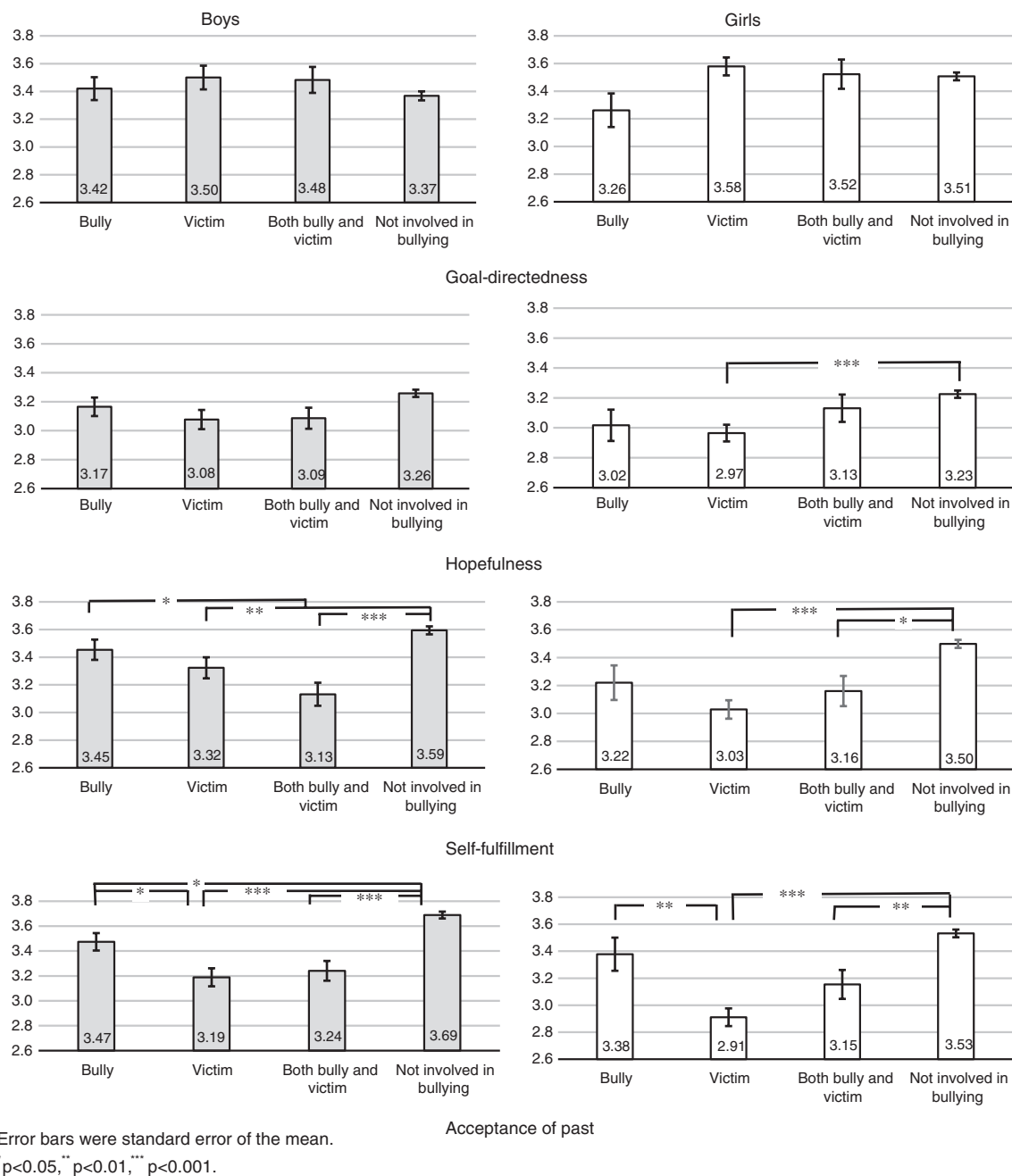*p<0.05, **p<0.01, ***p<0.001.

Figure 1 Adjusted means of time perspective subscale score by bulling type.

DISCUSSION

It was found that bullying was associated with the time-perspective subscales of hopefulness, self-fulfillment, and acceptance of the past. Self-fulfillment and acceptance of the past were significantly lower in the victims

than those who were not involved in bullying. Hopefulness was also low among the female victims. In addition, acceptance of the past was significantly lower among the victims than the bullies for both sexes. Van der Wal *et al.* (2003) reported that involvement as a victim was associated with depression, whereas

Table 4 Differences in the time-perspective subscale scores by bullying type

Subscale	a	b	Boys' difference score (a–b)	P-value[†]	Girls' difference score (a–b)	P-value[†]
Goal-directedness	Bully	Victim	−0.08	NS	−0.32	0.129
		Both bully and victim	−0.06	NS	−0.26	0.632
		Not involved in bullying	0.05	NS	−0.24	0.300
	Victim	Both bully and victim	0.02	NS	−0.06	NS
		Not involved in bullying	0.13	0.901	0.07	NS
	Both bully and victim	Not involved in bullying	0.11	NS	0.02	NS
Hopefulness	Bully	Victim	0.09	NS	0.05	NS
		Both bully and victim	0.08	NS	−0.11	NS
		Not involved in bullying	−0.09	NS	−0.21	0.320
	Victim	Both bully and victim	0.01	NS	0.17	0.740
		Not involved in bullying	−0.18	0.067	−0.26	<0.001
	Both bully and victim	Not involved in bullying	−0.17	0.156	−0.09	NS
Self-fulfillment	Bully	Victim	0.13	NS	0.19	NS
		Both bully and victim	0.32	0.023	0.06	NS
		Not involved in bullying	−0.14	0.454	−0.28	0.174
	Victim	Both bully and victim	0.19	0.536	0.13	NS
		Not involved in bullying	−0.27	0.006	−0.47	<0.001
	Both bully and victim	Not involved in bullying	−0.46	<0.001	−0.34	0.016
Acceptance of past	Bully	Victim	0.29	0.028	0.47	0.005
		Both bully and victim	0.23	0.161	0.22	NS
		Not involved in bullying	−0.21	0.027	−0.15	NS
	Victim	Both bully and victim	0.05	NS	0.24	0.325
		Not involved in bullying	−0.50	<0.001	−0.62	<0.001
	Both bully and victim	Not involved in bullying	−0.45	<0.001	−0.38	0.004

[†]Bonferroni test was used for multiple comparisons. The differences were adjusted for family structure, economic status, and grade by an ANCOVA.

involvement as a bully was not. The results of this study suggest that attention should be directed toward the psychological aspects, such as the time perspective, that are affected by bullying. Moreover, self-fulfillment and acceptance of the past were significantly lower among both the bullies and the victims, compared to those who were not involved in bullying. Greater health problems and poorer emotional or social adjustment were reported among the bullies, victims, and those who were involved as both bullies and victims (Nansel,

Craig, Overpeck, Saluja, & Ruan, 2004). Therefore, students who are both a bully and a victim must be taken into consideration.

Hopefulness, self-fulfillment, and acceptance of the past were highest among those students who were not involved in bullying. Furthermore, the largest difference in the mean acceptance of the past was between the victims and those who were not involved in bullying. Research has shown that an increasing time perspective contributes to healthy behavior (Hall & Fong, 2003)

and academic achievement (De Volder & Lens, 1982; Shell & Husman, 2001) and might prevent risky behaviors (Zimbardo, Keough, & Boyd, 1997). For the boys, self-fulfillment was significantly lower among those students who were both bullies and victims, compared to those who were only bullies. Moreover, acceptance of the past was significantly lower among the bullies than among those who were not involved in bullying. Both self-fulfillment and acceptance of the past influence the self-esteem course of bullies and their victims (O'Moore & Kirkham, 2001). Hence, a useful approach to increasing self-esteem might be to increase self-fulfillment and acceptance of the past (e.g. overcoming difficult experiences). Furthermore, as victims are at an increased risk of somatic symptoms, including headache, stomach ache, and backache (Due *et al.*, 2005), a first consultation with a school nurse to assess the potential negative mental and physical health effects is likely to be useful. Collaboration between the school nurses, teachers, school counselors, and medical workers also would be needed.

The time-perspective measures of goal-directedness and hopefulness are aspects that differ from the dimension of the future (Shirai, 1994). Bullying was not associated with goal-directedness. Even for those students who were involved in bullying, goal-directedness could be increased. Voitkāne (2005) reported that goal-directedness was negatively correlated with depression. This study's results suggest that increasing goal-directedness might prevent risk behaviors, such as suicide attempts, and would be a useful intervention for enhancing the mental health of adolescents in general.

The time dimension of a child's life space increases with age: the distant future and past events serve to affect the present behavior (Lewin, 1951). It was found that goal-directedness was associated with grade only in the girls. Grade-level support is needed to promote students' life-course decision-making. However, age periods might affect the time perspective more so than age alone (Fingerman & Perlmutter, 1995). As for the family structure, it was not independently associated with the time perspective. In general, the family structure is a possible risk factor for poor mental health (Gould, Greenberg, Velting, & Shaffer, 2003; Tousignant *et al.*, 1999). However, the results of this study were not consistent with previous findings. As indirect bullying has been the most frequent form of bullying that has been reported in the classroom (Rivers & Smith, 1994), further study is needed on the effect of class-level support from classmates or the homeroom teacher on the link between the time perspective and bullying. Furthermore,

it was found that the students' economic status was independently associated with their time perspective. This result is consistent with research that showed that the socioeconomic characteristics were most strongly associated with the time perspective (Guthrie, Butler, & Ward, 2009). One's present behavior is influenced by a person's perceptions of the future, based on considerations of past experiences. Therefore, the lower time perspective that causes bullying behavior might be related to reverse causation. As the time perspective might well mediate the relationship between the economic status and bullying, the economic status must be considered as part of the background of bullying. Furthermore, further research on the association between the neighborhood socioeconomic status and bullying is needed.

The boys tended to report the bullies, whereas the girls tended to report the victims. The boys were more involved in physical bullying (e.g. hitting and kicking), cyber or verbal bullying (e.g. name calling, making fun of, or hurtful teasing), and name calling about race or religion. The girls were more involved in relational bullying (e.g. social exclusion of others and spreading rumors) (Wang, Iannotti, & Nansel, 2009). For the boys, direct bullying might have increased self-reported bullies in the present study.

This study has limitations. First, the bullying rates were based on self-reported bullying. Hence, the relationship between bullying and the time perspective might be underestimated. Estimates that are based on teacher reports of bullying deserve further consideration. Second, this study used a cross-sectional design. Therefore, students with lower self-fulfillment or acceptance of the past were likely to be victims. No causal relationship has been suggested. A research strength was the survey's large sample size of junior high school students of all grade levels with a community-based survey. The valid response rate was also high. Hence, a measurable representation of junior high school students could be ensured.

CONCLUSION

The female victims of bullying had the lowest time perspectives of hopefulness, self-fulfillment, and acceptance of the past. Bullying was associated with hopefulness, self-fulfillment, and acceptance of the past, but not with goal-directedness. This study found that those students who were involved in bullying as a victim, as well as both as a victim and a bully, exhibited significantly low self-fulfillment and acceptance of the past, compared to

those who were not involved in bullying. These results highlight the need for providing support to the victims of bullying, as well as to those students who are involved as both a victim and as a bully.

Previous studies have reported the effectiveness of an antibullying intervention that is based on a peer-support model (Menesini, Codecasa, Benelli, & Cowie, 2003). Health providers, such as school nurses, should introduce population approaches for bullying prevention in schools. Enhancing the level of cooperation between the school personnel and the health providers is needed in order to increase students' self-fulfillment and acceptance of the past. Further intervention research on bullying prevention needs to focus on the time perspective.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

AUTHOR CONTRIBUTIONS

A. M., T. O., and H. Y. contributed to the conception and design of this study; A. M., E. O., and M. N. developed the research questions, carried out the statistical analysis, and drafted the manuscript. All the authors participated in the data interpretation and approved the final manuscript.

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