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Cyber bullying victimization and adolescent mental health: The differential moderating effects of intrapersonal and interpersonal emotional competence

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ABSTRACT

Introduction: Individuals who experience bullying victimization are at increased risk for future health and social problems. Despite this, studies show that not all bullying victims are in ill health, suggesting the importance of investigating protective factors that could counteract the adverse effects. The present study focused on investigating the moderating effects of emotional competence (EC) in the relationship between cyber-bullying victimization (CV) and mental health among adolescents.

Methods: Responses from 6403 adolescents aged 12 to 18 (1925 male, 4478 female, $M_{age} = 16.35$, $SD = 1.46$) with no missing data were used for analysis. The cross-sectional data analyzed in the present study was a part of a large longitudinal online survey conducted by the University of Tokyo in Japan. Participants were recruited among adolescent users of a social networking service widely used in Japan for communication.

Results: Results of regression analysis showed significant direct effects of CV on psychological distress/self-esteem, confirming the adverse effects of victimization. Results also suggested that high intrapersonal EC weakened the relationship between CV and psychological distress, whereas high interpersonal EC strengthened the relationship. There were no significant interactions between CV and EC in predicting self-esteem.

Conclusions: Intrapersonal and interpersonal EC may play differential moderating roles in the relationship between CV and psychological distress, the former by buffering the effect and the latter by exacerbating it. Interventions targeting abilities to handle one's own emotions may help decrease distress among adolescents with CV experiences.

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1. Introduction

In recent years, increasing evidence indicates that bullying victimization during childhood not only affects victims' short-term but also long-term well-being, extending to the mid-twenties (Copeland, Wolke, Angold, & Costello, 2013) and even 40 years after exposure (Takizawa, Maughan, & Arseneault, 2014). Specifically, victims of bullying have higher levels of internalizing problems (Reijntjes, Kamphuis, Prinzie, & Telch, 2010), increased rates of self-harm in adolescence (Fisher et al., 2012), increased mental health service use until mid-life (Evans-Lacko et al., 2017), accumulate less wealth, and are less likely to be in employment than their counterparts (Brimblecombe et al., 2018). Childhood victimization is also associated with long-term social impacts such as higher employment-related societal costs (aggregate annual societal costs calculated by multiplying per-person societal costs by estimated number of victims aged 50 in 2008) at age 50 for men and higher health service costs (more health service use for mental health problems over an eight-year period) at age 50 for women (Brimblecombe et al., 2018), putting pressure on health care resources and the economy itself.

Rapid development of information and communication technology has made it possible to ostracize others without face-to-face interaction, extending bullying in the school grounds into cyberspace (Juvonen & Gross, 2008). Cyber-bullying is often defined as "aggression that is intentionally and repeatedly carried out in an electronic context (e.g., e-mail, blogs, instant messages, text messages) against a person who cannot easily defend him- or herself" (Kowalski, Giumetti, Schroeder, & Lattanner, 2014, p. 1073). Cyber-bullying victimization (CV) is one of the significant risk factors of psychological distress among youth, with prevalence estimates ranging from 10 to 40% in general (Kowalski et al., 2014). There is considerable overlap between experiences of traditional bullying victimization (TV) and CV (Olweus, 2012), although studies have suggested the unique nature of cyber-bullying (e.g., Antoniadou & Kokkinos, 2015; Kowalski et al., 2014). Unique features of cyber-bullying when compared to traditional forms, include ease of reproducibility (e.g., copying and pasting aggressive messages), widespread reach, lack of face-to-face contact, perceived anonymity, relative permanence of messages or posts, limited likelihood for intervention, and constant accessibility (Kim, Colwell, Kata, Boyle, & Georgiades, 2018). Empirical studies have shown that even if the effect of TV was controlled for, CV was uniquely associated with depressive symptoms (Machmutow, Perren, Sticca, & Alsaker, 2012) and suicidal ideation (Bonanno & Hymel, 2013), and that victimization of cyberbullying only showed higher risks of self-injury and suicide attempts than victimization of school bullying only (Schneider et al., 2012), indicating that CV may cause greater harm and negative emotional consequences to victims.

Despite the adverse effects of bullying victimization, not all victimized individuals are in ill health. To explain the individual differences in the effect of victimization, previous bullying studies have mainly focused on examining protective factors against the effects of TV, such as social support (e.g., Stadler, Feifel, Rohmann, Vermeiren, & Poustka, 2010), but only a few have investigated moderators that buffer the effect of victimization in cyberspace. Studies have shown that parental/friend support had a buffering effect in the relationship between CV and subjective health complaints among victimized boys (Fridh, Lindström, & Rosvall, 2015), and that cyber-victims who recommended support seeking from family and peers in response to a hypothetical cyber-bullying scenario showed weaker associations between CV and depressive symptoms (Machmutow et al., 2012). These studies both suggest the buffering effect of social support, although, considering the unique characteristics of cyber-bullying, such as perceived anonymity of the perpetrator and constant accessibility of posts or messages (Kim et al., 2018), it may be harder for potential support providers (e.g., teachers, family, friends) to intervene and prevent further victimization. One potentially beneficial approach to reduce negative effects on victims is to improve internal abilities that may have a protective effect on mental health. Thus, in the present study we attempt to investigate the moderating effect of internal abilities that may play a buffering role; based on past studies (e.g., Extremera, Quintana-Orts, Mérida-López, & Rey, 2018; Kotsou, Nelis, Grégoire, & Mikolajczak, 2011), we especially focus on the moderating role of emotional competence (EC).

1.1. Emotional competence as a potential moderator

EC, often labeled as "emotional intelligence", refers to the ability to "identify, express, understand, regulate, and use our own and others' emotions" (Mikolajczak et al., 2015, p. 653). EC consists of two dimensions, namely intrapersonal EC and interpersonal EC. The former refers to the ability to handle one's own emotions, and the latter refers to the ability to handle others' emotions. Some researchers prefer the term EC over emotional intelligence, because studies have indicated that EC can be taught and learned (Mikolajczak et al., 2015). In the present study, we use the term EC as a synonym of emotional intelligence, in reference to past studies (e.g., Nozaki, 2015) that have used these terms interchangeably. Studies have revealed that higher EC is related to better mental health outcomes (e.g., Mikolajczak et al., 2015) and better psychosomatic and physical health (e.g., Martins, Ramalho, & Morin, 2010), suggesting the importance of EC in predicting individuals' health and well-being.

Some studies have tested the moderating role of emotional skills on the negative effects of CV. Garnefski and Kraaij (2014) examined the moderating role of specific cognitive emotion regulation strategies, and revealed that the use of maladaptive strategies strengthens the association between bullying victimization (physical, verbal, relational, and cyber) and depression/anxiety, whereas the use of an adaptive strategies reduces them. Extremera et al. (2018) examined the moderating role of EC in associations between CV and psychological maladjustment, and found that adolescent victims with higher EC reported lower suicidal ideation and higher self-esteem. These studies both suggest that the acquisition of better emotional skills may buffer the adverse effect of CV. Moreover, considering that the protective role of EC on victims' mental health has been shown in other researches as well (e.g., Quintana-Orts, Rey, Mérida-López, & Extremera, 2019), focusing on the moderating effect of EC may be a promising approach in finding an effective intervention strategy for adolescent victims.

A number of studies have shown that acquiring better emotional skills may buffer the adverse effects of CV, although there are

several gaps in the literature that need to be addressed. First, subjects of most studies were from Western populations; hence, it is unclear whether these results hold in Eastern Asian populations. Regarding studies that suggest differences in EC and emotion regulation between Western and Eastern populations (e.g., Nozaki, 2018), the generalizability of the protective role of EC in Eastern society need to be examined. In addition, it is unclear whether or not intrapersonal and interpersonal EC play the same role in counteracting the effects of CV. This is an important distinction, because regulation of one's own emotion and regulation of others' emotion are conceptualized as distinct processes in the emotion regulation literature (e.g., Gross, 2015; Zaki & Williams, 2013), and because studies on EC suggest they may have differential effects. For example, a study revealed that only interpersonal EC acts as a moderator in the relationships between extraversion and likeability, suggesting that higher levels of interpersonal EC may promote higher acceptance in peer groups (Szczygiel & Mikolajczak, 2018). Another study found that people with higher interpersonal EC were more likely to attempt to regulate the sadness of an ostracized individual, even if the sadness was not apparent through facial expression (Nozaki, 2015). In contrast, studies suggest that higher intrapersonal EC was more predictive of health outcomes than interpersonal EC (Mikolajczak et al., 2015), and that an increase in intrapersonal EC corresponds to a decrease in healthcare expenditures (Mikolajczak & Van Belleghem, 2017). These studies all suggest intrapersonal and interpersonal EC may play different roles in the moderation of CV. In addition, a recent study analyzed data from diverse samples and revealed that the modified target based structure distinguishing between intrapersonal EC and interpersonal EC with residual correlations among competence types fitted better than alternative models, emphasizing the importance of distinguishing between the two domains (Nozaki, Puente-Martínez, & Mikolajczak, 2019). However, to our knowledge, previous studies have only focused on the moderating effect of abilities to handle one's own emotion.

1.2. Current study

As discussed above, past studies suggest that experiences of CV are associated with negative emotional consequences, and that better emotional skills may buffer the adverse effect. Although, to our knowledge, the generalizability in Eastern populations and differences between intrapersonal and interpersonal EC have not been taken into account. To fill these gaps in the literature, the purpose of our study was to investigate the differential moderating roles of intrapersonal and interpersonal EC in the relationship between CV and mental health outcomes among Japanese adolescents. We especially targeted users of a social networking service, because it is expected that greater use of social media lead to greater risks of experiencing ostracism online. Specifically, we tested whether intrapersonal and interpersonal EC would moderate the negative effects of CV on psychological distress/self-esteem, and whether higher EC would weaken the adverse impact of CV in Eastern populations.

2. Methods

2.1. Participants

The cross-sectional data analyzed in the present study was measured as a baseline survey for a large longitudinal online survey conducted by the University of Tokyo in Japan. We recruited participants among users of a social networking app widely used in Japan for communication. Participants were adolescents aged 12–18 years who were signed up as survey panels of the app. They answered various questionnaires involving psychological factors and mental health using the social networking app; participants received point incentives they could use in the app to purchase items. To lower the burden on participants, the baseline survey was divided into three parts. Among 6877 adolescents who participated in at least one survey at baseline, we excluded data from 474 participants (6.9%) who participated only to one or two surveys out of all. Responses from 6403 adolescents aged 12–18 years (1925 male, 4478 female, $M_{\text{age}} = 16.35$, $SD = 1.46$) with no missing data were used for later analyses. We only used measures that were relevant to the purpose of our present study. Informed consent was obtained from all participants online. This study was approved by Life Science Research Ethics and Safety of the University of Tokyo (number 17–28).

2.2. Measures

Emotional Competence (EC). We used the Japanese version of the Short Profile of Emotional Competence (Nozaki & Koyasu, 2015), which is a Japanese translation of the Short Profile of Emotional Competence (Mikolajczak, Brasseur, & Fantini-Hauwel, 2014). 10 items measure intrapersonal EC (e.g., “When I am angry, I find it easy to calm myself down”), and 10 items measure interpersonal EC (e.g., I am good at sensing what others are feeling”). Participants responded to each item on a 5-point scale (1–5). The scale demonstrates appropriate reliability and validity, and is an emotional competence measure applicable to the Japanese population (Nozaki & Koyasu, 2015; Nozaki & Koyasu, 2016). Total Scores for each EC were used in the analyses (intrapersonal EC: $M = 30.07$, $SD = 5.69$, $\alpha = .70$; interpersonal EC: $M = 30.93$, $SD = 6.08$, $\alpha = .74$). Higher scores indicate better emotional skills.

Traditional bullying Victimization (TV). In reference to previous studies (Menesini, Nocentini, & Calussi, 2011; Ybarra, Boyd, Korchmaros, & Oppenheim, 2012), we asked participants about their past TV experience by showing them a subset of experiences without using the word “bullying.” We selected a subset of specific TV experiences, consistent with the survey conducted by the Ministry of Education, Culture, Sports, Science and Technology in Japan (2015). There were 7 items in total (e.g., “excluded/ignored from a peer group”; “teased/insulted you, or said nasty/bad/threatening things to you”), and participants were asked to select experiences that they have ever repeatedly experienced from others in the past. For later analyses, we converted the responses into a binary variable (0: none; 1: one or multiple types of experiences).

Cyber-bullying Victimization (CV). We asked participants about their past CV experience, using the same procedure as TV. We selected a subset of specific CV experiences, consistent with the survey conducted by the [Ministry of Education, Culture, Sports, Science and Technology in Japan \(2015\)](#) and a literature review ([Ono & Saito, 2008](#), pp. 35–47). We used 7 items in total for analysis (e.g., “teased you over the Internet”; “posted your private information/picture online without permission”), in reference to our previous study ([Urano, Ohka, Takizawa, Hoshino, & Shimoyama, 2018](#)). Participants were asked whether they have ever repeatedly experienced any form of cyber victimization included in the subset. For later analyses, we converted the responses into a binary variable (0: none; 1: one or multiple types of experiences).

Perceived Social Support. We used the Japanese version ([Tanaka et al., 2010](#)) of the Multidimensional Scale of Perceived Social Support ([Zimet, Dahlem, Zimet, & Farley, 1988](#)). The original scale consists of 12 items (e.g., “I can talk about my problems with my family”), 4 items each depending on the source of social support (family, friends, close others). The scale demonstrates appropriate psychometric properties. Due to the characteristic of our study sample (adolescents aged 12–18 years), we especially focused on social support from family and friends. To lower the burden on participants, the authors selected a total of 4 representative items, 2 items each regarding support from family and friends. Participants rated the degree of social support they perceived in the past week on a 7-point scale (1–7). We calculated the total score of all 4 items for later analyses ($M = 20.33$, $SD = 5.19$, $\alpha = .78$). The higher the score, the more social support the individual perceives.

Psychological Distress. Psychological distress was measured using the Japanese version ([Furukawa et al., 2008](#)) of the K6 ([Kessler et al., 2002](#)). The Japanese adaptation has shown equal screening performance as the original scale. Participants rated their symptoms (e.g., “...about how often did you feel restless or fidgety?”) from the past 30 days on a 5-point scale (1–5). We calculated the total score of all six items for later analyses ($M = 12.82$, $SD = 5.64$, $\alpha = .88$). Higher scores indicate more psychological distress.

Self-esteem. The Japanese version of the Rosenberg Self Esteem Scale ([Mimura & Griffiths, 2007](#)) was used to measure self-esteem. The Japanese version scale shows adequate reliability and validity. The scale consists of 10 items (e.g., “I feel that I’m a person of worth, at least on an equal plane with others”), each item rated on a 4-point scale (1–4). We calculated the total score of all items for later analyses ($M = 23.64$, $SD = 5.52$, $\alpha = .85$). Higher scores indicate higher self-esteem.

2.3. Statistical analyses

All statistical analyses were conducted using the software R version 3.5.3 ([R Core Team, 2019](#)). First, we computed descriptive statistics and conducted series of correlational analyses to confirm the relationship among variables, using the “psych” package ([Revelle, 2018](#)). Pearson's correlation coefficients were computed for continuous variables, and Welch's t-tests were conducted for binary variables. We also used the “rpsychi” package ([Okumura, 2012](#)) to calculate the unbiased standardized mean differences (Hedges' g) and 95% confidence intervals. Next, we conducted series of linear regression analyses to examine the moderating effects of EC in the effect of CV on psychological distress and self-esteem. Predictor variables included gender, age, social support, TV, CV, and EC. Gender, age, social support, and TV were accounted for confounding variables. We centered all continuous variables before conducting regression analyses. Step 1 included all confounders and CV. Step 2 included intrapersonal and interpersonal EC. Lastly, step 3 included interactions between CV and EC. An interaction term between CV and social support was also included to control for the buffering effects of social support.

Before conducting multiple regression analyses, models were screened for outliers, normality, homoskedasticity, and independence of residuals using packages “ISLR” ([James, Witten, Hastie, & Tibshirani, 2017](#)) and “lmtest” ([Zeileis & Hothorn, 2002](#)). Preliminary screening detected heteroskedasticity; to minimize the effect, we estimated heteroskedasticity-robust standard errors (HC3) for all models using the “estimatr” package ([Blair, Cooper, Coppock, Humphreys, & Sonnet, 2019](#)). Statistical significance of regression coefficients was determined based on robust standard errors, p -values, and 95% confidence intervals of regression coefficients that were estimated by applying the `lm_robust` function from the package.

3. Results

3.1. Descriptive statistics

The means, standard deviations, and group differences for each binary variable are shown in [Table 1](#). [Table 2](#) shows the inter-correlation of the continuous variables. Approximately 45% of people had one or multiple types of TV experience in the past, and 23% experienced at least one type of CV. The distribution of item responses of CV is shown in [Fig. 1](#). People who had no experience of CV showed higher scores in social support and intrapersonal EC, and lower scores in psychological distress, compared to people who had one or multiple types of experiences. Although, most variables showed small effect sizes. Psychological distress showed the largest mean difference, with moderate effect size ($g = -0.55$, 95% CI [$-60, -50$]). On the other hand, people with one or multiple types of experiences of CV showed higher scores in interpersonal EC than their counterparts, however the effect size was small ($g = -0.06$, 95% CI [$-12, -01$]). Results of the correlation analysis showed that social support and EC were both negatively correlated with psychological distress, and positively correlated with self-esteem.

3.2. Moderating role of emotional competence

We conducted linear regression analyses to examine the moderating effect of EC ([Table 3](#)). Variance inflation factors (VIFs) were all below 2, indicating that collinearity was not a concern. First, results indicated that CV was significantly associated with

Table 1
Means (M), Standard Deviations (SD), and Results of Welch's *t*-test for all Binary Variables.

	<i>n</i>	Social Support			Intrapersonal EC			Interpersonal EC		
		<i>M</i> (<i>SD</i>)	<i>p</i>	<i>g</i>	<i>M</i> (<i>SD</i>)	<i>p</i>	<i>g</i>	<i>M</i> (<i>SD</i>)	<i>p</i>	<i>g</i>
Gender										
Male	1925	20.33 (5.31)	.967	0.00 [- .05, .06]	30.99 (5.68)	<.001	0.23 [.18, .28]	30.68 (6.16)	.036	-0.06 [-.11, -.00]
Female	4478	20.33 (5.14)			29.68 (5.66)			31.03 (6.05)		
TV										
none	3513	20.94 (4.89)	<.001	0.27 [.22, .31]	30.58 (5.61)	<.001	0.20 [.15, .25]	31.19 (5.98)	<.001	0.10 [.05, .15]
one/multiple	2890	19.58 (5.44)			29.46 (5.73)			30.60 (6.20)		
CV										
none	4943	20.60 (4.96)	<.001	0.23 [.17, .29]	30.18 (5.64)	.008	0.08 [.02, .14]	30.84 (6.05)	.033	-0.06 [-.12, -.01]
one/multiple	1460	19.41 (5.81)			29.72 (5.87)			31.23 (6.20)		
<hr/>										
		Distress			Self-esteem					
	<i>n</i>	<i>M</i> (<i>SD</i>)	<i>p</i>	<i>g</i>	<i>M</i> (<i>SD</i>)	<i>p</i>	<i>g</i>			
Gender										
Male	1925	11.80 (5.54)	<.001	-0.26 [-.31, -.21]	24.97 (5.43)	<.001	0.35 [.29, .40]			
Female	4478	13.25 (5.63)			23.07 (5.46)					
TV										
none	3513	11.46 (4.90)	<.001	-0.55 [-.60, -.50]	24.49 (5.29)	<.001	0.35 [.30, .40]			
one/multiple	2890	14.47 (6.02)			22.61 (5.61)					
CV										
none	4943	12.28 (5.35)	<.001	-0.43 [-.49, -.37]	24.01 (5.42)	<.001	0.30 [.24, .35]			
one/multiple	1460	14.65 (6.20)			22.39 (5.66)					

Note. EC = emotional competence; TV = traditional bullying victimization; CV = cyber-bullying victimization. *g* represents Hedges' *g*. 95% confidence intervals are shown in brackets.

Table 2
Inter-correlations among continuous variables.

	1		2		3		4		5
1 Social Support	-								
2 Intrapersonal EC	.36***	[.34, .39]	-						
3 Interpersonal EC	.28***	[.26, .30]	.48***	[.46, .50]	-				
4 Distress	-.35***	[-.37, -.33]	-.32***	[-.34, -.29]	-.14***	[-.16, -.11]	-		
5 Self-esteem	.38***	[.36, .40]	.46***	[.44, .48]	.31***	[.28, .33]	-.58***	[-.59, -.56]	

*** $p < .001$.

Note. EC = emotional competence. 95% confidence intervals are shown in brackets.

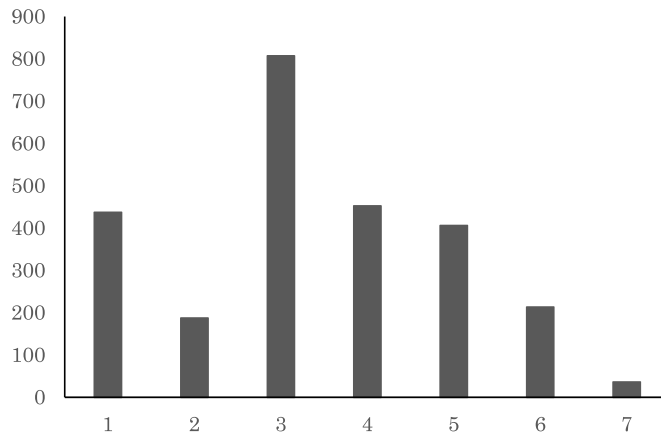


Fig. 1. Distribution of item responses of cyber-bullying victimization.

Note. 1 = teased you over the Internet ($n = 437$), 2 = excluded you from a peer group over the Internet ($n = 187$), 3 = said nasty or bad things about you over the Internet ($n = 807$), 4 = posted your private information/picture online without permission ($n = 452$), 5 = spread fake rumors about you via the Internet ($n = 406$), 6 = stole your identity online ($n = 213$), 7 = recorded videos/took pictures of you getting hurt by others, and posted them online ($n = 36$).

psychological distress and self-esteem, even after adjusting for confounding variables. Next, at a marginal level of statistical significance, the association between CV and psychological distress depended on intrapersonal EC ($p = .06$). Results also revealed significant interactions between interpersonal EC and CV in the relationship between psychological distress ($p < .05$). However, in the case of self-esteem, both types of EC showed significant direct associations but none of the interactions were significant.

To interpret the nature of significant interaction terms, simple slope analyses were separately conducted at 1SD above and below the mean. Results (Figs. 2, 3) indicated that the association between CV and psychological distress was rather weaker for people who had high intrapersonal EC (+1 SD: $B = 1.00, t = 4.21, p < .001$), compared to people who had low intrapersonal EC (-1 SD: $B = 1.65, t = 6.85, p < .001$). In contrast, results indicated that the adverse effect of CV on psychological distress was rather stronger for people who had high interpersonal EC (+1 SD: $B = 1.71, t = 6.87, p < .001$), compared to people who had low interpersonal EC (-1 SD: $B = 0.94, t = 3.73, p < .001$). These results indicate that higher levels of intrapersonal EC have a buffering effect on the association between CV and distress, whereas higher levels of interpersonal EC strengthen the relationship.

4. Discussion

To our knowledge, this is the first study to elucidate the differential roles that intrapersonal and interpersonal EC play in the relationship between cyber-bullying victimization and mental health among Japanese adolescents. Results showed that both TV and CV experiences have a positive relationship with psychological distress and negative relationship with self-esteem. In addition, results indicated that high intrapersonal EC weakens the relationship between CV and psychological distress, whereas high interpersonal EC strengthens the relationship.

Results of linear regression analyses showed significant associations between CV and mental health outcomes, confirming results from previous studies (e.g., Kowalski et al., 2014). Furthermore, intrapersonal EC showed stronger associations with mental health than interpersonal EC, which is in line with Mikolajczak et al.'s (2015) results, suggesting that intrapersonal EC is more predictive of mental health outcomes. Additionally, as predicted, results suggested that people with higher intrapersonal EC were less affected by the experience of CV. This result is in line with previous studies conducted among Western populations; thus, our results suggest that the protective role of intrapersonal EC on adolescent victims' mental health may be generalizable to the Eastern population as well. However, results also suggested that people with higher interpersonal EC were more affected by CV, contradicting studies that suggest the buffering role of EC (e.g., Extremera et al., 2018). People with high interpersonal EC are skilled at predicting and

Table 3
Associations between CV and mental health with confounders.

	Self-Esteem											
	Psychological Distress						Self-Esteem					
	Step 1		Step 2		Step 3		Step 1		Step 2		Step 3	
B	95% CI	B	95% CI	B	95% CI	B	95% CI	B	95% CI	B	95% CI	
Intercept	10.57***	[10.31, 10.82]	10.81***	[10.56, 11.06]	10.81***	[10.56, 11.06]	25.62***	[25.37, 25.87]	25.31***	[25.08, 25.55]	25.31***	[25.07, 25.55]
Gender	1.31***	[1.03, 1.59]	1.03***	[0.75, 1.31]	1.03***	[0.75, 1.30]	-1.81***	[-2.08, -1.54]	-1.46***	[-1.72, -1.21]	-1.46***	[-1.72, -1.20]
Age	0.08†	[-0.01, 0.16]	0.07	[-0.01, 0.16]	0.07	[-0.01, 0.16]	-0.07	[-0.16, 0.01]	-0.04	[-0.12, 0.04]	-0.04	[-0.12, 0.04]
Social Support	-0.34***	[-0.37, -0.31]	-0.27***	[-0.30, -0.24]	-0.26***	[-0.29, -0.22]	0.39***	[0.36, 0.41]	0.24***	[0.21, 0.27]	0.25***	[0.22, 0.28]
TV	2.27***	[2.00, 2.53]	2.16***	[1.90, 2.42]	2.15***	[1.89, 2.41]	-1.16***	[-1.42, -0.91]	-0.96***	[-1.20, -0.72]	-0.96***	[-1.20, -0.72]
CV	1.36***	[1.03, 1.68]	1.37***	[1.05, 1.69]	1.33***	[1.01, 1.64]	-0.81***	[-1.11, -0.50]	-0.94***	[-1.22, -0.65]	-0.94***	[-1.23, -0.66]
Intrapersonal EC			-0.21***	[-0.24, -0.18]	-0.20***	[-0.23, -0.16]			0.30***	[0.27, 0.33]	0.29***	[0.26, 0.32]
Interpersonal EC			0.03**	[0.01, 0.06]	0.02	[-0.01, 0.04]			0.09***	[0.06, 0.11]	0.10***	[0.07, 0.12]
CV × Social Support					-0.04	[-0.10, 0.03]					-0.03	[-0.09, 0.03]
CV × Intrapersonal EC					-0.06†	[-0.12, 0.00]					0.02	[-0.04, 0.09]
CV × Interpersonal EC					0.06*	[0.00, 0.13]					-0.04	[-0.09, 0.02]
Adjusted R ²	.191		.225***		.226*		.189		.300***		.301	

Note. EC = emotional competence; TV = traditional bullying victimization; CV = cyber-bullying victimization. P-values of adjusted R² represents statistical significance of change in explained variance. ***p < .001, **p < .01, *p < .05, †p < .10.

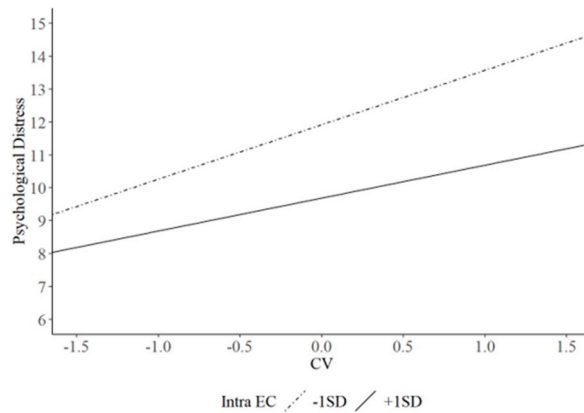


Fig. 2. Interaction between CV and Intrapersonal EC.

Note. EC = emotional competence; CV = cyber-bullying victimization.

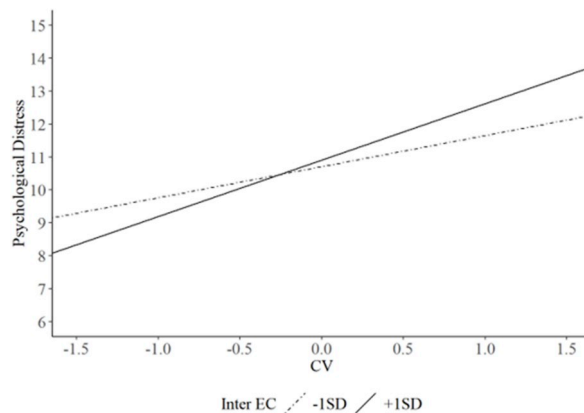


Fig. 3. Interaction between CV and Interpersonal EC.

Note. EC = emotional competence; CV = cyber-bullying victimization.

understanding others' emotional states based on situational cues, and therefore can regulate an ostracized person's sadness even if the sadness is not apparent through facial expression (Nozaki, 2015). These skill sets are thought to be beneficial, although may not be in the case of victimization in cyberspace. Increasing reliance on technology has reduced face-to-face interaction, making it harder for people to interpret the intentions of behavior (Crosslin & Golman, 2014). Considering the fact that participants in the present study were users of a social networking service, we could assume that they have a high tendency to interact online rather than face-to-face. When intention to do harm is not detected, online behaviors may be construed as joking or a playful interaction among friends (Vandebosch & Van Cleemput, 2008). People with lower interpersonal EC may misconstrue the intention of the perpetrator's online behavior, whereas people with higher interpersonal EC may find it easier to construe the intentionality of the behavior based on contextual information, which in turn may lead to greater psychological distress. Thus, our results suggest that both intrapersonal and interpersonal EC play moderating roles in the association between CV and psychological distress, by promoting opposite effects.

Despite results of Extremera et al. (2018), we found no significant interactions between CV and EC in predicting self-esteem. This may be due to cultural differences in self-construal between Eastern and Western societies. According to Markus and Kitayama's (1991) theory of culture and self, for Western individuals with independent self-construal, one's internal attributes are most significant in regulating behavior, whereas interdependent individuals in Eastern cultures perceive themselves as a part of the social context, which determines one's behavior by how others in the relationship feel, think, and act. In fact, empirical studies on cultural differences in happiness have revealed that Eastern happiness is closely related to social bond and harmony, whereas Western happiness is closely related to personal achievement (e.g., Hitokoto & Uchida, 2015; Uchida & Kitayama, 2009). Hence, for those with interdependent selves, social aspects of the self (e.g., feeling like one is fitting in and engaging with social context) may be most important in enhancing self-esteem, whereas for independent selves one's internal attributes (e.g., one's abilities, desires, and needs) may be what can enhance self-esteem (Markus & Kitayama, 1991). Due to these cultural differences, instead of enhancing internal abilities like EC, creating new social bonds and being accepted in a new peer group may be more likely to enhance threatened self-esteem for ostracized Japanese adolescents.

4.1. Limitations and future directions

The present study used cross-sectional data from a longitudinal study targeting Japanese adolescent users of a social networking service. Therefore, the causal relationships between variables in the present study should be interpreted with caution. To better understand the directionality of the relationships among the variables, future studies should examine whether these effects remain present in a longitudinal examination. Next, the present study investigated whether or not individuals ever experienced any type of bullying victimization, but not the severity and duration of each experience. Future research should examine whether the moderating effects of EC differ by characteristics of the experience, as higher severity and duration may lead to higher risk of distress. Lastly, we cannot be sure if the moderating effects of EC remain present in the presence of related constructs. Thus, future work is needed to determine the moderating effect of EC, when related constructs (e.g., socioeconomic status, personality traits, coping strategies) are included. A longitudinal examination with related constructs accounted for will be conducted as soon as our longitudinal data is ready for analyses.

5. Conclusions

In summary, we found that intrapersonal and interpersonal EC may play differential moderating roles in the relationship between CV and psychological distress, the former by weakening the association and the latter by exacerbating it. Numerous studies have demonstrated that the skills to handle one's own emotions can be improved through interventions (e.g., Kotsou et al., 2011), and even by daily behaviors such as helping others to regulate their own emotions (Doré, Morris, Burr, Picard, & Ochsner, 2017). Interventions aimed at reducing the effects of CV may need to consider targeting the promotion of skills to handle one's own emotions. On the other hand, our findings also suggest that promoting skills to handle others' emotions might have the opposite effect; hence, interventions targeting the promotion of EC should put in mind that the two kinds of EC are different constructs that may lead to opposite consequences.

Declaration of competing interest

None.

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