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Factors influencing bystanders' behavioral reactions in cyberbullying situations



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ABSTRACT

The purpose of this study was to investigate the experiential, psychological, and situational factors influencing behavioral reactions of bystanders witnessing cyberbullying. It also investigated whether the 'bystander effect' is valid in cyberbullying situations. In addition, a moderation effect of the presence of other bystanders was examined between various influencing factors and bystander's defending tendency. A total of 1058 middle and high school students in metropolitan areas participated in the study, and the experiences of 331 students who have witnessed cyberbullying were analyzed. First, four types of bystanders were found: outsiders were the majority ($n = 201, 60.7\%$), followed by defenders ($n = 101, 30.5\%$), reinforcers ($n = 18, 5.4\%$), and assistants ($n = 11, 3.3\%$). Second, bystanders demonstrated more defending behaviors in the absence of other bystanders, thereby validating the 'bystander effect' in cyberbullying situations. Third, low moral disengagement, low anti-social conformity, high perceived control of the situation and bad relationship with bullies were identified as significant predictors of a bystander's defending tendency. Finally, the presence of other bystanders moderated the effect between moral disengagement and the bystander's defending tendency in relation to bullies. The implications of these results for the effective prevention and intervention of cyberbullying are discussed.

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1. Introduction

1.1. Significance of cyberbullying and bystanders

Peer bullying has received attention as one of the most severe problems causing adolescent suicide rate to rise (Kim, Koh, & Leventhal, 2005; Nam, Nam, & Jang, 2014). Despite consistent efforts to solve the problem, the form of bullying has expanded with the addition of cyberbullying (Boulton, Hardcastle, Down, Fowles, & Simmonds, 2014). Whereas most traditional forms of bullying occur face-to-face in off-line situations, cyberbullying can occur anonymously at any time and any place, thereby significantly reducing the ways a student can avoid bullying (Englander, 2013). According to a report by the Foundation for Preventing Youth Violence (FPYV) in 2013, cyberbullying in Korea increased from 4.5% to 14.2% in the span of one year. According to another report on cyberbullying

published by the Korea Internet and Security Agency (KISA) in 2014, the percentage of students who claimed to have been bullied in cyberspace, including verbal threats and defamation of character, was 19%. As a majority of adolescents own smart phones, cyberbullying using mobile messengers and social networking services (SNS) has been increasing (O'Neill & Dinh, 2015).

Moreover, cyberbullying has been linked with more negative outcomes than traditional forms of bullying (Campbell, Spears, Slee, Butler, & Kift, 2012; Kowalski, Limber, Limber, & Agatston, 2012; Schneider, O'Donnell, Stueve, & Coulter, 2012). Most cyberbullying appears in various forms and has the characteristic of causing serious psychological pain to the victims (Kim & Song, 2013). Because texts and images, used for cyberbullying, can be copied and transmitted indefinitely via smart phones and the Internet; it is difficult to stop this process once it begins. Also, cyberbullying often occurs implicitly in an anonymous form (Lee & Oh, 2012). As the victim in cyberspace is the only one who experiences the bullying, the psychological shock is more severe than with traditional forms of bullying (Cho, 2013; Seo & Cho, 2013).

As Kowalski and Limber (2007) mentioned, the impulse for retaliation may be stronger in cyberbullying situations, resulting in the victim becoming the perpetrator. Kowalski and Limber (2007)

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reported that the primary reason behind cyberbullying among youths was retaliation, thereby increasing the likelihood of bully-victims. In fact, a study by König, Gollwitzer, and Steffgen (2010) found that 52.1% of victims in traditional bullying were perpetrators in cyberbullying.

Considering that a one standard deviation increase in student-reported prevalence of teasing and bullying (PTB) was associated with a 20.6% increase in the frequency of dropouts (Cornell, Gregory, Huang, & Fan, 2013), cyberbullying victimization may also have a similar link with dropouts based on previous studies demonstrating similar or more severe negative outcomes than traditional bullying (Campbell, Slee, Spears, Butler, & Kift, 2013; Kowalski et al., 2012; Schneider et al., 2012).

In order to prevent bullying, the role of bystanders who witness bullying is regarded as especially critical (Hawkins, Pepler, & Craig, 2001; Oh & Hazler, 2009). Considering situations in which various types of bullying (e.g., verbal, relational, physical, and cyber) overlap each other (Bradshaw, Waasdorp, & Johnson, 2015), it is challenging to develop effective prevention and intervention techniques to adequately address bullying issues. Bystanders witnessing bullying can play four types of roles (e.g., assistant, reinforcer, outsider, and defender) (Salmivalli, 1999; Salmivalli, Lagerspetz, Bjorkqvist, Osterman, & Kaukiainen, 1996). The assistants support the perpetrators' bullying behavior, while the reinforcers incite the bullying by laughing out loud or shouting. The outsiders do not take any actions, which can be interpreted as a silent acceptance of the situation. Lastly, the defenders try to stop bullying by directly interacting with the perpetrators or taking other actions such as comforting victims or reporting the situation to teachers or parents (Salmivalli et al., 1996).

Although previous studies have found that the roles of bystanders in cyberbullying are similar to those of traditional bullying (Jones, Mitchell, & Turner, 2015; Quirk & Campbell, 2015), there is some evidence to suggest that bystanders in cyberbullying may be different from traditional bullying bystanders. For instance, cyberbullies may have an experience similar to the 'cockpit effect.' The cockpit effect refers to the psychological state of air force pilots inside a cockpit, where they feel less guilt and psychological damage as they do not see or experience the pain their targets feel (Kulka et al., 1990). In cyberbullying, due to its characteristics, it is easy to participate in bullying by sending damaging messages to the victims without experiencing their pain (Kowalski, 2008; Smith et al., 2008; Vandeboosch & Van Cleemput, 2008), thus many cyberbystanders do not acknowledge that they have become a perpetrator (Kraft, 2011).

1.2. Factors influencing on bystanders reactions

1.2.1. Bystander intervention model (BIM)

The Bystander Intervention Model (BIM), espoused by social psychologists, explains the comprehensive decision making process regarding the bystanders reactions into five phases (Latané & Darley, 1970). Each phase includes the following steps: 1) Identification of the event; 2) Recognition of the situation; 3) Feeling of responsibility to provide help; 4) Deciding on the action that is needed in the situation; and 5) Execution of helping action. Bystanders go through these five steps in deciding whether or not to intervene. Each step is a prerequisite to the following one, making it necessary for the bystander to overcome challenges in any given step, in order to provide help for victims.

The five steps of BIM can be categorized into experiential, psychological, and situational factors. Previous studies identified that a bystanders' past experience of perpetration or victimization was associated with their current behaviors (Barlińska, Szuster, &

Winiewski, 2013; Van Cleemput, Vandeboosch, & Pabian, 2014). It implies that experiential factors are related with bystander's decision making process. Previous experiences of perpetration or victimization may increase bystander's sensitivity to bullying, therefore they can be more likely to identify bullying situation. Step 2 in BIM explains the impact of situational factor. As bullying occurs in complicated power dynamics among the participants (Salmivalli et al., 1996), bystanders may recognize what they can and cannot control in the situation, their relationship with bullies or victims, and their popularity among the participants. According to the previous studies, bystanders with high popularity (DeSmet et al., 2012), good relationships with victims (Forsberg, Thornberg, & Samuelsson, 2014; Patterson, Allan, & Cross, 2015), high perceived control (Romero & Kyriacou, 2016) are more likely to defend victims. In addition, Step 3 implies that psychological factors such as responsibility influence bystander's reactions. Following the procedures of the first three steps, bystanders decide whether or not to help. Therefore, the first three steps are crucial for bystanders to choose whether or not to provide help. The focus of the current study is on the first three factors of the BIM: experiential, psychological, and situational factors.

1.2.2. Experiential factors influencing on bystanders reactions

Previous studies in cyberbullying showed that personal experiential factors are related to defending behavior (Barlińska et al., 2013; Van Cleemput et al., 2014). Van Cleemput et al. (2014) concluded that bystanders who were the victims of cyber or traditional bullying in the past months were more likely to defend the victim. Barlińska et al. (2013) reported that a bystander's past perpetrating experience predicts negative bystander's behaviors. Bystanders with experience being a perpetrator are more accepting toward bullying and they show more positive attitude toward aggression (Slee & Rigby, 1993).

1.2.3. Psychological factors influencing on bystanders reactions

The cyber bystanders' defending behavior is affected by individual's psychological characteristics including moral disengagement, anti-social conformity, and empathy (Bastiaensens et al., 2014; DeSmet et al., 2014, 2012; Patterson et al., 2015). DeSmet et al. (2012) reported that bystanders show defending behaviors in cyberbullying when moral disengagement is low; the relationship with victim is good; and the bystander boasts high popularity. A bystander with low moral disengagement tends to show more proactive defending behaviors based on high level of moral evaluation and reasoning skills (Patterson et al., 2015; Shultz, Heilman, & Hart, 2014; Van Cleemput et al., 2014). Bastiaensens et al. (2016) also reported that peer pressure as a form of anti-social peer conformity was related with bystanders' defending behaviors. If bystanders show an accepting attitude toward peer group cyberbullying, they tend to actively assist and support the perpetrating behavior due to peer pressure. Empathy is also a major component of bystander intervention, because the cyber bystanders, understanding victim's feelings well, are more likely to defend victims when they witness cyberbullying (Batanova, Espelage, & Rao, 2014). However, the effect of empathy on the bystanders' defending behaviors is controversial as several studies reported contradictory findings. For example, Barlińska, Szuster, and Winiewski (2015) reported that cognitive empathy suppressed the tendency for cyber bystanders' motivation to get involved in the bullying. On the other hand, Shultz et al. (2014) concluded that there was no difference in empathy between defenders and outsiders in cyberbullying. Therefore, the current study sought to examine the role of empathy among bystanders in cyberbullying.

1.2.4. Situational factors influencing on bystanders reactions

Previous studies on cyberbullying focus on more individual or psychological factors than contextual factors (Guo, 2016; Kowalski, Giumetti, Schroeder, & Lattanner, 2014), which raises a need for a study investigating the effect of situational factors. The situational factor has been regarded as an important factor in predicting bystander's reaction in traditional bullying (Pozzoli & Gini, 2013). According to the BIM, the first two stages are related to situational factors, because bystanders must become fully aware of the situation in order to provide help. The current study investigated the factors that affect bystander's reaction in cyberbullying from situational perspective as well as personal perspective.

DeSmet et al. (2016) reported the importance of situational factors at the school and class levels in cyberbullying. Low class level of victim blaming predicted a higher occurrence of positive bystander behavior. The norms of peers, a situational factor, were reported as influencing bystander behavior in cyberbullying as well (Bastiaensens et al., 2015; Patterson et al., 2015). In addition, if a close friend is involved in bullying, bystanders can evaluate the situation quickly and intervene as needed (Forsberg et al., 2014; Patterson et al., 2015).

1.3. Bystander effect in cyberbullying

The bystander effect refers to cases in which individuals do not offer any means of help to a victim when others are present (Latané & Darley, 1970). Based on the bystander effect, it has been assumed that bystanders are more likely to defend victims when witnessing bullying alone. Macháčková, Dedkova, and Mezulanikova (2015), Obermaier, Fawzi, and Koch (2014), and Olenik-Shemesh, Heiman, and Eden (2015) supported the assertion that bystanders in cyberbullying did not intervene when other bystanders were present in the same situation because the responsibility for intervention was diffused among all the watching bystanders. In the presence of other bystanders, bystanders tend to believe that someone else would defend the victims (Obermaier et al., 2014; Olenik-Shemesh et al., 2015). In addition, it was found that bystanders are less likely to defend victims when there are many others watching without helping, because they assume that the bullying is not serious enough for intervention, a phenomenon referred to as 'pluralistic ignorance' (Obermaier et al., 2014; Olenik-Shemesh et al., 2015).

Recognition of the seriousness of the cyberbullying situation can increase the probability of bystander's intervention (Dillon & Bushman, 2015). Bastiaensens et al. (2014, 2015), Obermaier et al. (2014), and Patterson et al. (2015) reported that the bystanders are more likely to demonstrate defending behaviors when they think the situation is serious. Assessing the seriousness of the cyberbullying situation is an important situational factor that can determine whether or not a bystander will intervene. Also, Brody and Vangelisti's (2016) study specifically examined whether the number of bystanders and other related situational factors predicted bystander intervention in cyberbullying. The results provided support for the role that diffusion of responsibility can play in cyberbullying among college students. Compared to their study, the current study is significant not only in investigating the effectiveness of bystander effect but also in identifying predictors interacting with existence of other bystanders.

As reviewed above, personal, psychological, and situational factors are related with a bystander's reactions to cyberbullying. In order to identify key factors influencing cyber bystanders' reaction in terms of the above three factors, previous studies published in the past five years were searched by using the key words of cyberbullying and bystanders. More than 10 variables emerged

based on the result. Previous experiences of perpetrators/victims (Barlińska et al., 2013), moral disengagement (DeSmet et al., 2014, 2012; Price et al., 2014), empathy (Barlińska et al., 2013, 2015; Macháčková et al., 2015), loneliness (Olenik-Shemesh et al., 2015), pro-social behavior (Macháčková, Dedkova, Sevcikova, & Cerna, 2013), attribution (Holfeld, 2014; Shultz et al., 2014), social support (Olenik-Shemesh et al., 2015), self-efficacy (DeSmet et al., 2014; Macháčková et al., 2015; Olenik-Shemesh et al., 2015), social status (DeSmet et al., 2012), relationships to peers (Bastiaensens et al., 2014; DeSmet et al., 2014, 2012; Macháčková et al., 2015; Patterson et al., 2015; Price et al., 2014), parental support (DeSmet et al., 2014), bystander effect (Macháčková et al., 2015; Obermaier et al., 2014), seriousness of bullying (Bastiaensens et al., 2014; Dillon & Bushman, 2015; Obermaier et al., 2014; Patterson et al., 2015), perceived control of the situation (Holfeld, 2014). Multiple criteria for selecting research variables were applied such as the effect sizes of the predictors and the complexity of research model (e.g., the number of independent variables). Finally, nine predictors (two experiential, three psychological and four situational variables) were chosen.

The current study focused on the impact of previous bullying or victimization experience as personal factors. As for psychological factors, the variable of anti-social conformity was selected, considering that bullying often occurs according to group dynamics in which many bystanders follow another's reactions (Pozzoli & Gini, 2010). Also, we explored whether moral disengagement, which has received increased attention in recent bullying research, has an influence on a bystander's reaction (DeSmet et al., 2016, 2014; Forsberg et al., 2014; Hymel, Schonert-Reichl, Bonnano, Vaillancourt, & Rocke Henderson, 2010). In addition, we sought to verify whether empathy influences the behavior of bystanders in circumstances of cyberbullying, as empathy was found to be a significant predictor of a bystander's reaction in traditional bullying (Oh & Hazler, 2009; Seo, 2008). As for situational factors, we sought to verify whether perceived control of situations, recognition of the ability to control circumstances when witnessing bullying, the relationship with the victim or the bully, and a difference in popularity between the victim or the bully and bystanders influenced a bystander's behavioral reactions.

The current study expands the existing research results by exploring the discriminating factors influencing the behaviors of bystanders in terms of the existence of other bystanders and the influence of the three factors as a whole on bystanders. Therefore, the current study seeks to identify the interaction effect between the presence and absence of other bystanders and predicting factors influencing on bystanders behavior in cyberbullying.

RQ1: Is 'bystander effect' valid in bystander's behavioral reactions in cyberbullying?

RQ2: What are the experiential, psychological, and situational factors influencing the behavioral reactions of bystanders in cyberbullying?

RQ3: Is there interaction effect between presence and absence of other bystander and predicting factors influencing on bystanders behavior in cyberbullying situation?

2. Methods

2.1. Participants

A paper-based survey by organizational sampling method was done at nine schools (five middle and four high schools) in the Seoul Metropolitan Area, because it has been reported that cyberbullying is the most frequently occurring during middle and high

school period (Quirk & Campbell, 2015). In order to minimize idiosyncratic characteristics of a certain school, the survey was done at multiple schools. A power analysis was conducted in order to determine the appropriate sample size. With regard to multiple regressions, Tabachnick and Fidell (2001) suggested that the minimum number of participants should be larger than $50 + 8(m)$, where m is the number of predictor variables, in order to achieve a moderate effect size and power of 0.80. The calculated minimum sample size based on this formula was 122, which was smaller than the sample size in the current study.

After excluding students who rejected to participate, a total of 1058 students agreed to take the survey, 532 middle school students (279 male, 253 female) and 526 high school students (280 male, 246 female) took the survey. Incomplete 103 students' answers including outliers were eliminated as well. Since 624 (58.9%) students reported that they have never witnessed bullying, data for the remaining 331 students were analyzed. The mean age of the participants was 16.5 years (range = 14–19). The data pool included middle ($n = 141$; 72 male, 69 female) and high ($n = 190$; 90 male, 100 female) school students.

2.2. Procedure

58 students (30 middle school students and 28 high school students) participated in the pilot survey. The revised questionnaire based on feedback of the pilot survey was distributed to 1058. After a teacher's instruction, students completed the survey anonymously. Each student who completed the survey received approximately USD 3.00 gift. Prior to the survey, the students were informed of the concept of cyberbullying as well as agreement of informed consent. The average time of completing the questionnaire was 35 min.

2.3. Measures

2.3.1. Anti-social conformity

To measure anti-social conformity, the study utilized the Peer Conformity Inventory (PCI) (Berndt, 1979). While the original assessment consisted of 13 questions, the study utilized six questions that asked about the tendency to violate social norms. For examples, 'What would I do if a friend asks me to come with him/her to cyber café instead of private lessons?' 'What would I do if my friends ask me to jaywalk?' A four-point Likert scale was utilized for answers. Students provided answers ranging from "Never accompanied by friends (1)" to "Always accompanied by friends (4)." It was assumed that a high score indicated a high level of anti-social conformity. The internal reliability (Cronbach's α) of anti-social conformity for the study was 0.75.

2.3.2. School bullying bystander survey (SBBS)

This survey was designed to measure a bystander's response while watching bullying situations in terms of personal and situational variables (Oh & Hazler, 2009). A couple of studies (Oh, 2010; Song & Oh, 2017) have utilized the Korean translated version of the SBBS, which includes 12 items asking the participant's experience of: A) witnessing bullying; B) being bullied; and C) bullying. Sections B (victimization) and C (bullying) are based on a global measure of the bullying scale which shows good validity and reliability (Solberg & Olweus, 2003). The reliability of the SBBS was not reported due to the nature of the survey which is a set of questions asking a series of various experiences rather than measuring a degree of a particular behavior or construct with multiple items. For example, what was the victim's gender? How popular was the victim? What is the relationship between the victim and yourself?

The survey first defined "cyberbullying" and prompted the participant to recall the ONE particular bullying episode that was most memorable, followed by a series of questions. The questions included: "What kind of bullying was it?" (Types of bullying); "How serious was it?" (Seriousness); "Were there any other bystanders?" (Presence of other bystanders); and "Did you think that you could stop the situation?" (Perceived control). In addition, to identify the bullies and victims, the participants were asked gender, grade, and popularity level of the bullies and victims, as well as their relationships with other participants in the bullying situations. The questions were multiple-choice type. For questions measuring the popularity level, seriousness of the situation, and the participant's ability to intervene, a five-point Likert scale was used.

2.3.3. Participant role scale (PRS)

To identify the roles of the bystanders, a modified measurement based on the PRS (Salmivalli et al., 1996; Seo, 2008) was used. The measurement categorized each bystander into one of four types (i.e., assistant, reinforcer, outsider, and defender). It consists of eight questions, two questions asking the role of four bystander types. The selected items are derived from the Korean PRS which was modified and validated by Seo (2008). The eight items are selected items showing the highest factor-loading value in the four types. For example, 'I comforted and helped the victim (defender),' 'I stood there, watching the situation without taking any actions (outsider),' 'I cheered the action (reinforcer),' 'I helped out the perpetrator (assistant).' The students were asked to choose the closest behavioral descriptor in cyberbullying situations. This original modified PRS has been used by several previous studies (Choi & Cho, 2013; Oh & Hazler, 2009; Oh, 2010; Song & Oh, 2016). As it is based on traditional bullying, the modified PRS was adapted to measure bystander roles in online contexts by asking their behavioral reactions to cyberbullying. A reliability statistic is not reported due to the nature of the instrument. However, the reliability of the original PRS and its modified forms were reported from 0.79 to 0.95 (Salmivalli, 1999; Oh & Hazler, 2009; Seo, 2008, 2015).

2.3.4. Moral disengagement

The Mechanism of Moral Disengagement Scale (MMDS) consists of 29 questions (Bandura, Barbaranelli, Caprara, & Pastorelli, 1996) which are divided into eight sub-categories: moral justification, euphemistic labeling, advantageous comparison, disregard or distortion of consequences, displacement of responsibility, diffusion of responsibility, dehumanization, and attribution of blame. The MMDS was used to identify the level of moral disengagement. Sample items are as follow: 'Hitting on that obnoxious kid helps him/her to realize the fault', 'It is okay to pick on others to show interest', 'There are some people who deserve to be treated like an animal.' The study utilized a five-point Likert scale ranging from "Very not true (1)" to "Very true (5)." It was assumed that a high score indicated a high level of moral disengagement. The internal reliability (Cronbach's α) of moral disengagement for the study was 0.89.

2.3.5. Empathy

The empathy was measured through the questionnaire that was created by Park (1997) based on Interpersonal Reactivity Index (IRI) by Davis (1980) and Index of Empathy for Children and Adolescents by Bryant (1982). Empathy scale was divided into cognitive and affective empathies. Sample items are as follow: 'I try to put myself in my friend's shoes before saying bad things to him/her (cognitive empathy)' and 'I often feel anxious about the person who are in worse situation than myself (affective empathy).' For each category, five questions were asked. The answers were measured using a

five-point Likert scale ranging from “Very not true (1)” to “Very true (5).” The internal reliability (Cronbach's α) of empathy for the study was 0.71.

3. Results

3.1. Statistical analysis

Data were analyzed using SPSS 20.0. Normality assumption checks were made as necessary before implementing *t*-test and regression. In addition, correlation matrix, tolerance and variance inflation factor (VIF) were checked to identify multicollinearity. To identify the bystander role distribution, a descriptive analysis including frequency analysis was used. A Pearson correlation analysis yielded relationships between major variables. Chi-square analysis was used to identify grade and gender differences among bystander types. A *t*-test was conducted to examine if the ‘bystander effect’ is effective by comparing bystander's reaction between presence and absence of other bystanders. Since the dependent variable (bystander's role) was assessed as a categorical variable, a categorical regression analysis including an optimal scaling procedure was used. Bystander's role was categorized into four types: defender, outsider, reinforcer and assistant in order of tendency to help the victim (Oh & Hazler, 2009), therefore a bystander's defending tendency was measured in ordinal scale. However, Berry (1993) concluded that ordinal dependent variable is not appropriate for linear regression analysis, so the current study converted the ordinal scale into continuous scale utilizing categorical regression analysis with optimal scaling procedure (SPSS, 2004). Several previous studies took the same approach in converting the ordinal scale (Han & Oh, 2014; Oh & Hazler, 2009; Oh, 2010; Salmivalli & Voeten, 2004). The optimal scaling rescaled the original categorical variable to a continuous variable, followed by a hierarchical regression analysis with the transformed variables. Two steps of a hierarchical regression were conducted. First, the presence of other bystanders and the nine experiential, psychological, and situational variables were entered in the first step. Second, the interaction term between the presence of bystanders and the nine predictors were entered additionally in the second step to examine interaction effect of presence of bystanders.

3.2. Distribution of bystander types

In cyberbullying situations, outsiders (201 participants, 60.7%) were the majority of bystanders, followed by defenders (101 participants, 30.5%), reinforcers (18 participants, 5.4%), and assistants (11 participants, 3.3%). Chi-square test examined the difference in distribution of bystander types by gender and grade. The test showed that there was no significant difference between gender ($\chi^2 = 4.520$, $p = 0.211$, Cramer's $V = 0.117$) and grade ($\chi^2 = 2.661$, $p = 0.447$, Cramer's $V = 0.090$). Therefore, gender and grade were not included as control variables in the subsequent regression model.

3.3. Transformation of the dependent variable by optimal scaling

To identify the relative effects of experiential, psychological, and situational aspects on a bystander's behavioral reactions, the bystander roles were assigned a defending tendency measure through an optimal scaling procedure. The optimal scaling converted the original values (e.g., one for assistant, two for reinforcer, three for outsider, and four for defender) into transformed ones: assistant (−3.06), reinforcer (−1.72), outsider (−0.16), and defender (1.22). A higher dependent variable score refers to a higher defending tendency toward victims in a cyberbullying situation.

3.4. Correlations between experiential, psychological, situational variables, and a bystander's reaction

Table 1 shows the relationships between the defending tendencies of bystanders and the independent variables. A bystander's defending tendency showed significant negative correlation with experience of perpetration ($r = -0.20$, $p < 0.001$), moral disengagement ($r = -0.26$, $p < 0.001$), anti-social conformity ($r = -0.30$, $p < 0.001$), and relationship with bully ($r = -0.23$, $p < 0.001$). In other words, with no experience of perpetration, low moral disengagement, low anti-social conformity, and bad relationship with perpetrator, bystanders tended to show a higher defending tendency toward victims. On the other hand, among the independent variables, empathy ($r = 0.15$, $p = 0.005$) and perceived control ($r = 0.17$, $p = 0.002$) showed significant positive correlation with a bystander's defending tendency. This means that those who are empathetic and believe that they can control the situation are more likely to defend the victims.

3.5. Identification of the bystander effect in cyberbullying (RQ1)

A *t*-test was conducted to identify how the presence of other bystanders affected a bystander's defending tendency toward victims. Consequently, there was a significant difference in defending tendency ($t = -2.06$, $p = 0.04$) between the two situations: presence of other bystander ($n = 172$, $M = -0.03$, $SD = 0.99$) and absence of other bystander ($n = 159$, $M = 0.19$, $SD = 0.94$). However, the effect size of mean difference was relatively small (Cohen's $d = 0.226$). When bystanders witnessed cyberbullying by themselves, they were more likely to defend the victims, which implies the bystander effect is valid in cyberbullying situations.

3.6. Factors influencing a bystander's behavioral reactions according to the existence of other bystanders (RQ2 & RQ3)

As shown in Table 2, in the first step of the hierarchical regression analysis, nine experiential, psychological, and situational variables including moderating variable of existence of other bystanders were entered. The variables explained 18.7% of a bystander's defending tendency. Moral disengagement ($\beta = -0.154$, $p < .01$), anti-social peer conformity ($\beta = -0.158$, $p < .01$), perceived control ($\beta = 0.132$, $p < .05$), and relationship with the bully ($\beta = -0.186$, $p < 0.01$) had a significant effect on defending tendency. This implies that bystanders with low moral disengagement, low anti-social conformity, high perceived control and those without a close relationship with bullies are more likely to defend victims. When the interaction variables were entered in the second step, the existence of other bystanders showed a significant moderating effect with both moral disengagement ($\beta = -0.120$, $p < .05$) and relationship with bullies ($\beta = 0.164$, $p < .01$). The effect sizes (Cohen's f^2) of the first and second steps of the hierarchical multiple regression were 0.230 and 0.303 respectively.

As shown in Fig. 1, bystanders with high moral disengagement had low defending tendency regardless of existence of other bystanders, but bystanders with low moral disengagement had very different defending tendency depending on the presence of other bystanders. On the other hand, bystanders having a negative relationship with bullies showed high defending tendency regardless of existence of other bystanders, but bystanders having a positive relationship showed very different defending tendency according to existence of other bystanders as shown in Fig. 2.

The results of the simple slope analysis for high and low moral disengagement between the presence and absence of bystanders showed the different effects. Bystanders with high moral disengagement did not have a statistically significant difference between

Table 1

Correlations between a bystander's reaction and independent variables (n = 331).

	M	SD	1	2	3	4	5	6	7	8	9	10
1. bystander's reaction	0.07	0.97	—									
2. EV	−0.08	0.95	−0.10	—								
3. EP	−0.01	0.99	−0.20 ^c	0.31 ^c	—							
4. MD	−0.06	1.08	−0.26 ^c	0.12 ^a	0.20 ^c	(0.89)						
5. ASC	0.00	0.95	−0.30 ^c	0.09	0.28 ^c	0.32 ^c	(0.75)					
6. empathy	−0.01	1.21	0.15 ^b	−0.11 ^a	−0.09	−0.16 ^b	−0.23 ^c	(0.71)				
7. PC	0.05	0.99	0.17 ^b	−0.10	−0.03	−0.10	−0.14 ^b	0.04	—			
8. RV	−0.13	0.96	−0.04	0.03	0.16 ^a	0.08	0.07	0.17 ^b	0.06	—		
9. RB	−0.13	1.00	−0.23 ^c	0.03	0.26 ^c	0.10	0.24 ^c	0.03	0.08	0.42 ^c	—	
10. popularity	0.01	1.01	0.07	−0.14 ^c	0.09	0.05	−0.04	−0.02	0.15 ^b	0.10	0.02	—

Note. EV: experience of victimization; EP: experience of perpetration; MD: moral disengagement, ASC: anti-social conformity; PC: perceived control; RV: relationship w/ victim; RB: relationship w/bully.

^a $p < 0.05$, ^b $p < 0.01$, ^c $p < 0.001$. Cronbach's alphas are shown in the diagonal.

Table 2

Summary of hierarchical regression model in terms of presence and absence of other bystanders.

	Factors	Variables	β	p	F(p)	R ² (Adj. R ²)	ΔR^2
1 step	Moderator	Presence of bystanders	0.053	0.312	7.370*** (0.000)	0.187 (0.162)	—
		†Experience of victimization	−0.008	0.889			
	Experiential	†Experience of perpetration	−0.065	0.255			
		Moral disengagement	−0.154**	0.005			
		Empathy	0.082	0.127			
	Psychological	Anti-social peer conformity	−0.158**	0.006			
		Perceived control	0.132*	0.012			
		Relationship w/Vitim	0.058	0.309			
		Relationship W/Bully	−0.186**	0.002			
		†Difference of popularity	0.053	0.307			
2 step	Moderator	Presence of bystanders	0.051	0.324	4.974*** (0.000)	0.233 (0.186)	0.046
		†Experience of victimization	−0.011	0.837			
	Experiential	†Experience of perpetration	−0.060	0.290			
		Moral disengagement	−0.148**	0.007			
		Empathy	0.100	0.107			
	Psychological	Anti-social peer conformity	−0.138*	0.017			
		Perceived control	0.138**	0.008			
		Relationship w/Vitim	0.069	0.232			
		Relationship W/Bully	−0.229***	0.000			
		†Difference of popularity	0.055	0.290			
	Situational	EB*EV	0.055	0.318			
		EB*EP	−0.068	0.231			
		EB*MD	−0.120*	0.030			
		EB*ASC	−0.030	0.630			
		EB*Em	0.083	0.152			
		EB*PC	0.047	0.367			
		EB*RV	−0.045	0.431			
		EB*RB	0.164**	0.005			
		EB*DP	0.069	0.187			

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$.

†dummy variables = experience of victimization (no = 0, yes = 1), experience of perpetration (no = 0, yes = 1), popularity (bully is more popular than me = 1, Bully is as popular as me = 2, I am more popular than bully = 3).

the presence and absence of other bystanders in regards to their defending behaviors ($t(0.020) = 0.001$, $p = 0.984$). However, bystanders with low moral disengagement had different defending tendencies depending on the presence of other bystanders ($t(2.644) = 0.198$, $p < 0.01$). Despite there being no significant differences in defending behaviors for bystander who have and have not had a negative relationship with a bully ($t(-0.957) = -0.074$, $p = 0.339$), bystanders who had a positive relationship with a bully ($t(2.916) = 0.222$, $p < 0.01$) showed different defending behaviors depending on the presence or absence of other bystanders.

4. Discussion

Outsiders were the most dominant type of bystander witnessing cyberbullying with 60.7%, followed by defenders (30.5%), re-inforcers (5.4%), and assistants (3.3%). The high percentage of

outsiders may be explained by the cockpit effect as cyber bystanders may not recognize an interaction as cyberbullying or feel less guilt regarding it. The lack of bystander action in cyberbullying could be beneficial to the victims. It could play a role in blocking cyberbullying, because a lack of bystander action still means the harassing messages, videos, or photos are not being transmitted to others (Barlińska et al., 2013; Spears, Slee, Owens, & Johnson, 2009). However, bystanders' lack of responses may result in exacerbating the cyberbullying (Barlińska et al., 2013; Spears et al., 2009) by underestimating the significance of the situation. The outsider group is regarded as a 'potential defender' because they comprise the majority of bystanders, so it is imperative to intervene with outsiders, thereby changing their roles from outsiders to defenders for victims.

The result of this study supported the findings of other studies (Obermaier et al., 2014; Olenik-Shemesh et al., 2015), which

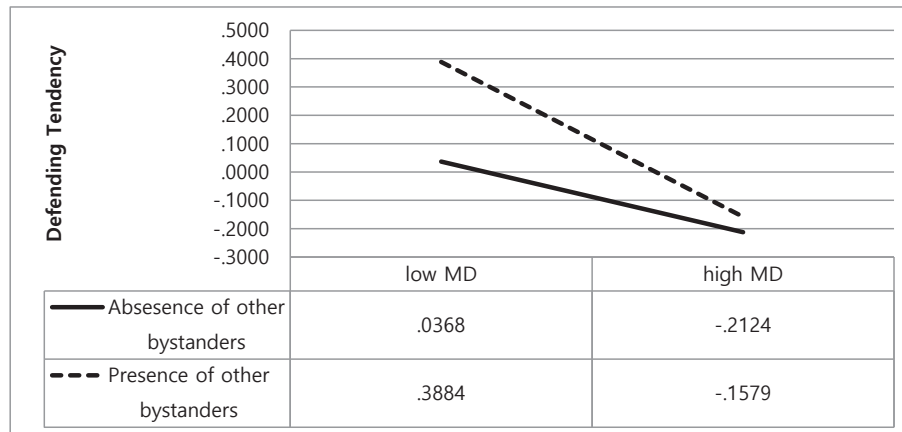


Fig. 1. Difference in bystander's defending tendency between their high and low moral disengagement depending on presence and absence of other bystanders.



Fig. 2. Difference in bystander's defending tendency between their bad and good relationship with bully depending on presence and absence of other bystanders.

provided evidence that a bystander's defending behaviors decreased in the presence of other bystanders. Therefore, the current study confirmed that the bystander effect was valid in a cyberbullying situation as well as an emergency situation. The bystander effect can lead to responsibility diffusion and pluralistic ignorance in the presence of multiple bystanders (Darley & Latané, 1968; Prentice & Miller, 1996), thereby lowering the possibility of bystanders' defending actions. As the bystander effect was valid in cyberbullying, the large number of other witnesses of cyberbullying may deter bystander from defending victims. Thus, it will be effective to educate bystanders to recognize the situations seriously and to collaborate each other to stop cyberbullying.

Previous studies revealed that a bystander's low defending tendency for victims is influenced by the bystander's psychological factors such as bystander's characteristic including fear of becoming the next target (Forsberg et al., 2014) or lack of effective countermeasures (Thornberg & Jungert, 2013). However, this study is significant in revealing that situational factors as well as psychological factors were related to bystander's reactions. Precise causality cannot be established due to the nature of the current study, which is based on cross-sectional design. Therefore, careful interpretation is needed to understand the relationships among the variables.

As for psychological factors, low moral disengagement and low anti-social conformity significantly predicted a bystander's higher

defending tendency. This result is similar to that of previous studies reporting that bystanders with high moral disengagement are more likely to overlook bullying or assist bullies (DeSmet et al., 2014, 2012; Menesini, Codecasa, & Benelli, 2003; Patterson et al., 2015; Shultz et al., 2014; Van Cleemput et al., 2014). Bystanders with low moral disengagement tend not to shift their responsibility to defend victims to others, thereby increasing their defending behaviors toward victims. It seems that low moral disengagement helps bystanders make positive moral judgments and recognize that they are persons who might defend the victims. Conformity is relatively high in adolescence compared to adult (Berndt, 1979; Coleman, 1978), so it will be very difficult for middle and high school students to overcome peer-pressure. Therefore, it will be critical to help students maintain low anti-social conformity from developmental perspective.

Situational factors such as high perceived control of the bullying situation and negative relationships with bullies significantly predicted a bystander's higher defending tendency. A bystander's high perceived control of a bullying situation strongly predicts a bystander's defending tendency, because a bystander's recognition of perceived control in a bullying situation can provide confidence to defend victims. Self-efficacy is a person's ability to execute a particular action successfully (Bandura, 1997), thereby producing a desired outcome. Considering a previous study showing that a bystander's higher self-efficacy predicted higher level of defending

behavior (Thornberg, Wänström, Hong, & Espelage, 2017), meaning that bystanders with higher levels of perceived control are more likely to defend victims in cyberbullying as well. In addition, bystanders with negative relationships with bullies were more likely to defend victims. Defending behaviors of victims is akin to opposing the bully, so bystanders were more likely to defend victims when they had fewer relationships with bullies. Previous several studies stressed that the student-student relationship quality significantly impact the bystanders' reactions (Thornberg et al., 2017) and the bystanders' relationship with the perpetrator is related with their intent to help in situations involving sexual violence (Bennet, Banyard, & Edwards, 2017).

In particular, a moderation effect was found between the existence of other bystanders and moral disengagement and relationship with bullies. Bystanders with low moral disengagement showed sensitivity to the existence of other bystanders. According to a theory of moral behavior (Tangney, Stuewig, & Mashek, 2007), a person's moral behavior (e.g., defending victims) is determined by moral reasoning, which is based on recognition of personal circumstances. The results of simple slope analysis indicated that bystanders with low moral disengagement are more likely to defend victims, especially in the presence of other bystanders. This can be interpreted in terms of the arousal/cost-reward model of helping behaviors. Bystanders would determine the cost and benefit of their reaction to a victim while witnessing bullying (Dovidio, Piliavin, Gaertner, Schroeder, & Clark, 1991). If bystanders want to receive positive consequences such as social recognition by others, bystanders would be more likely to defend victim in the presence of other bystanders. Bystanders with low moral disengagement would be more compliant with the expectations of others. According to Kohlberg's theory of moral development (Vozzola, 2014), the moral reasoning of adolescents is more based on society's views and expectations than when compared to adults. Therefore, adolescents with low moral disengagement would be more receptive to approval from others, thereby increasing their tendency to defend victims in the presence of others.

Bystanders having a positive relationship with bullies showed a very different defending tendency according to the existence of other bystanders. It seems that bystanders with a positive relationship with bullies seldom defended victims in the absence of other bystanders in order to maintain their relationship. However, the defending tendency increased significantly in the presence of other bystanders. It implies that even bystanders with a positive relationship with bullies moderate their behaviors when they are aware of existence of other bystanders. This result suggests that a bystander's reaction depends on contextual situations. In other words, it implies that intervention should be customized in terms of presence and absence of others. Therefore, more sophisticated intervention considering contextual situations would be more effective. On the other hand, seven out of the nine predictors in the regression model did not show a significant moderation effect with the presence of other bystanders. For example, past experience of victimization or perpetration, empathy, and anti-social conformity did not significantly moderate the relationship between the presence of other bystanders and defending behaviors. It seems that empathy and conformity are more related to an individual's personal characteristic, while moral disengagement is more dependent on the circumstance. However, this interpretation is still tentative and further study is required to explain clearly why the seven other variables were not significant moderators.

In conclusion, most of the bystanders witnessing cyberbullying were identified as outsiders. Therefore, proactive approaches reducing cyberbullying through educational intervention designed to change outsiders to defenders are imperative. Our study verified

that the bystander effect is valid in cyberbullying. This signifies that bystanders' defending behaviors are influenced not only by psychological factors, but also by situational factors. The degree of moral disengagement, anti-social conformity, perceived control, and relationship with bullies were identified as significant psychological factors influencing bystanders' behavioral reactions, so interventions including such variables would likely be effective. In particular, the existence of other bystanders moderated the effect of moral disengagement and their relationship with bullies on a bystander's defending tendency. Therefore, more sophisticated interventions considering the differential factors influencing a bystander's behavioral reactions in terms of existence of other bystanders will likely show improved effectiveness.

Recommendations for a further study are as follow. A large number of participants ($n = 624$) were excluded from analyses because they did not report witnessing cyberbullying. Additional t -test comparing the two groups (witness vs. non-witness) in terms of research variables yielded no significant differences. However, it will be valuable for a future study to examine the potential differences between the two groups.

As for the SBBS measuring a bystander's behavior and situational variables when a student witnessed bullying situation, its construct validity was secured because it is based on pre-established School Bullying Survey (Hazler, Hoover, & Oliver, 1991). However, the reliability of the SBBS was not reported due to the nature of the scale based on survey methodology. Therefore, it is recommended to use a more validated instrument measuring bystander's behaviors in future studies. In addition, the moral disengagement scale in this study was not specific enough for cyberbullying, thus it measured only the level of moral disengagement in general. Therefore, it will be better to customize the scale for a future study.

The current study's sample size on reinforcers and assistants was not large enough. Therefore, a further study with a larger sample is required to confirm the characteristics of the reinforcers and assistants. In addition, it will be meaningful to investigate the effect of the number of bystanders witnessing bullying situation on bystander's reactions. In the current study, variation in group behavior by classes was not investigated, but it will be meaningful to examine class effect by multilevel analyses. Lastly, it is likely that some students occupy multiple of the roles depending on the situation (König et al., 2010; Pozzoli & Gini, 2013; Sokol, Bussey, & Rapee, 2015), so a student can defend a victim who is a friend, but assist the bully who is popular at the same time. Bystander roles can be changed in terms of multiple situations, a future study examining how participant's roles are changing according to the characteristics of bullying situations is recommended.

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