The Investigation of Relationship among Relational–Interdependent Self–Construal, Cyberbullying, and Psychological Disharmony in Adolescents: An Investigation of Structural Equation Modelling

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Abstract

The aim of this study is to investigate the effect of relational-interdependent self-construal on cyberbullying and the effect of cyberbullying on psychological disharmony. Participants were 258 high school students. In this study, the Relational-Interdependent Self-Construal Scale, the Revised Cyberbullying Inventory, and the Depression, Anxiety, Stress Scale were used. In correlational analysis, cyberbullying and cyber victimization were found negatively related to relational-interdependent self-construal. On the other hand, cyberbullying and cyber victimization were found positively related to depression, anxiety, and stress. The goodness of fit indices indicated that the model was fit. According to structural equation modelling (SEM) results, relational-interdependent self-construal predicted negatively cyberbullying, and cyberbullying predicted psychological disharmony in a positive way.

Key Words

Relational-Interdependent Self-Construal, Cyberbullying, Psychological Disharmony.

With the advancement in technology, mobile phones, social network sites, and internet have been important part of social life. According to Internet World Stats (2010), about 29 per cent of world's population have used internet, and percentage of internet users have increased by 445 % from 2000 to 2010. Turkey already has 35 million Internet users, the fifth highest in Europe and the 13th worldwide. Households Information and Communication Usage Survey indicated that 30 per cent of households have internet access (Türkiye İstatistik Kurumu [TÜİK], 2010). These statistics display usage of common in worldwide.

The explosion of internet and its use by adolescents has many potential benefits. This technology allows adolescents to communicate people simultaneously, quickly and easily assess information sources about a broad number of topics, and provides opportunities for adolescents to establish social connections. Nonetheless a potential risk of using internet heavily, impulsively, and unconsciously for personal development in adolescents has emerged (Colwell & Kato, 2003; Kerberg, 2005). With the advancement in communication and information technology, traditional bullying has moved into the virtual environment and transformed itself into a new form called cyberbullying (Scaglione & Scaglione, 2006; Yaman, Eroglu, & Peker, 2011).

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Cyberbullying is defined as the use of information and communication technologies to support deliberate, repeated, and hostile behaviour by an individual or group, that is intended to harm others (Belsey, 2008). Willard (2007) defined cyberbullying as using information and communication technologies to send hurtful messages to others and act socially aggressive. Williams and Guerra (2007) defined cyberbullying as the wilful use of the communication technologies including internet, e-mail, and blogs to insult, denigrate, and make fun of others.

Researches on prevalence of cyberbullying (Beran & Li, 2005; Campbell, 2005; Li, 2006; National Children's Home [NCH] & Tesco Mobile, 2005; Raskauskas & Stoltz, 2007; Smith, Mahdavi, Carvalho, & Tippett, 2006; Ybarra and Mitchell, 2004) have indicated that cyberbullying is common. Studies in Turkey (Akbulut, Şahin, & Erişti, 2010; Arıcak, 2009; Arıcak et al., 2008; Dilmaç, 2009; Dilmaç & Aydoğan, 2010; Eroğlu, 2011; Erdur-Baker & Kavşut, 2007; Peker & Eroğlu, 2010) have displayed that cyberbullying and cyber victimization is common. Furthermore, researches in Turkey have been concerned with developing scales to measure cyberbullying and cyber victimization (Ayas & Horzum, 2010; Akbulut et al., 2010; Çetin, Yaman, & Peker, 2011; Topçu & Erdur-Baker, 2010).

Cyberbullying differs from traditional bullying in various ways. Traditional bullying is done directly (Olweus, 1993) or indirectly (Bjorkqvist, Lagerspetz, & Kaukianien, 1992). Direct bullying involves a great deal of overt aggression such as pushing, hitting, teasing, angering, and threatening. However, indirect bullying such as excluding someone from group and gossiping involves manipulate social status of victims by changing thoughts about victims (Hawker & Boulton, 2000). Cyberbullying occurred through instant messaging, mobile phone, e-mail, chat room, social network site, blog, forum, and web sites (Campbell, 2005).

Anonymity allows cyberbullies to more easily make victims feel helpless, overcome social inhibitions, and express freely aggressive. Therefore, cyberbullying is more dangerous than traditional bullying (Patchin & Hinduja, 2006). Cyberbullying messages can be quickly disseminated to a wide audience. The characteristic of cyberbullying makes it extremely difficult to control. Messages hurtful for cyber victims can also be quickly shown in large numbers by electronic devices. This increases the humiliation felt by the victim. Cyberbullying may occur at any time of day or night and this can mean that there is no safe haven for children (Belsey, 2008; Kowalski & Limber, 2007).

Researches concerned with academic effects of being victim of cyberbullying indicate that cyber victims report a sudden drop in grades (Beran & Li, 2007), increased absences and truancy (Katzer, Fetchenhauer & Belschak, 2009; Raskauskas & Stoltz, 2007), and perceptions that school is no longer safe (Varjas, Henrich, & Meyers, 2009). Decrements in academic performance can emanate to victims' poor concentration and feelings of helpless (Beran & Li, 2007; Patchin & Hinduja, 2006). Ybarra, Diener-West and Leaf (2007) found that extremely cyber victimized is related to cutting class, accumulating detentions and suspensions, and carrying weapons onto campus.

Psychological problems are demonstrated in cyber victims. Cyber victims suffer depression (Aoyoma, 2010; Didden et. al., 2009; Perren, Dooley, Shaw & Cross, 2010; Raskauskas & Stoltz, 2007; Ybarra, Alexander & Mitchell, 2005), social anxiety (Dempsey, Sulkowkski & Storch, 2009; Juvonen & Gross, 2008), low self-esteem (Didden et. al., 2009; Katzer et. al., 2009), substance use disorders (Ybarra, Espelage & Mitchell, 2007; Ybarra & Mitchell, 2004). Besides, cyber victims feel emotional distress (Patchin & Hinduja, 2006; Topçu, Erdur-Baker & Çapa-Aydın, 2008), helpless, rejected (Hinduja & Patchin, 2008; Tokunaga, 2010), and intense anger against cyber bully and the audiences (Şahin, Sarı, Özer, & Er, 2010; Topçu et. al., 2008). Similar to these findings, Arıcak (2009) found that hostility and psychoticism positively predicted cyberbullying. Another finding of Arıcak (2009)'s study is that non-bully-victims reported less psychiatric symptoms than bully and victims. Leishman (2002) reported that major psychological problems of cyber victims were loneliness, suicidal thoughts, and inferiority feelings.

Like cyber victimization, cyberbullying is related to psychological problems. Arıcak (2009) reported that hostility and psychoticism positively predicted cyberbullying. So cyberbullies feel extremely anger for no reason (Pornari & Wood, 2010). Consequently, cyberbullies and cyber victims suffer from, and are at risk of, various psychical problems.

Relational-Interdependent Self-Construal

Self-construal is defined as the degree to which people see themselves as separate from others or as connected with others (Markus & Kitayama, 1991). It serves people's fit with their environment, govern their perceptions of reality, mediates and regulates

their behaviours, thoughts and emotions (Higgins, 1996). Researches have mentioned traditionally two different types of self-construal, independent and interdependent (Markus & Kitayama, 1991).

Western cultures emphasize the independence of persons, including attending to the self and its uniqueness and experiencing distinctive inner characteristics. Cross and Madson (1997) described the independent self-construal as the self as separated from others. The independent self-construal involves defining the self as separate from the social context and seeing the self as bounded, unitary and stable across situations (Kanagawa, Cross & Markus, 2001).

However, East Asian cultures emphasize the interdependence between the individual and his/her group. These cultures tend to value person's interdependence, including the tendency to attend to others, fit into group norms, promote others' goals, and maintain harmony with others (Morris, 2001).

Kağıtçıbaşı (2005) has rejected the traditional consideration of independent as opposed to interdependent, which is characteristic of Western psychology. In Western cultures, people tend to construct interdependence in terms of close relationships. In contrast, individuals in non-Western cultures tend to construct interdependence in relation to social roles and belonging to social groups. From this perspective, two dimensions of interdependent self-construal have been proposed by researchers: collective self-construal and relational self-construal. Collective self-construal in which individuals primarily belong themselves to a group is common in non-Western cultures, whereas relational self-construal in which individuals primarily define themselves by their roles in interpersonal relationships is common in Western cultures. Relational-interdependent self-construal refers the process of the constructing self in relation to interpersonal relationships stored in self (Cross, Bacon, & Morris, 2000; Kashima et. al., 1995). For individuals with high relational-interdependent self-construal, representations of important and significant relationships rather than representations of all relationships tend to play in constructing the self (Cross & Madson, 1997).

The Current Study

Adolescents use information and communication technologies for gaining knowledge, social interaction with their peers, and entertainment. On the other hand some groups of adolescents use infor-

mation and communication technologies to threaten, humiliate, share one's personal information and photograph without his/her consent, send infected e-mails via pretending to be someone else. These are called cyberbullying. News in print and visual media indicate that cyberbullying causes psychological problems among adolescents. Therefore this study addresses the issue of which dimensions of psychological health are influenced by cyberbullying. Another aim of this study is to investigate relationship between relational-interdependent self-construal and cyberbullying.

Consequently the first hypothesis of this study is that relational-interdependent self-construal will positively predict cyberbullying. The second hypothesis of this study is that cyberbullying will negatively predict psychological harmony.

Method

Research Design

A correlational designed was used in this study. Correlational design aims to determine whether two or more variables change together and the strength of that relationship (Karasar, 2006).

Participants

When data meet assumption of multivariate normality and variables in SEM are highly correlated each other, numbers of participants should be ten times more than observed variables (Kline, 2005 cited in Şimşek, 2007). Convenience sampling was used in this research (Bayram, 2009). Participants were 258 university students (137 (66 %) were female, 121 (34 %) were male) who were enrolled in Sakarya Anatolian High School, Serdivan Vocational High School for Girls, Sakarya Cemil Meriç Social Sciences High School, in Turkey. Their ages ranged from 15 to 18 years and the mean age of the participants was 16.8 years.

Instruments

Relational-Interdependent Self - Construal (RISCS): RISCS was developed by Cross et al. (2000). The scale was adjusted Turkish by Akın, Eroğlu, Kayış, and Satıcı (2010). RISCS has contained 11 items and one factor. Participants indicated the degree to which they agree with each item on RISCS using a 7-point likert type scale ranging from 1(strongly disagree) to 7 (strongly agree). Confirmatory factor analysis showed that the mod-

el contained one factor was well fit and chi-square value (x^2/df =1.85) was significant. Goodness of fit indices were found as RMSEA=.046, NFI=.98, CFI=.99, IFI=.99, RFI=.96, GFI=.97, AGFI=.95, and SRMR=.036. The internal reliability coefficient was calculated as .85. For concurrent validity, the relationship between UCLA Loneliness Scale and RISCS was found as -.52. The more individual's score in RISCS increase, the more individual's level of relational-interdependent self-construal increase.

The Revised Cyberbullying Inventory (RCBI): RCBI consists of two form labelled cyberbullying and cyber victimization and 28 items. RCBI was developed by Topçu and Erdur-Baker (2010). Participants indicated the degree to which they agree with each item on RCBI using a 4-point likert type scale ranging from 1(none) to 4 (more than three times). Exploratory factor analysis revealed that cyberbullying form consists of one factor and factor loadings of items varied from .28 to .83. Confirmatory factor analysis showed that the model contained one factor was well fit. Goodness of fit indices were found as GFI= .93, AGFI =.89, CFI=.93, NFI=.89, TLI=.90, and RMSEA = .06. Cyber victimization form consists of one factor and factor loadings of items varied between .21 and .78. Confirmatory factor analysis showed that the model contained one factor was well fit and chi-square value (x^2/df =1.85) was significant. Goodness of fit indices were found as GFI =.93, AGFI =.90, CFI=.89, NFI=.84, TLI=.86, and RMSEA = .06. For criterion-related validity, relationship between cyberbullying and traditional bullying was calculated as .45. Similarly, relationship between cyber victimization and traditional victimization was found as .36. Cyberbullying and cyber victimization form of RCBI correlated each other. The more individual's score in RCBI increase, the more cyberbullyig experiences increase. Similarly the more individual's score in RCBI increase, the more cyber victimization experiences increase.

Depression Anxiety Stress Scale (DASS): DASS was developed by P.F. Lovibond and S.H. Lovibond (1995). DASS includes three subscales called depression, anxiety, and stress. DASS contains 42 items. DASS adapted Turkish by Akın and Çetin (2007). Exploratory factor analysis revealed that cyberbullying form consists of one factor and factor loadings of items varied from .39 to .88. The language equivalence of DASS was .99. For concurrent validity, correlations between DASS, Beck Depression Scale and Beck Anxiety Scale was calculated.

Correlation between DASS and Beck Depression Scale was found as .87 and correlation between DASS and Beck Anxiety Scale was found as .84. The internal consistency coefficients were found .89 for entire scale, .90 for depression, .92 for anxiety, and .92 for stress. Test-retest and split-half reliabilities were .99 to .96. High scores in depression, anxiety, and stress subscales of DASS indicate more frequent depression, anxiety, and stress. Total score cannot be computed for scale.

Procedure

Participants completed scale packages voluntarily. Scale packages were administered to groups in classrooms by researchers. Before completing scale packages, participants were informed about the study. Correlations among observed variables were calculated using Pearson correlation. The effects of relational-interdependent self-construal on cyberbullying and the effects of cyberbullying on psychological disharmony via structural equation modelling. Data were analyzed using SPSS 11.5 and LISREL 8.54 (Jöreskog & Sorbom, 1996).

Results

Descriptive Statistics and Correlations among Observed Variables

Relational-interdependent self-construal were correlated negatively with cyberbullying and cyber victimization. However, relational-interdependent self-construal were uncorrelated with depression, anxiety, and stress. Cyberbullying were positively related to cyber victimization, depression, anxiety, and stress. Similarly, cyber victimization were positively associated with depression, anxiety, and stress. Correlations among subscales of DASS indicated that depression, anxiety, and stress positively correlated each other.

Structural Equation Modelling

In structural equation modelling, relational-interdependent self-construal which is latent variable measured by relational-interdependent self-construal refers to score obtained from RISCS. In this way, it is aimed that to measure relational-interdependent self-construal errorlessly. Cyberbullying was measured via cyberbullying and cyber victimization forms of RCBI. A second confirmatory factor analysis was applied to determine whether cyberbullying is explained by cyberbullying and

cyber victimization, which are measured separately. The goodness of fit indices of second-order factor analysis indicated a good fit ($\chi2$/df=2.52, RMSEA=0.077, 90 % RMSEA CI=0.070-0.084, CFI=0.93, SRMR=0.080). Psychological harmony was measured via multiple indicators including depression, anxiety, and stress.

Goodness of Fit Indices

According to Hu and Bentler (1999), for acceptable fit, $\chi2$/df should be lower than 5, CFI, GFI, AGFI should be higher than .85, RMSEA should be greater than .08, and SRMR should be lower than 0.08. Based on these recommendations, goodness of fit indices of structural equation modelling indicted that the model is acceptable ($\chi2$/df=2.50, RMSEA=0.077, 90 % RMSEA CI=0.032-0.12, CFI=1.00, GFI=1.00, AGFI=.98, SRMR=0.045).

Determination Coefficients of Structural Equation Modelling

Determination coefficients indicate how much variance of predicted variable are explained by predictive variable and it loads from 0 to 1 (Kotsiantis & Pintelas, 2005). Relational-interdependent self-construal explained 29 % of variance in cyberbullying and cyberbullying explained 13 % of variance in psychological disharmony. Relational-interdependent self-construal explained all variance of its indicator. Cyberbullying accounted for 92 % of the variance in cyberbullying and 89 % of the variance in cyber victimization. Psychological disharmony explained 89 % of variance in depression, 94 % of variance in anxiety, and 87 % of variance in stress.

Relationships between Latent Variables

Cyberbullying was correlated negatively with relational-interdependent self-construal and positively with psychological disharmony. In similar way, relational-interdependent self-construal was negatively associated with psychological disharmony.

Direct and Total Effects in Structural Equation Modelling

Cyberbullying directly effected on cyber victimization and cyberbullying, whereas it indirectly effects depression, anxiety, and stress through psychological disharmony. Furthermore, psychological disharmony directly affected depression, anxiety, and

stress. Relational-interdependent self-construal indirectly affected cyberbullying, cyber victimization which are indicators of cyberbullying, and depression, anxiety, and stress which are indicators of psychological disharmony. Because exogenous latent variable cannot affect indicators of endogenous variable directly (Diamantopoulos & Siguaw, 2000), relational-interdependent self-construal indirectly affected cyberbullying, cyber victimization which are indicators of cyberbullying, and depression, anxiety, and stress which are indicators of psychological disharmony.

Discussion

Findings revealed that relational-interdependent self-construal have negative impact on cyberbullying and psychological disharmony affected negatively by cyberbullying. Findings firstly have demonstrated that measurement models for relational-interdependent self-construal, cyberbullying, and psychological disharmony showed fit between the manifest indicators and their respective latent constructs. Also the goodness of fit indices of the SEM provide further support for the model and its explanation of the relationships between relational- interdependent self-construal, cyberbullying, and psychological disharmony.

Findings revealed that relational-interdependent self-construal predicted negatively cyberbullying. Findings of researches on relational-interdependent self-construal consistently proved that individuals high in relational-interdependent self-construal are significantly more likely to develop and maintain a greater number of important social relationships, disclose themselves in those relationships, behave emphatically in close relationships, adjust their behaviours flexibly to their partners' feelings, eliminate successfully sources of conflict in relationships, and permit close others to impact the manner in which they think or behave (Cross et. al., 2000; Cross, Gore & Morris, 2003; Cross & Morris, 2003; Cross, Morris & Gore, 2002; Gore, Cross & Morris, 2006). Therefore, individuals with high relational-interdependent self-construal effectively can establish and maintain social relationships. Studies in which empathy (Topçu, 2008) and interception (Dilmaç, 2009) negatively predicted cyberbullying support findings of this study.

Social skills also protect individuals with high relational-interdependent self-construal to be cyberbullied. Because they endeavour to establish and maintain social relationships, they cannot meet

attacks in virtual environment. Similarly Dilmaç (2009) found that affiliation prevent people to be cyberbullied.

The another finding of this study demonstrated that cyberbullying positively predicted psychological disharmony. Mieczynski (2008) found that depression and anxiety are mostly related to cyberbullying than to other psychological distresses. Ybarra and Mitchell (2004) indicated that cyberbullies suffer depression than bystanders who witness incidence of cyberbullying.

Cyberbullies hold feelings of hostility against others (Arıcak, 2009) and therefore their interpersonal environment is characterised by peer rejection. Their social life that encompasses peer rejection and fear of catching someone else causes psychological disharmony. According to Calvete, Orue, Estévez, Villardón and Padilla (2010), cyberbullies have lower social support and this strengthen results obtained this study. Lyznicki, McCaffree and Robinowitz (2004) claimed that cyberbullies are individuals who are rejected by peers.

The results of this study indicated that cyber victimization positively predicted psychological disharmony. This finding is consistency of studies that cyberbullies feel depressive, helpless, sadness (Raskauskas & Stoltz, 2007), emotional distress (Raskauskas & Stoltz), and angry (Beran & Li, 2005).

Because cyber victims feel angry towards cyberbully and bystanders, lonely, dissatisfaction from peer relationships (Campfield, 2008) and have lower social support (Eroğlu & Peker, 2011), cyber victims suffer from psychological disharmony. Furthermore Hinduja and Patchin (2008) and Shariff (2008) reported that cyber victims feel helpless. Because they do not know who bully is, they probably get bullied at any time of day or night, and cyberbullying towards herself /himself witnessed by number of people (Snider & Borel, 2004). Also cyber victims who react to cyberbullies with submissive manner suffer from psychological disharmony (Eroğlu, Çetin, Güler, Peker, & Pepsoy, 2011; Peker, Eroğlu, & Çitemel, 2012). Depression and stress related to cyber victimization causes irritation, rumination, and anhedonia (Finkelhor, Mitchell, & Wolak, 2000).

Based on findings of this study, it can be proposed that supporting to development of relational-interdependent self-construal should be useful to prevent cyberbullying by helping individuals to behave emphatically, acknowledge that they experience emotions and express them verbally and nonver-

bally, and resolve interpersonal conflicts effectively. Relationship between cyberbullying and psychological disharmony can be investigated deeply using different samples.

Limitations of this study should be acknowledged. Firstly despite this study is first research investigating relationships among relational-interdependent self-construal, cyberbullying, and psychological disharmony, further research investigating the relationships between relational-interdependent self-construal, cyberbullying, DAS, and other psychological variables are needed, to reinforce the findings of this research. The some goodness of fit indices of cyber victimization form of cyberbullying inventory including CFI, NFI, and TLI are lower than proposed values. Finally effect sizes of latent variables relatively small and medium.

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