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Masterthesis

Cyberbullying: effects on self-esteem and perceived stress and the role of communication with the mother

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Abstract

This study investigated the effects of victimization by cyberbullying and communication with the mother in the prediction of self-esteem and perceived stress of adolescents. Participants were 489 adolescents aged 11-17 (56,4 % male) drawn from two public schools in Valencia (Spain). Statistical analyses revealed that both victimization by cyberbullying and communication with the mother are associated with self-esteem and perceived stress, and that good communication with the mother does not have a protective effect on these associations. Furthermore, victimization by cyberbullying has a negative effect on adolescents who report good communication with their mother and raises their stress level to that of adolescents who report communication problems with their mother. The results and their implications are discussed.

Introduction

In the past few years the use of internet and cellular phones has grown rapidly. The proliferation of these electronic communication technologies has enabled people to communicate easily, effectively and at low costs with each other, and made it happen that many people are now running a great deal of their social lives through these devices. Despite the above mentioned advantages of electronic communication though, it appeared that not only good consequences have come forth. An important example of a negative aspect that has developed as a byproduct of our modern technology is the possibility for electronic bullying to occur, also termed as *cyberbullying*. Technological devices such as cellular phones and the internet can be used to harass others and exert aggressive acts through. With the increasing use of modern technology, also the occurrence of cyberbullying has augmented and for instance in the United States its prevalence among adolescents has increased 50 % in the last five years (Ybarra, Wolak, Mitchell & Finkelhor, 2006). Just like traditional bullying, cyberbullying causes distress (Ybarra et al., 2006) and it can have some damaging effects including psychological, emotional and social harm (Finkelhor, Mitchell & Wolak, 2007, in Dehue, Bolman & Völlink, 2008; Patchin & Hinduja, 2006). It is clear that cyberbullying has become a serious problem among adolescents and that to prevent further damage to occur intervention strategies are needed. In order to create such intervention programs, more knowledge about the exact effects of cyberbullying on psychological variables is needed.

This study is designed to explore cyberbullying and investigate its potential to have the same problematic effects as traditional bullying. Its goal is to illuminate this novel form of bullying and to provide a foundational backdrop on which future empirical research can be conducted and potential intervention strategies can be created. First, what is known about cyberbullying will be summarized to provide some general information about this new concept.

Cyberbullying

With the arrival and continued growth of modern technology, traditional bullying has also moved to the virtual world and *cyberbullying* has come into existence. Physical separation between the bully and the victim is no longer a limitation and instances of bullying are no longer confined to real-world settings. A definition of this new phenomenon is ‘An aggressive, intentional act carried out by a group or individual, using electronic forms of contact, repeatedly and overtime against a victim who cannot easily defend him or herself’ (Smith et al., 2008). The similarities between cyberbullying and traditional bullying are that it is intentional, it involves a repeatedly occurrence of damaging psychological violence and there is an imbalance of power between the bully and the victim (Kowalski & Limber, 2007; Buelga, Cava, & Musitu, 2010). However, there are also several differences between the two. First of all, cyberbullies are often anonymous (Ybarra & Mitchell, 2004; Dehue et al., 2008). Because of this, they are difficult to trace and can avoid responsibility of their misconduct. This reduces the fear of getting caught and being punished and might embolden bullies to communicate messages which they would not say to another person’s face (Patchin et al., 2006). Furthermore, it heightens the vulnerability of the victim (Monks et al., 2009; Buelga et al., 2010). Secondly, because there is no face-to-face contact between the bullies and the victims, bullies do not get confronted with the emotional reactions and levels of distress they cause with their misconduct. Therefore, they are unlikely to experience feelings of regret, sympathy or compassion towards the victim (Schneier, 2003, in Strom & Strom, 2005). Thirdly, hurtful messages intended to undermine the reputation of the victim can, instead of staying a private matter only known by a small group, be communicated in short time to a large public, which makes them much more damaging (Bickham & Rich, 2009; Buelga et al., 2010; Slonje & Smith, 2008; Strom et al., 2005). Finally, supervision is often missing in cyberspace (Patchin et al., 2006). Personal messages sent via the internet or cellular phones can only be seen by the sender and the recipient, through which there are no individuals who can monitor or regulate the content of these. Furthermore, a great deal of parents is unfamiliar with these types of modern communication and therefore unaware of their child being cyberbullied or engaging in cyberbullying (British Broadcasting Corporation, 2006, in Dehue et al., 2008).

Like previously noted, cyberbullying can, just like traditional bullying, cause distress (Ybarra et al., 2006) and elicit psychological, emotional and social harm (Dehue et al., 2008; Patchin et al., 2006). Findings from previous empirical research suggest that the negative psychological outcomes of victimization by traditional bullying might be moderated by the adolescent's positive relationships with one or both parents (Baldry, 2004; Rigby 2000). If adolescent-parent relationships play a moderating role in the association of victimization by traditional bullying with psychological distress, the same might be true for cyberbullying. This would mean that a good relationship with one or both parents can reduce the risk of developing psychological distress from cyberbullying. Below, first the empirical evidence suggesting the association between victimization by cyberbullying and psychological distress will be reviewed. As indicators of psychological distress there have been chosen to illustrate the psychological variables perceived stress and self-esteem, since both variables are related with psychological well-being (McCullough, Huebner & Laughlin, 2000; Siddique & D'Arcy, 1984). Furthermore, the empirical evidence suggesting the interaction between adolescent-parent relationships and victimization by cyberbullying in the prediction of psychological distress will be reviewed.

Psychological variables

Perceived stress

Formerly, for victims of bullying their home was a safe place, a spot where they could seek refuge from abusive peers. Traditional bullying is constrained to the physical location of the bullies and the victims and happens therefore mostly outside the home, whereby for victims there still remains a place where they can find rest. However, as noted earlier, physical separation between the bully and the victim is no longer a limitation since electronic devices allow individuals to contact others at all times and in almost all places (Patchin et al., 2006; Slonje et al., 2008). A great deal of adolescents is inseparable from their cellular phone and has it constantly turned on, which provides bullies the opportunity to send threatening and insulting messages at any time. Furthermore, most adolescents go online soon after they get back home from school (Pew Internet and American Life Project, 2001, in

Patchin et al., 2006). Therefore, online bullying as well can be an intrusive phenomenon that can enter the walls of a home.

It is known that stress is common among victims of traditional bullying (Guterman, Hahm, & Cameron, 2002; Estévez, Musitu & Herrero, 2005; Hodges & Perry, 1999; Herrero et al., 2006). Hence one can imagine that a victim of cyberbullying, who does not feel safe at any time and in any place, likewise experiences a great deal of stress. Indeed, studies have shown that being cyberbullied can result in a significant amount of stress (Finkelhor et al., 2007, in Dehue et al., 2008). Stress can subsequently have some psychological and physical consequences, like influencing the onset and progression of disease (Kemeny & Schedlowski, 2007), and thus must be regarded as a serious health problem. Further research on the effect of cyberbullying on perceived stress is therefore of importance.

Self esteem

Among adolescents the desire to be and remain popular is very important, and their self-esteem is mostly determined by the way others view them. Self-esteem can be described as the judgments we have about our self-worth and the feelings that are associated with these judgments (Berk, 2006). It is a fundamental aspect in the adjustment and quality of life of an adolescent and predicts life satisfaction and subjective well-being (McCullough et al., 2000; Martínez, Buelga, & Cava, 2007). So has been found that adolescents with lower self-esteem tend to report more depressive moods, less satisfaction with life, and less general well-being (Deković, 1999). Furthermore, low self-esteem makes adolescents susceptible to develop psychiatric disorders, particularly depressive disorders, eating disorders, and substance use disorders (Silverstone & Salsali, 2003).

Chronic victims of traditional bullying often have a low self-esteem (Hoover & Hazler, 1991; Patchin et al., 2006; Austin & Joseph, 1996; Estévez, Martínez & Musitu, 2006; Khatri, Kupersmidt, & Patterson, 2000; Estévez, Murgui, & Musitu, 2009). In a similar vein, it is expected that cyberbullying has the same diminishing effect on self-esteem as traditional bullying. Since social acceptance is crucially important to an adolescent, one can imagine that when adolescents perceive

themselves to be rejected or socially excluded, this will have a decreasing influence on their self-esteem (Patchin et al., 2006). To prevent the possibility of the same maladaptive outcomes to occur, it is important to obtain information about the exact effect of cyberbullying on self-esteem, so that possibly future intervention programs can be created.

The interaction between adolescent-parent relationships and victimization by cyberbullying in the prediction of psychological distress

Adolescent-parent communication and psychological distress

The family context plays an important role in the psychological well-being of adolescents. Research has indicated that a negative family environment increases the risk for the development of psychological problems, such as stress, depressive symptoms and anxiety (Field, Diego & Sanders, 2001; Estévez et al., 2005; Allan, Moore & Kuperminc, 1998; Herrero et al., 2006). In particular, communication problems between parents and adolescents are an important influential factor in the development of psychological problems among adolescents (Liu, 2003; Estévez et al., 2005). For instance, Herrero, Estévez and Musitu (2006) showed that adolescents who informed about communication problems with their mothers and/or fathers, exhibited more stress. Moreover, open communication with the parents was negatively related to perceived stress, which emphasizes that a positive family environment forms a protective factor against the development of psychological problems.

Furthermore, good communication with the parents (open, positive, affective and satisfactory) showed to favor the self-esteem of adolescents (Jiménez, Murgui, Estévez & Musitu, 2007). On the contrary, communication problems between parents and adolescents lowered the self-esteem of adolescents in several areas.

Previous studies have found that for victims, disclosing about bullying improves psychological well-being (Smith, Talamelli, Cowie, Naylor & Chauhan, 2004; Matsunaga, 2011) and that victims of bullying who seek support from others tend to fare better both psychologically and behaviorally than those who remain undisclosed about bullying. Hence, one can imagine that a positive relationship with one or both parents in which adolescents have the possibility to talk about their problems can buffer the negative impact that being victimized has on the psychological well-being of adolescents, because of the support and help the parents can provide to them. Indeed Baldry (2004) showed that a positive relationship with one or both parents moderates the development of internalizing problems from victimization and that adolescents who have a poor relationship with their mothers and/or with their fathers are more likely to display internalizing problems. Moreover, Desjardins and Leadbeater (2011) found that emotional support received from fathers reduced the depressive symptoms associated with victimization over time. These findings suggest that having a positive relationship with one or both parents helps buffer the negative outcomes of victimization and that a negative relationship might worsen these.

The present study

The literature summarized above indicates in the first place that victimization by cyberbullying and relationships with parents are directly associated with perceived stress and self-esteem. Furthermore, it suggests that relationships with parents moderate the association of victimization with psychological distress. In a similar vein, it seems interesting to explore if the same accounts for victimization by cyberbullying. The present study will therefore investigate interactions between victimization by cyberbullying and adolescent-parent relationships in the prediction of self-esteem and perceived stress of adolescents.

The first aim of the study is to analyze separately the influence of victimization by cyberbullying and communication with the mother on adolescents' self-esteem and perceived stress.

There has been chosen for communication with the mother, since communication plays a crucial role in adolescent-parent relationships (Noller & Bagi, 1985) and previous studies have found that attachment of adolescents to the mother is of higher quality than attachment to the father (Buist, Deković, Meeus & van Aken, 2002; Paterson, Field & Pryor, 1994; Williams & Kelly, 2005) and that they report more conversation with mothers than with fathers (LeCroy, 1988; Beinstein & Lane, 1991). Based on the literature summarized above, it is expected that victimization by cyberbullying and both open and offensive communication with the mother are directly associated with self-esteem and perceived stress.

The second aim of this study is to examine communication with the mother as moderator of the effects of victimization by cyberbullying on self-esteem and perceived stress (see Figure 1). It is hypothesized that open communication with the mother will have a protective effect on the relations between victimization by cyberbullying and self-esteem and perceived stress, and that offensive communication will have a negative influence on these.

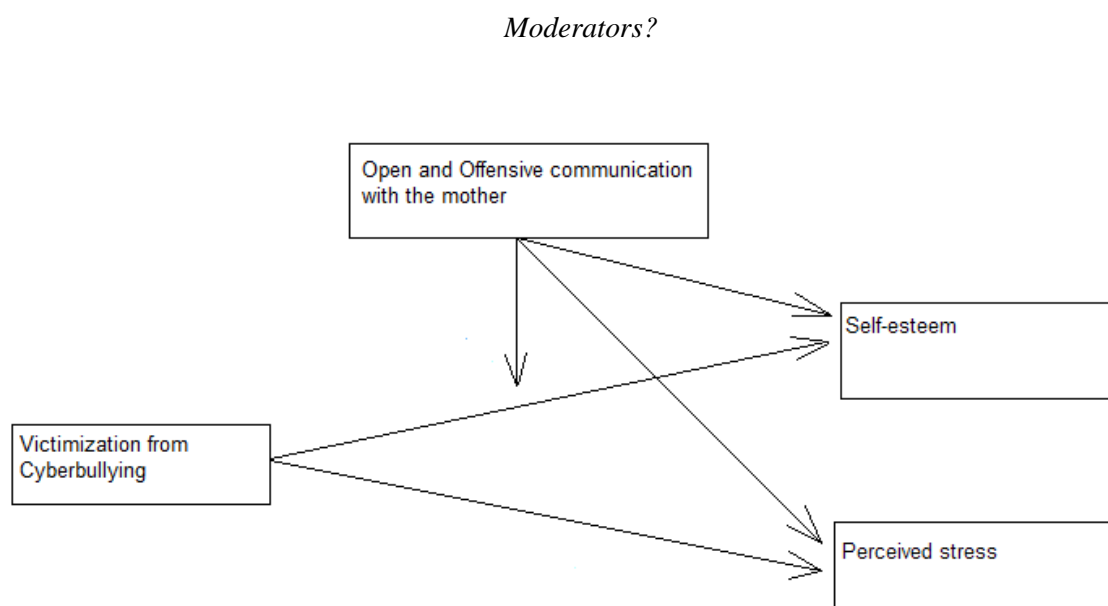


Figure 1. Theoretical model proposed to contrast the effect of victimization by cyberbullying on self-esteem and perceived stress and the possible moderators open and offensive communication with the mother. Furthermore a depiction of the direct effects of open and offensive communication with the mother on self-esteem and perceived stress.

Method

Participants

Data were gathered from 489 adolescents from both sexes (276 boys and 213 girls) attending Compulsory Secondary Education in two public schools in the City of Valencia, Spain. The ages ranged from 11 to 17 years (mean age 13.8; SD 1.4). Of the participants, 33.1 % were in the 1st grade, 22.1% were in 2nd grade, 27.2% were 3rd-graders, and 17.6 % were in 4th grade.

Procedure

Data for this research were collected as part of a larger study of bullying and victimization between adolescents in the school environment. To acquire permission from the schools, letters were sent to the teaching staff of several at random selected state schools in Valencia. After giving their permission to participate in the study, a seminar was held wherein information was given about the goals and procedure of the study. Letters were sent to parents to explain the project and to acquire parental permission. Participants were told that the purpose of the study was to get a better knowledge of their lives and their relationship with their parents. It was emphasized that questions should be answered sincerely and that participation was at all time voluntary. Confidentiality of the data was guaranteed. Students filled out the battery of instruments individually and anonymous in their classrooms in the presence of a trained psychologist during a regular class period between September 2009 and February 2010.

Measures

Victimization from Cyberbullying. To measure victimization by cyberbullying The Scales of Victimization through the Cellular phone and Internet (Buelga et al., 2010) were used. On these scales, adolescents indicated the frequency with which they had been victim of cyberbullying over the last 12 months on a four-point rating scale (1 = never, 2 = sometimes, 3 = often and 4 = always). The internal consistency of the scales in their original version was 0.76 for the Scale of Victimization through the Cellular phone and 0.84 for the Scale of Victimization through the Internet.

The Scale of Victimization through the Cellular phone consists of 8 items that measure behaviors that implicate hostile aggressions (for example, “They insulted or taunted me with messages or calls”), persecution on the network (for example, “they threatened me to make me scared”), humiliation (for example, “The told lies or false rumors about me”), violation of privacy (for example, “They shared my secrets with others”) and social exclusion (for example, “they didn’t respond to me”) through the cellular phone. In the present study, a Cronbach Alpha of 0.83 was found.

The Scale of Victimization through the Internet consists of the same 8 items as described above, but then applied to the internet. Furthermore 2 more items are added that are related with violation of privacy (for example, “they entered in my Messenger or in my e-mail account”) and with imitation of identity (for example, “they pretended to be me while doing or saying bad things on the Internet”). Cronbach Alpha for this scale in the present sample was 0.81.

Statistical analyses carried out in this study revealed no difference in the findings between Cyberbullying through the Cellular phone and through the Internet. Therefore, there has been chosen to use a total Cyberbullying score which is constituted by the sum of scores on the two subscales. A Cronbach Alpha of 0.88 was found.

Self-esteem. Self-esteem was measured using The Rosenberg Self-esteem Scale (RSE) (Rosenberg, 1966). This scale consists of 10 items answered on a four-point rating scale (1= I strongly agree, 4 = I strongly disagree), that provides a general measure of global self-esteem (e.g. “I have a positive attitude towards myself”, “I think I have various positive qualities”). Previous studies have shown good internal consistency of this Spanish version (Cronbach Alpha = 0.88) (Baños & Guillen, 2000; Vazquez Morejon, Jimenez Garcia-Boveda & Vazquez-Morejon Jimenez, 2004). Cronbach Alpha for this scale in the present sample was 0.74.

Perceived Stress. To measure the amount of stress that adolescents perceived the Perceived Stress Scale (PSS) (Cohen, Kamarck & Mermelstein, 1983, translated into Spanish by Gracia, Herrero & Musitu, 2002) was used. The PSS is a 4-item scale which measures the degree to which respondents appraised their life as stressful within the last month (for example, “I felt that I was incapable to

control the most important things in my life”, “I felt that the difficulties accumulated without being able to solve them”). Level of agreement with the statement is indicated on a four-point rating scale (1 = never, 4 = always). Cronbach Alpha for this scale in the present sample was 0.60.

Communication between the adolescent and his/her mother. The communication with the mother was measured using the Parents-Adolescents Communication Scale (PACS) (Barnes & Olson, 1982). This scale is used to assess the adolescents’ perception of communication with the mother. It is composed of two sub-scales. The first sub-scale consists of 11 items that measure the degree of openness in communication with the parents (for example, “My mother/father is always a good listener). The second sub-scale consists of 4 items that measure the presence of offensive patterns in adolescent-parent communication (for example, “My mother/father insults me when she/he is angry with me”). Responses are rated on a five-point rating scale (1 = never, 5 = always) and are separately for father and mother. In the present study only the answers for the mother are used. In the present sample Cronbach Alpha was for degree of openness 0.87 and for the offensive patterns 0.67.

Results

Preliminary Analyses

Correlations among the variables used in this research are presented in Table 1. Exploratory correlation analysis confirms statistically significant correlations between all the variables of interest in this study. This table shows a negative association between victimization by cyberbullying and self-esteem ($r = -.20, p < .01$), and victimization by cyberbullying and open communication with the mother ($r = -.17, p < .01$). On the contrary, perceived stress and offensive communication with the mother were found to correlate positively with victimization by cyberbullying (respectively $r = .28, p < .01, r = .22, p < .01$). Furthermore, self-esteem was found to correlate negatively with perceived stress ($r = -.46, p < .01$) and offensive communication with the mother ($r = -.18, p < .01$) and positively with open communication with the mother ($r = .32, p < .01$). Also, this table shows a negative association between perceived stress and open communication with the mother ($r = -.29, p < .01$) and a positive association between perceived stress and offensive communication with the mother ($r = .27, p < .01$). At last a negative correlation has been found between open and offensive communication with the mother ($r = -.27, p < .01$).

Table 1. Means (Standard Deviations) and Pearson Correlations among observed variables

Variables	M (SD)	1	2	3	4	5
1. Victimization by Cyberbullying	2.4 (0.6)	—				
2. Self-esteem	3.1 (0.4)	-.20**	—			
3. Perceived stress	2.1 (0.6)	.28 **	-.46**	—		
4. Open communication with the mother	4.0 (0.7)	-.17 **	.32 **	-.29**	—	
5. Offensive communication with the mother	1.8 (0.8)	.22**	-.18**	.27**	-.27**	—

** $p < .01$

Overview of analyses

Tests of the interactions between victimization by cyberbullying and communication with the mother were conducted using hierarchical multiple regression analyses. The variables victimization by cyberbullying and open and offensive communication with the mother were initially centered and

interaction terms were formed as the product of the two centered predictors. For each outcome variable (self-esteem and perceived stress) and each possibly moderator variable (open and offensive communication with the mother) a hierarchical order of entry was used in which first the main effects of the predictor variables were entered followed by the interaction terms. For both outcome variables, victimization by cyberbullying was entered at step 1 and either open or offensive communication with the mother at step 2. Interaction terms were created by multiplying standardized scores of victimization by cyberbullying and either open or offensive communication with the mother. Interactions were entered at step 3. This order of entry allowed conservative assessment of the interaction effects above the effects of the predictor and the independent effect of each possible interaction term, providing a test of an additive model of the direct and interactive effects of victimization by cyberbullying and open and offensive communication with the mother on self-esteem and perceived stress. The results of the models are presented in Table 3.

The prediction of self-esteem

In the prediction of self-esteem, main effects of victimization by cyberbullying and both open and offensive communication with the mother were found (see Table 3). More victimization by cyberbullying contributed to a lower general self-esteem. Furthermore, it appeared that open communication with the mother was positively related to general self-esteem and that offensive communication with the mother was negatively related to general self-esteem. However, there were no significant interaction effects found. This means that both types of communication with the mother (open and offensive) are no moderators of the effect of victimization by cyberbullying on self-esteem.

The prediction of perceived stress

In the prediction of perceived stress, likewise main effects of victimization by cyberbullying and both open and offensive communication with the mother were found (see Table 3). More victimization by cyberbullying contributed to more perceived stress and open and offensive communication with the mother were respectively negatively and positively related to perceived stress. Furthermore, a significant interaction effect was found between victimization by cyberbullying and

offensive communication with the mother (see Table 3, Figure 2). The results (see Figure 2) show that victimization by cyberbullying was more strongly associated with perceived stress for adolescents with low levels of offensive communication with the mother than for adolescents with high levels of offensive communication with the mother. This implies that increases in victimization by cyberbullying have a negative effect on adolescents who report low levels of offensive communication with their mother and raises their stress level to that of adolescents who report high levels of offensive communication with their mother. At last, there appeared no significant interaction effect between open communication with the mother and victimization by cyberbullying, which means that open communication with the mother does not have a protective effect on the relation between victimization by cyberbullying and perceived stress.

Table 3. Model Summary Statistics of Hierarchical Regression Analyses for Variables Victimization by Cyberbullying, Open communication with the mother and Offensive communication with the mother Predicting General Self-esteem and Perceived Stress

Model	Adj. R^2	p	ΔR^2	p_{change}
<i>General self-esteem</i>				
A: Victimization by Cyberbullying	.040	.000	.042	.000
B: Model A + Open communication with the mother	.131	.000	.092	.000
C: Model B + Interactions	.130	.000	.001	.493
<i>General self-esteem</i>				
A: Victimization by Cyberbullying	.040	.000	.042	.000
B: Model A + Offensive communication with the mother	.057	.000	.019	.002
C: Model B + Interactions	.057	.000	.002	.280
Model	Adj. R^2	p	ΔR^2	p_{change}
<i>Perceived stress</i>				
A: Victimization by Cyberbullying	.072	.000	.074	.000
B: Model A + Open communication with the mother	.132	.000	.062	.000
C: Model B + Interactions	.136	.000	.006	.070
<i>Perceived stress</i>				
A: Victimization by Cyberbullying	.072	.000	.074	.000
B: Model A + Offensive communication with the mother	.122	.000	.051	.000
C: Model B + Interactions	.130	.000	.011	.016*

* $p < .05$

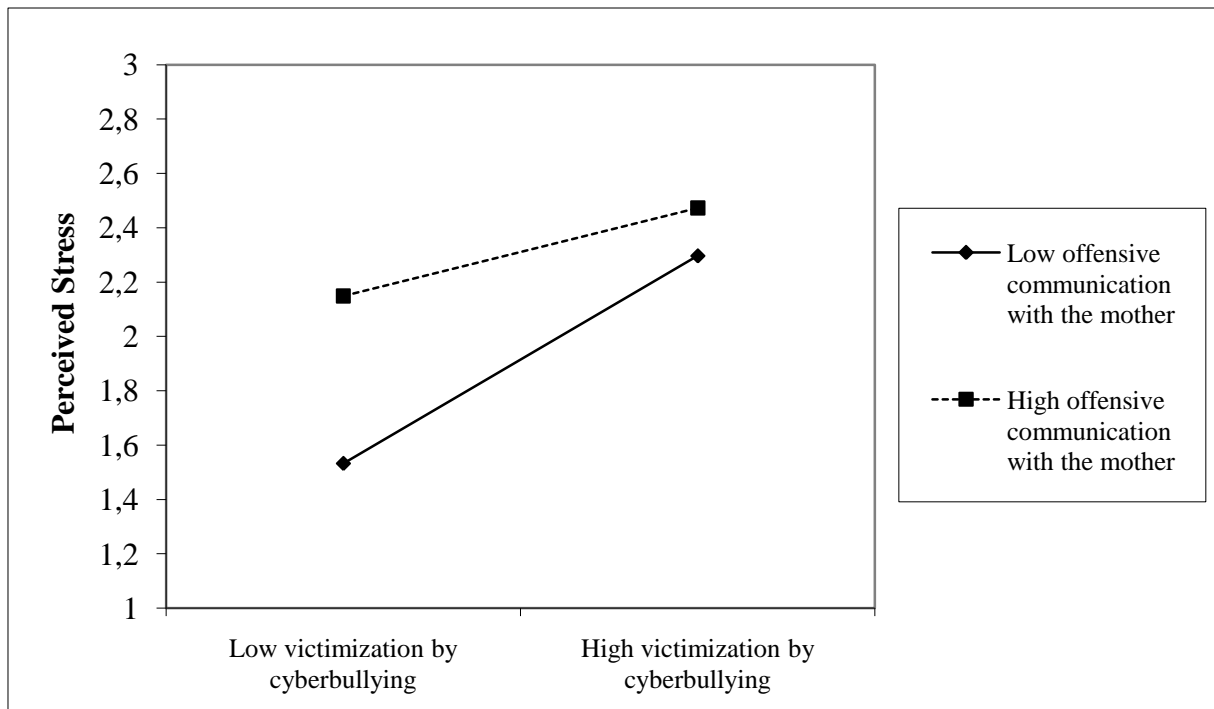


Figure 2. Interactions between victimization by cyberbullying and offensive communication with the mother in the prediction of perceived stress.

Discussion

The present study investigated interaction effects besides main effects of victimization by cyberbullying and communication with the mother in the prediction of self-esteem and perceived stress of adolescents. There has been focused on open and offensive communication with the mother. The findings illustrate the problematic effects of cyberbullying and the importance of good communication between adolescents and their mother. In the following section, the results of this study are summarized and discussed. Subsequently, ideas for intervention and limitations are presented.

The first aim of this study was to analyze separately the influence of victimization by cyberbullying and communication with the mother on adolescents' self-esteem and perceived stress. In the analyses there has been found, in concordance with what was hypothesized, that victimization by cyberbullying contributed to a lower general self-esteem and more perceived stress. This last finding has also been found in previous studies (Finkelhor et al., 2007, in Dehue et al., 2008). Furthermore, open communication with the mother contributed to a higher self-esteem and less perceived stress, and on the contrary offensive communication with the mother contributed to a lower self-esteem and more perceived stress, which corresponds with prior studies (Estévez et al., 2005, 2006; Jackson, Bijstra, Oostra & Bosma, 1998; Jiménez et al., 2007).

The second aim of this study was to examine if communication with the mother interacts with victimization by cyberbullying in the prediction of adolescents' self-esteem and perceived stress. There was hypothesized that open communication with the mother would have a protective effect on the relations between victimization by cyberbullying and self-esteem and perceived stress, and that offensive communication would have a negative influence on these. However, there were no interaction effects found for open communication with the mother. As for offensive communication with the mother, though there appeared no interaction effect with victimization by cyberbullying in the prediction of self-esteem, there did appear an interaction effect in the prediction of perceived stress. It was found that increases in victimization by cyberbullying have a negative effect on adolescents who

report low levels of offensive communication with their mother and raises their stress level to that of adolescents who report high levels of offensive communication with their mother. This means that adolescents who experience communication problems with their mother already perceive a substantial amount of stress as a result of this, whereby victimization by cyberbullying adds less (extra) stress for them than for adolescents who experience good communication with their mother. In this sense, it seems that communication problems become a dominant factor equaling and potentially overshadowing victimization by cyberbullying.

This finding corresponds with previous research that points out the important role that family contexts play in the development of psychological problems among adolescents (Field et al., 2001; Liu, 2003; Estévez et al., 2005; Allen et al., 1998; Herrero et al., 2006) and that adolescents' sense of well-being is associated more strongly with the quality of parental than of peer relationships (Greenberg, Siegel & Leitch, 1983; Beinstein & Lane, 1991). Bronfenbrenner (1977, in Muuss, 1988) pointed out in his theory of the 'ecological model', that for most adolescents, the family is the primary microsystem¹, followed in importance by friends and school. Hence one can imagine that problematic family interactions are a critical psychosocial stressor in the lives of adolescents and that they will overshadow the stress of victimization from cyberbullying, if present.

Surprisingly though, the results suggest furthermore that adolescents who experience good communication with their mother will in general perceive less stress and have a higher self-esteem than the ones who experience communication problems with their mother, but that when they become a victim of cyberbullying this good communication will not have a protective effect and their stress and self-esteem will respectively increase and decrease nonetheless. A possible explanation for this could be found in previous research that has suggested that parents are usually unaware of adolescent victimization (Whitney & Smith, 1993) and that victimized adolescents often keep their problems a secret because they probably think adults can do little to help them (Olweus, 1991). If adolescents' victimization is not visible to parents, they cannot give their child the support and help needed to cope with victimization. In addition, one could imagine this explanation holds even more for adolescents

¹ According to Bronfenbrenner, "a microsystem is the complex of relations between the developing person and environment in an immediate setting containing that person (e.g., home, school, workplace, etc.)" (Muuss, 1988).

who are victimized by cyberbullying. Since a great deal of parents is unfamiliar with the modern types of electronic communication and therefore unaware of the concept of cyberbullying (British Broadcasting Corporation, 2006, in Dehue et al., 2008), it possibly makes it even more difficult for adolescents to tell them about their experiences of victimization through these devices. Future research should be aimed at better disentangling this link between adolescent victimization and relationships with parents.

Another possibility is that a moderating role of the mother in the association between victimization by cyberbullying and psychological distress would have been found when other indicators of their relationship had been used. Baldry (2004) found a similar finding using a brief measure of positive adolescent-parent relationships, asking adolescents if they agreed with mother/father, if mother/father were supportive to him/her and if they helped them when needed. This indicates that maybe results of this study would generalize with other indicators of adolescent-parent relationships, yet more research is needed to confirm this point.

In conclusion, the current study contributes to the exploration of cyberbullying and emphasizes its potential to have problematic effects. Furthermore, it underlines the important role that family contexts play on adolescent psychological well-being. Recognizing these could be an important advance in designing components of prevention and intervention efforts. First of all, effective methods must be developed for protecting adolescents from being cyberbullied and preventing others from becoming bullies on the cyber stage. Since there are quite some similarities between cyberbullying and traditional bullying, an apparent action is to include cyberbullying in current school anti-bullying programs. Further, besides using traditional methods for reducing bullying that are useful for cyberbullying too, specific interventions must be developed. For instance, mobile phone companies, internet service providers and legal rights in these matters should be contacted (Smith et al., 2008). Moreover, an important step is to heighten awareness of the consequences of cyberbullying as well as empathy towards those who are badly affected, not only among adolescents, but also adults. In this regard, guidance for parents should be provided. Finally, future therapeutic interventions focused on the psychological adjustment of victims from cyberbullying should take into

account, besides the direct influence of victimization from cyberbullying, how the family environment affects these problems.

Finally, several limitations of this study are acknowledged. Firstly, in using a cross-sectional design, caution about drawing causal inferences from the results should be maintained. The relationships among the independent variable, moderator and outcome variables may not necessarily be causal, and the same counts for indirect effects. To obtain more clarification about the relationships requires a longitudinal study.

Secondly, the variable self-esteem has been measured using a one-dimensional scale (the Rosenberg self-esteem scale, 1966). Estévez et al. (2006) demonstrated in their research though, in which they made a distinction between family, school, social and emotional dimensions of self-esteem, the need for using a multidimensional perspective in order to check for differences in victimization. On the other hand, it has been shown that self-esteem measures of various areas are moderately correlated, and that people who tend to have a high self-esteem in one area usually also tend to have a high self-esteem in other areas, like friendship, academics and appearance (Larsen & Buss, 2002).

Thirdly, the measures that have been used are self-reports, and can therefore have been subject to the effects of social desirability and response-bias (Garcia & Gracia, 2009), which might have affected the validity. However, the reliability and validity of self-reports of adolescents for the measurement of risk behaviors has demonstrated to be acceptable (Flisher, Evans, Muller and Lombard, 2004). Nevertheless, in addition to self-report measures from adolescents, parental perceptions of family communication should be included to more accurately understand the associations found in this study.

Finally, generalizability beyond the Spanish context is limited. There is evidence that the association of adolescent-parent relationships with psychological distress varies across cultures. While in Anglo-Saxon cultures authoritative parenting demonstrated to support the adolescent psychological adjustment better than other types of parenting (Steinberg, Lamborn, & Darling, 1994), these

relationships have not been found in other cultural contexts like in Germany (Barber, Chadwick, & Oerter, 1992) or in Spain (Musitu & Garcia, 2004).

In spite of these potential shortcomings, the present study has illuminated the problematic effects of cyberbullying and provided a foundational backdrop on which future empirical research can be conducted and potential intervention strategies can be created.

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