PERCEIVED ANONYMITY AND CYBERBULLYING: WHAT HAPPENS WHEN THERE IS A LACK OF SOCIAL INFLUENCE?

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Abstract: *Although cyberbullying is a significant problem nowadays, there are few theoretical explanations for this phenomenon in the literature. Based on Barlett and Gentile's cyberbullying model (2012), the aim of this paper was to examine the contribution of a variable specific to the virtual world - perceived anonymity - in explaining cyberbullying. It also aimed to examine whether there is a mediating effect of attitudes in the relationship between anonymity and cyberbullying, as well as a moderating effect of frequency of internet use on the relationship between anonymity and cyberbullying, as well as between attitudes towards cyberbullying and cyberbullying itself. A survey was administered online in March and April 2021 and data was collected from a convenient sample of 329 students (110 males), aged 18-30 years (M = 21.53, SD = 2.50). The results of the moderation-mediation analysis, performed in the Process macro for SPSS, showed that there was a significant mediation effect of positive attitudes in the relationship between perceived anonymity and cyberbullying, in the way that greater perceived anonymity predicted positive attitudes toward cyberbullying, which predicted more frequent cyberbullying. There was no significant direct contribution of more pronounced perceived anonymity to more frequent cyberbullying. Finally, the results showed that frequency of internet use did not have a significant moderating effect on the relationship between perceived anonymity and cyberbullying, as well as between attitudes and cyberbullying.*

Keywords: *cyberbullying, anonymity, attitudes toward cyberbullying, frequency of internet use*

INTRODUCTION

Cyberbullying is a phenomenon of the modern age that is considered a deliberate and repeated act of aggression through electronic and digital media (Hinduja & Patchin, 2006; Tokunaga, 2010). On the other hand, Lee et al. (2015, p. 2) defined cyberbullying as "aggressive or harmful behaviour directed towards an individual or a group using any form of electronic communication technology, such as the internet or mobile phones". Although researchers mostly agree on the definition of cyberbullying, there are different views on what the main characteristics of cyberbullying are. For example, while some emphasise the importance of repetition in the definition (e.g., Hinduja & Patchin, 2006; Tokunaga, 2010), others argue that it is not a defining characteristic of cyberbullying (e.g., Menesini et al. 2012; Nocentini et al. 2010; Thomas et al. 2015) because one act can be sufficient to cause continuous victimisation (Šulc et al., 2021). In accordance with the aforementioned, Lee et al. (2015) did not even include repetition in their definition of cyberbullying.

Cyberbullying can be direct (e.g., sending abusive messages to a person) and indirect (e.g., spreading rumours about a person) (Hinduja & Patchin, 2014). In terms of types, Lee et al. (2015) stratified cyberbullying into three categories: verbal/textual aggression, visual/sexual aggression, and social exclusion. Verbal aggression refers to sending angry,

abusive, and vulgar messages online or saying mean things via electronic communication with the intent to hurt another person. Visual aggression refers to posting or sending demeaning sexual content such as private pictures/videos to shame another person, while social exclusion refers to excluding a person from online group activities or social communities with the intent to hurt that person.

Cyberbullying is a specific phenomenon that differs from traditional, i.e., face-to-face aggression, in several ways. First, individuals who engage in cyberbullying may do so anonymously or with fake profiles/identities, whereas in situations involving traditional aggression, the aggressor is usually known (Li et al., 2022; Thomas et al. 2015). Second, in the online environment, there is no effect of physical strength, whereas in traditional aggression, this effect is significant. In the context of cyberbullying, greater importance lies in the perpetrator's technological skills and their ability to access the victim through information and communication technology (Slonje and Smith, 2008). Third, due to the nature of online communication, cyberbullying is more far-reaching than traditional aggression. Namely, content once posted on the internet can immediately reach a large number of people, much more so than traditional aggression. This implies that cyberbullying has greater potential for 'publicity', i.e., a large and public audience (Kowalski et al., 2014; Thomas et al. 2015). Similarly, cyberbullying can have an impact over a longer duration of time because traditional aggression ends when we physically move away from the aggressor (e.g., when a person goes home from school), whereas cyberbullying is experienced even when the aggressor is not present on the internet (Slonje and Smith, 2008). Its impact on victims is far more pervasive than that of traditional aggression (Ferrara et al., 2018) and it can be difficult for victims to separate from the online environment (Casas et al., 2013). Finally, in traditional aggression, it is possible to see and experience the victim's reaction (Kowalski et al., 2014), whereas this aspect is often absent in cyberbullying, which can exacerbate the attacker's impulsive and aggressive behaviour.

Despite the attention that cyberbullying has received from many researchers, few studies that have examined this phenomenon among young adults. However, this seems unwarranted as, for example, Dilmac (2009) reported in his study that 22.5% of young adults reported experiencing cyberbullying, while Turan and colleagues (2011) reported that approximately half of the participants in their study experienced some form of internet violence. Studies (such as Faucher et al., 2014) have also shown that this behaviour can have serious consequences for the youth involved, including feelings of sadness, anger, trust difficulties, increased stress levels, decreased productivity, and feelings of vulnerability (Faucher et al., 2014). It is because of these consequences and the need to develop interventions to prevent such behaviour that further research must be conducted focusing on the risk factors and development of this behaviour.

Theoretical predictions about the development of cyberbullying

Despite the need to study cyberbullying, until recently the literature lacked a theoretical model that addressed this behaviour. Barlett and Gentile (2012) emphasised the importance of theoretical explanations focusing on the factors specific to cyberbullying compared to face-to-face aggression and developed a model in which a specific factor of cyberbullying - anonymity - is given a significant role. Furthermore, according to Barlett and Gentile's (2012) model, anonymity is more pronounced in the online world because it is harder to identify the aggressor, especially since they may not necessarily have a relationship with the victim. Although traditional aggression can also be anonymous (e.g., spreading rumours about someone on a piece of paper), the online world allows aggressors to have increased anonymity that is not as present as in the real world (Barlett, 2015), which can lead to more frequent aggression (Barlett and Gentile, 2012; Barlett et al., 2016).

Moreover, according to Barlett and Gentile's (2012) cyberbullying model, the cyberbully's perception of online anonymity and the belief that he or she cannot be punished for aggressive behaviour on the internet because his or her identity cannot be determined may prompt the same cyberbully to develop positive attitudes toward cyberbullying.

According to this model, positive attitudes toward cyberbullying are ultimately a significant predictor of cyberbullying (Barlett and Gentile, 2012; Barlett, 2015; Barlett, 2017; Barlett et al., 2016).

Previous research

The model's assumptions about the direct contribution of perceived anonymity in predicting cyberbullying have been confirmed in a few studies (e.g., Santana, 2014; Moore et al., 2012; Barlett and Gentile, 2012; Wright, 2013). However, there are studies in which this direct relationship has not been confirmed (e.g., Barlett et al., 2020; Zhao et al., 2022), and also a study in which it has been only partially confirmed (Barlett et al., 2016). Barlett et al. (2016) reported that perceived anonymity in the first wave has a direct effect on cyberbullying behaviour in the second wave, but anonymity from the second and third waves do not have a direct effect on cyberbullying behaviour in subsequent waves. Unlike this effect, the relationship between positive attitudes toward cyberbullying and cyberbullying itself is well established (e.g., Barlett et al., 2020; Barlett et al., 2016; Barlett and Gentile, 2012).

However, the model's mediating link of how perceived anonymity leads to positive attitudes toward cyberbullying, which ultimately predicts cyberbullying, has rarely been examined. Of the studies that have examined this mediating effect, a cross-sectional study of psychology students conducted by Barlett (2015) certainly deserves mention. This study confirmed that the frequency of instant messaging significantly predicted perceived anonymity. Furthermore, perceived anonymity proved to be a significant predictor of more positive attitudes toward cyberbullying, which ultimately predicted greater cyberbullying itself. This study could be criticised for being a cross-sectional study, but this limitation was overcome in the longitudinal study conducted by Barlett et al. (2016) with a sample of undergraduate students. The results of this study also confirmed the mediation model previously mentioned. Recently, Barlett and Gentile's cyberbullying model has been shown to have mostly universal postulates in both independent and interdependent cultures (Barlett et al., 2020).

Barlett (2017) noted the need to explore the possibility of moderating effects of some variables in this mediation model to further test the validity of the assumptions of this cyberbullying model. Barlett (2017) stated that one of these factors could be the frequency of internet use and explains that the postulates of the model could be more pronounced with higher levels of this variable. Thus, according to Barlett (2017), frequency of internet use could be a moderator variable in the relationship between perceived anonymity and cyberbullying, as well as between positive attitudes toward cyberbullying and cyberbullying itself.

Research objective and hypotheses

As indicated by a review of Barlett and Gentile's (2012) cyberbullying model, there are relatively few studies that have tested the assumptions of this model in terms of the mediating relationship between the variables hypothesised in it. As the present study will test the existence of a mediating effect of positive attitudes toward cyberbullying in relation to perceived anonymity on the internet and cyberbullying, this represents a significant theoretical contribution to the existing knowledge on the subject. In addition, the study will also test the existence of a moderating effect of frequency of internet use in the relationship between perceived anonymity and cyberbullying, consistent with the recommendations of the authors of this model to further test its validity. In addition to these contributions to the literature, the contribution of this study lies in the fact that it was conducted with participants in the younger adult age group. Indeed, most research on cyberbullying has been conducted with a sample of children and adolescents, although research has shown that this behaviour persists in the younger adult age group and that it can have significant consequences for individuals in this age group as well.

Based on Barlett and Gentile's (2012) cyberbullying model and considering the under-researched issues in the literature, four hypotheses were formulated for the study. The first hypothesis

concerns the direct effect of higher perceived anonymity on more frequent cyberbullying (H1). The second hypothesis of the study relates to the mediation effect hypothesised in this model, which states that higher perceived anonymity predicts the development of more positive attitudes toward cyberbullying and that positive attitudes ultimately predict more frequent cyberbullying (H2). The next two hypotheses do not relate to the relationship between variables directly specified in Barlett and Gentile's (2012) cyberbullying model, but to the recommendations of one of the authors to further test the validity of the model. Consistent with Barlett's (2017) recommendations, we hypothesised that the effect of perceived anonymity on cyberbullying will be significantly higher among participants who use the internet more frequently than among those who use it less frequently (H3). It is also hypothesised that positive attitudes toward cyberbullying will have a significantly higher effect on cyberbullying among participants who use the internet more frequently than among those who use it less frequently (H4).

METHODS

2.1. Participants

A total of 329 students (219 women, 110 men) aged 18 to 30 years (SD = 2.50) participated in this study. This is a convenience sample composed of students from different disciplines, with the majority coming from the social sciences (38.9%), followed by the humanities (19.5%) and technical sciences (19.1%).

2.2. Instruments

The Cyberbullying Perpetration (CBP) Scale (Lee et al., 2015) was used to assess cyberbullying. This is a self-report scale that measures the frequency of engaging in various aggressive behaviours directed at an individual or group using some form of communication technology. The scale consists of 20 items (e.g., "I have said mean things about someone on instant messenger or in chat rooms with intent to upset the person") and participants must rate the frequency of the behaviour expressed in the item on a 5-point scale (1 - never; 5 - always). The total score is calculated by averaging the frequency of the behaviour across all 20 items, with a higher score representing a higher frequency of engaging in cyberbullying. The dimensionality of the scale was tested by factor analysis, which showed that there are two factors with eigenvalues greater than 1, but according to the scree plot, only one factor is significant. Extraction of the two factors showed that all items are predominantly loaded with the first factor and that a meaningful interpretation of the second factor is not possible. According to Tabachnick and Fidell (2012), the factor is poorly defined if only one item loads highly on that factor. In this case, none of the items load highly on a second factor (the highest loading is .50). Therefore, only one factor was extracted in the next step. The results of the factor analysis showed that this one factor explained 47.4% of the common variance and all items had loadings greater than .40. The Cronbach's alpha in this study for the total scale is .93, which is consistent with the value obtained in the study by Lee and colleagues (2015).

Perceived anonymity was measured using the Anonymity subscale from Anonymity and Strength Differential (ASD) (Barlett and Gentile, 2012). The scale consists of five items that measure a person's experience of anonymity on the internet (e.g., "Sending mean e-mails or text messages is easy because I am not face-to-face with the other person."). Responses were provided based on a 5-point Likert scale, with 1 representing complete disagreement and 5 representing complete agreement with the item. Since the scale was applied to the Croatian sample for the first time in the present study, back translation was carried out and an exploratory factor analysis was performed on the obtained data. The Kaiser-Guttman criteria and the Scree test have shown that there are two significant factors (three items were projected onto the first factor and the other two onto the second). However, due to low reliability of the Scree test in this case and poorly defined second factor (Tabachnick and Fidell, 2012) with only two items, factor analysis was conducted with one-factor solution. The results of this exploratory factor analysis showed

that this factor explained 48.6% of the common variance and all items had satisfactory loadings (above .30) on this one extracted factor. The total score was computed by summing the estimates of all five items, with a higher score indicating stronger perceived anonymity. Internal consistency, as measured by Cronbach's alpha, was satisfactory in this study (α = .73), whereas it was somewhat lower in previous studies (e.g., α = .62 in Barlett and Gentile, 2012).

Positive attitudes toward cyberbullying were measured using the Positive Attitudes toward Cyberbullying Questionnaire (PACQ, Barlett and Gentile, 2012). The questionnaire consisted of 9 items related to attitudes toward various forms of aggressive behaviour on the Internet. Participants rated their agreement or disagreement with the items on a 5-point scale (1 - strongly disagree, 5 – strongly agree). For example, "People who join groups on Facebook or Instagram that make fun of others are justified in doing so." This questionnaire was applied for the first time to a Croatian sample and back translation was carried out and an exploratory factor analysis was performed on the obtained data. Scree plot and Kaiser-Guttman criteria showed the presence of three significant factors. The first factor was loaded with 7 positively worded items, the agreement of which indicated a positive attitudes toward cyberbullying. The second factor consisted of two negatively worded items, which were the only negatively worded items in the questionnaire (the items "I do not find it appropriate to send mean text messages or e-mails to others." and "I feel bad sending mean text messages or e-mails to others."). The third factor consisted of items that have predominantly loaded on first factor. There are no items that had loadings on third factor greater than .40. Since there are only two items in the second factor and they do not differ in content from the others, but only in the wording of the items, these two items were excluded from further processing. After their removal, a one-factor structure was obtained, with this one factor explaining 47.4% of the variance and all items having loadings greater than .40. The total score on this questionnaire is obtained by summing the scores on the 7 remaining items, with a higher score indicating a stronger positive attitudes toward cyberbullying. The Cronbach's alpha in this study was .78 and in previous studies (e.g., Barlett and Gentile, 2012) was .76 for all 9 items.

Frequency of internet use was measured by a question asking participants to estimate how much time, on average, they spent on the internet for leisure/relaxation purposes. Possible responses were less than an hour, 1-2 hours, 2-4 hours, 4-6 hours, and more than 6 hours.

2.3. Procedure

The study was conducted between February 19 and March 31, 2021, using an online method via Google Forms. University students were invited to participate in an online survey. The invitation was distributed via social media to various student groups on social networks such as student associations and residence halls. Students were also asked to forward the invitation to their friends and colleagues. After opening the link, before they began filling out the questionnaire, participants were informed about the purpose of the study. Their anonymity and the voluntary nature of their participation in the study were guaranteed. They were also explained that the data would only be presented at the group level and would only be used for research purposes. It was made clear to all participants that they could withdraw from further participation in the study at any point and that they could contact the researchers if they had any doubts or questions related to the study. To confirm their consent to participate in the study, participants had to click the "Next" button after receiving all the information about the study. It took about 15 minutes to complete the questionnaire.

2.4. Data analysis

To test the hypotheses, a moderated mediation analysis was conducted. In this model, the variable positive attitudes toward cyberbullying was defined as a mediator in the relationship between perceived anonymity and cyberbullying, and in the same model, the variable frequency of internet use was defined as a moderator in the relationship

between positive attitudes towards cyberbullying and actual cyberbullying, as well as in the relationship between perceived anonymity and cyberbullying.

The analysis of moderated mediation was conducted using PROCESS macro for SPSS, a method that does not require any specific assumptions about data distribution (Hayes, 2012). This method is based on the bootstrapping test procedure for significance. It is common in the literature to take 5,000 bootstrap samples with 95% confidence intervals (CIs), where these confidence intervals are estimated based on the empirical distributions of the sample results, which can more accurately determine whether certain effects are significant. We refer to a significant mediation or moderation effect if the confidence interval determined does not include zero, i.e., if we can determine with 95% confidence that it is not the result of random variation.

RESULTS

The results of the descriptive analysis (Table 1) show that, on average, participants in this study showed lower levels of perceived anonymity, as well as positive attitudes toward cyberbullying, and they rarely engaged in cyberbullying. Since the frequency of internet use for leisure and relaxation purposes was measured on an ordinal scale with five response categories, mean as a measure of central tendency and standard deviation as a measure of dispersion were not reported for this variable in Table 1, as was the case for the other variables. As there were significantly fewer participants in the extreme categories (less than 1 hour per day and more than 6 hours per day), a reclassification was performed, and internet use was classify into three categories: (1) lower frequency (less than an hour and 1-2 hours); (2) medium frequency (2-4 hours); and (3) higher frequency (4-6 hours and more than 6 hours). In this case, 20.7% of the participants estimated that they used the Internet for leisure and relaxation for up to 2 hours, 38.3% were classified in the category representing medium frequency of use (from 2 to 4 hours), and 41% were classified in the category of higher frequency (more than 4 hours).

As reported in Table 1, all measured variables were correlated, except for frequency of internet use and perceived anonymity. Relatively high correlation values were observed between perceived anonymity and positive attitudes toward cyberbullying, as well as between positive attitudes toward cyberbullying and cyberbullying itself.

Table 1. *Descriptive statistics and correlations between variables in the tested model (N = 329)*

Variable	*M (SD)*	*Min*	*Max*	1	2	3	4
1. Frequency of internet use				-	.02	.13*	.10*
2. Perceived anonymity	9.82 (4.22)	5	25		-	.51**	.31**
3. Positive attitudes towards cyberbullying	10.03 (3.81)	7	35			-	.59**
4. Cyberbullying	1.21 (0.35)	1	5				-

M, Mean; Max, highest possible value; *Min,* lowest possible value; SD, standard deviation.
* $p < .05$; ** $p < .01$

The tested moderation-mediation model explained 25.7% of the variance in positive attitudes toward cyberbullying ($F = 113.10$, $df = 1/327$, $p < .01$) and 36.6% of the variance in cyberbullying ($F = 37.26$, $df = 5/323$, $p < .01$). The direct effect of perceived anonymity on cyberbullying was not statistically significant (Table 2), so the first hypothesis of this study is rejected. As for the hypothesised mediating effect of positive attitudes on the relationship between perceived anonymity and cyberbullying, the results show that this mediating effect is significant. Higher perceived anonymity is associated with more positive attitudes toward cyberbullying, and positive attitudes are in turn associated with cyberbullying itself. Therefore, the results confirm the second hypothesis of this study.

Table 2. *Unstandardized regression coefficients and their confidence intervals in testing a moderated mediation (N = 329)*

Criteria: Positive attitudes toward cyberbullying				
	b	t	LLCI	ULCI
Perceived anonymity	0.457	7.542**	0.338	0.576
Criteria: Cyberbullying				
	b	t	LLCI	ULCI
Perceived anonymity	0.006	0.954	- 0.006	0.018
Positive attitudes toward cyberbullying	0.063	1.981*	0.004	0.125
Internet use - medium frequency	0.029	0.493	- 0.088	0.146
Internet use - higher frequency	0.028	0.626	- 0.060	0.116
Anonymity x medium frequency	- 0.002	- 0.178	- 0.026	0.022
Anonymity x higher frequency	- 0.012	- 1.387	- 0.030	0.005
Attitudes x medium frequency	0.006	0.153	- 0.076	0.089
Attitudes x higher frequency	- 0.021	- 0.604	- 0.089	0.047

b, unstandardized regression coefficient; LLCI, lower limit confidence interval; ULCI, upper limit confidence interval; t, t-test. * $p < .05$; ** $p < .01$

The results of the moderated mediation analysis showed that there was no significant difference between the direct and indirect effects of perceived anonymity on cyberbullying at different levels of the moderator variable. There was no difference when comparing the group with moderate internet use and the group with lower use (b = 0.003, BootLLCI = - 0.019, BootULCI = 0.027), nor when comparing the groups with high and low internet use (b = - 0.010, BootLLCI = - 0.027, BootULCI = 0.012). Therefore, we can conclude that neither the third nor the fourth hypothesis of this study is confirmed. Table 3 shows that the direct effects of perceived anonymity on cyberbullying are not significant at any level of the moderator variable, whereas the indirect effects of perceived anonymity on cyberbullying through positive attitudes toward cyberbullying are significant at all levels of the moderator variable.

Table 3. *Direct and indirect effects of perceived anonymity on cyberbullying at different levels of frequency of internet use (N = 329)*

Direct effects of perceived anonymity on cyberbullying			
Frequency of internet use	b	BootLLCI	BootULCI
Lower	0.006	- 0.006	0.018
Medium	0.004	- 0.017	0.024
Higher	- 0.006	- 0.019	0.006
Direct effects of perceived anonymity on cyberbullying through attitudes toward cyberbullying			
Frequency of internet use	b	BootLLCI	BootULCI
Lower	0.029	0.009	0.043
Medium	0.032	0.010	0.051
Higher	0.019	0.009	0.031

b, unstandardized regression coefficient; BootLLCI, bootstrap lower limit confidence interval; BootULCI, bootstrap upper limit confidence interval

DISCUSSION

Based on the obtained results, it can be stated that the key hypothesis of the study, which refers to the basic assumption of the cyberbullying model (Barlett and Gentile, 2012), was the only one confirmed. In particular, only the second hypothesis of the study was confirmed, which states that positive attitudes toward cyberbullying is a significant mediator in the relationship between perceived anonymity and cyberbullying.

Consistent with the premises of Barlett and Gentile's (2012) cyberbullying model, we hypothesised that perceived anonymity, a very important variable related to online aggression, will have a direct effect on cyberbullying (H1), as well as an indirect effect through positive attitudes toward cyberbullying (H2). Therefore, the partial mediation of positive attitudes toward cyberbullying in the relationship between perceived anonymity and cyberbullying was hypothesised. The results show a significant mediation effect, just as Barlett and Gentile (2012) hypothesised, but it is a full mediation of positive attitudes toward cyberbullying. Expressed perceived anonymity predicts positive attitudes toward cyberbullying, which in turn predicts more frequent cyberbullying itself. Analysis of the coefficients of the variables involved in the tested cyberbullying model showed that positive attitudes towards cyberbullying provides the relatively highest contribution to the prediction of the criterion variable of cyberbullying. The emphasis on the importance of attitudes towards a particular behaviour in predicting the performance of the same behaviour is a relationship that has been well established and tested in some major theories in the field of social psychology, such as the theory of planned behaviour (e.g., Fishbein and Ajzen, 2010; Steinmetz et al. 2016). Although some researchers (e.g., Wicker, 1969) in the 1960s advocated for the complete rejection of attitudes as predictors of behaviour, subsequent methodological and theoretical improvements have led to the recognition that attitudes are good predictors of behaviour. For example, the results of several meta-analyses have shown that correlations between attitudes and behaviour can reach moderate correlations in terms of magnitude (e.g., Glasman and Albarracin, 2006; Kim and Hunter, 1993; Pina Lopez et al., 2022). The results obtained in the present study are consistent with the findings of these meta-analyses, with a significant correlation of .59 between attitudes toward cyberbullying and cyberbullying itself.

Central to the cyberbullying model is the construct of anonymity that an individual may feel and its impact on cyberbullying. Research in this area confirms the relationship between anonymity and cyberbullying. Specifically, Santana (2014) showed that 53% of anonymous comments posted online were inappropriate, compared to 29% of comments that were not posted anonymously. Similarly, Moore et al. (2012) analysed online forums and found that aggressive attacks on forums were mostly anonymous. However, research findings regarding direct effect of anonymity on cyberbullying along with mediation by positive attitudes toward cyberbullying are inconclusive. The results of the present study did not confirm a direct effect of perceived anonymity on the act of cyberbullying. Consistent with the aforementioned research, the present study also confirmed the relationship between perceived anonymity and cyberbullying ($r = 0.31$), but it did not confirm a direct effect of anonymity on cyberbullying after controlling for the effect of attitudes toward cyberbullying. Similar results have been obtained in other studies in the field (e.g., Barlett et al., 2020; Barlett et al., 2016; Zhao et al., 2022). Despite the existence of a relationship between these two variables, when testing mediation effects between them, it is not surprising that significant mediation, obtained with different mediators or types of operationalisation, can be partial in some cases and complete in others. The existence of a relationship between two variables does not guarantee the existence of a direct effect of one variable on the other in different mediating relationships and different construct operationalisations. For example, Wright (2013) conducted a longitudinal study to show that the relationship between beliefs about anonymity and cyberbullying is mediated by the belief that the person will not be caught and the belief that the content on the internet is not permanent, that being said, no direct ef-

fect was confirmed. On the other hand, Barlett and Gentile (2012) confirmed in their cross-sectional study that positive attitudes toward cyberbullying partially mediated the relationship between perceived anonymity and frequency of cyberbullying, and they operationalised these constructs in a similar manner as in the present study. However, it seems that this finding of partial mediation is not consistent enough across different types of operationalisation to conclude that anonymity affects cyberbullying, apart from its effect via positive attitudes toward cyberbullying.

In contrast to the first two hypotheses of the study, the third and fourth hypotheses are not consistent with the assumptions of Barlett and Gentile's (2012) model, because this model does not include frequency of internet use, to which these hypotheses refer. Although some studies have shown that more frequent internet use (especially social networks) is associated with more frequent cyberbullying (Walrave and Heirman, 2009; Livingstone et al., 2011; Festl et al. 2013), this relationship was not demonstrated in this study. Barlett (2017) suggested frequency of internet use as a potential moderator in the model of online aggression. According to the author, higher frequency of internet use could reinforce the assumptions of the model, i.e., the effects of anonymity and attitudes toward cyberbullying on the cyberbullying itself. The results of the present study did not confirm the third and fourth hypotheses, i.e., a significant moderator effect of frequency of internet use was not demonstrated. Rather, the proposed mediating relationship between anonymity, positive attitudes toward cyberbullying, and the cyberbullying itself was found to be the same for all participants, regardless of their frequency of internet use. However, the moderator effect of internet use frequency should still be tested in future studies that would perhaps operationalise the constructs involved in the present study in other ways.

Despite the numerous advantages of the research, it has certain limitations. The first limitation relates to the fact that the study was not longitudinal, so no causal conclusions can be drawn. The second limitation relates to the measure of anonymity. The study measured perceived internet anonymity and it would be extremely valuable for future research to examine the mediating effect of attitudes toward cyberbullying between actual anonymity and cyberbullying. Similarly, future research should examine the potential moderating effects of some personality variables suggested by Barlett (2017), such as normative aggressive beliefs, anger as a personality trait, or narcissism. Future research should also examine the effects of some other factors specific to cyberbullying, such as the bully's belief that cyberbullying does not bother their victims that much (Campbell at al., 2013; Vanderbosch and Van Cleemput, 2008) or their own personal experience with bullying, since research has shown a relationship between cyberbullying victimisation and perpetration (e.g., Zhan et al., 2022; Zhu et al., 2021). If some of these factors prove to be important in explaining cyberbullying, this opens up the possibility for expanding the model.

CONCLUSION

The results of this study confirm the hypothesis of Barlett and Gentile's cyberbullying model that positive attitudes toward cyberbullying serve as a mediator in the relationship between perceived anonymity and cyberbullying. However, the direct effect of perceived anonymity on cyberbullying was not significant, nor was there a moderating effect of frequency of internet use. The basic premise of the tested model, that higher perceived anonymity is related to more positive attitudes toward cyberbullying and that these positive attitudes are associated with more frequent cyberbullying, was demonstrated to be independent of frequency of internet use.

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