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Gratitude as a protective factor for cybervictimisation and anxiety symptomatology: A prospective study

Abstract

The possible protective factor of gratitude on experiences of cyberbullying behaviours and anxiety symptomatology was examined. A sample of 981 adolescents (55.45% females) participated in a two-wave study, completing three self-report measures. There was a period of 16 weeks between the two data collections. The measuring instruments assessed gratitude (Gratitude Questionnaire: GQ-5), cybervictimisation (European Cyberbullying Intervention Project Questionnaire: ECIPQ) and anxiety symptomatology (Depression, Anxiety and Stress Scales: DASS). A serial mediation analysis was performed to examine the possible predictor role of gratitude on cybervictimisation and anxiety symptomatology. Outcomes reported that gratitude was related to cybervictimisation (Time 1) and anxiety symptomatology (Time 2). Furthermore, a sequential pathway was found from gratitude to cybervictimisation 16 weeks later, firstly through cybervictimisation (Time 1) and then through anxiety symptomatology (Time 2). These findings confirm previous research about the protective role of gratitude to minimise the negative impact of cyberbullying behaviours. Moreover, the first evidence on the potential protective role of gratitude for decreasing the likelihood of suffering cybervictimisation is provided.

Keywords: Gratitude; Anxiety; Cybervictimization; Ex post facto study.

Introduction

Cyberbullying is a type of aggressive behaviour suffered by many adolescents around the world. This type of aggression is performed in an intentional and repeated way by a person or group of people on another peer, who has difficulty defending him/herself, using electronic devices and the Internet (Smith et al., 2008). Moreover, some of the specific characteristics of cyberbullying can make it more difficult for cybervictims to defend themselves, such as the cyberaggressor's anonymity or the increased permanency and rapid dissemination of hurtful content in cyberspace (e.g. Evangelio et al., 2022; Kowalski et al., 2019).

Scientific literature evidences a severe negative impact on the well-being and mental health of cybervictimised adolescents. Cybervictims tend to show worse psychological maladjustment, such as higher levels of depressive symptoms and stress, higher feeling of loneliness and more negative emotions, along with lower levels of well-being and self-esteem (Audrin & Blaya, 2020; Camerini et al., 2020; Evangelio et al., 2022; Martínez-Monteagudo et al., 2020). In addition, these adolescents are more likely to experience several mental health problems, such as anxiety symptomatology, in the short and the long term (Chen & Zhu, 2022; Holfeld & Mishna, 2019; Marciano et al., 2020; Martínez-Monteagudo et al., 2020). For instance, Martínez-Monteagudo et al.'s study (2020) found that 72.20% of cybervictims reported high levels of anxiety symptomatology. Furthermore, when there is no good management of these situations, cybervictimised adolescents may suffer more severe negative consequences, such as a higher risk of suicidal attempt and ideation (Hinduja & Patchin, 2019; Martínez-Monteagudo et al., 2020).

Based on the severe negative impact on cybervictimised adolescents' well-being and psychological adjustment, the scientific literature has examined several risk and

protective factors for becoming a cybervictim (e.g. Camerini et al., 2020; Evangelio et al., 2022; Kowalski et al., 2019; Zych et al., 2019). Among the risk factors, previous research points out that those adolescents who report emotional problems, feelings of loneliness, low self-esteem, low self-efficacy and low perceived social support show an increase in the likelihood of suffering cyberbullying behaviours (Camerini et al., 2020; Marín Cortés et al., 2019). Likewise, mental health problems, such as anxiety symptomatology, also can be a risk factor of becoming a cybervictim (Camerini et al., 2020; Holfeld & Mishna, 2019; Marciano et al., 2020; Marín Cortés et al., 2019). Therefore, several research analysed the possible reciprocity on the relationship between cybervictimisation and anxiety symptomatology. For instance, Rose and Tynes (2015) found that anxiety symptomatology can be both a predictor and a result of cybervictimisation over time. Moreover, a meta-analyse of longitudinal studies performing by Marciano and colleagues (2020) also evidences the reciprocal relation between cybervictimisation and anxiety symptomatology. In addition, previous studies showed that suffering cybervictimisation in a first time increases the chances of suffering it again, a second time (Alonso & Romero, 2020; Marciano et al., 2020). Therefore, a possible model that can help to understand how experiencing cybervictimisation a first time can increase the risk of experiencing it a second time, as well as the reciprocal relationship between cybervictimisation and anxiety symptomatology, is the victim schema model developed by Rosen and colleagues (2009). Following this model, suffering cybervictimisation would interact with adolescents' social, cognitive, and emotional processing, fostering a 'victim schema' in them and making it difficult to manage their emotional distress and adaptive responses to situations. All this would increase the chances of being cyberbullied again (Rosen et al., 2009). Thus, suffering cybervictimisation is an adverse experience that can lead to

develop anxiety symptomatology over time (Chen & Zhu, 2022; Marciano et al., 2020). An increase in anxiety symptomatology could be a vulnerability for cybervictims (Chen & Zhu, 2022; Marciano et al., 2020; Rosen et al., 2009). This may possibly be due to the negative impact of anxiety on adolescents' social and personal functioning (e.g. lower social competences, lower social self-efficacy or higher feeling of loneliness, among others; de Lijster et al., 2018). So, these difficulties and vulnerabilities could increase the likelihood that these adolescents would suffer cybervictimisation again (Marciano et al., 2020).

Regarding protective factors, early studies showed that higher levels of empathy, more capacity for resilience, high self-efficacy to defend oneself and adequate skills to manage emotions can prevent adolescents from suffering cybervictimisation (Kabadayi & Sari, 2018; Kowalski et al., 2019; Marín Cortés et al., 2019; Zych et al., 2019). Moreover, higher social and peer support, higher levels of satisfaction with school and a more positive school climate can protect against cyberbullying behaviours (Cortés-Pascual et al., 2020; Kowalski et al., 2019; Marín Cortés et al., 2019; Zych et al., 2019).

One of the personal resources that has recently been studied and is providing evidence to promote mental health, foster positive social relationships and reduce aggressive experiences is gratitude (e.g. Caleon et al., 2019; Portocarrero et al., 2020; Stieger et al., 2020; Valikhani et al., 2019). Gratitude is defined as the tendency to recognise and appreciate positive experiences, as well as to respond to the good actions that other people realise for our benefit (McCullough et al., 2002; Wood et al., 2010). In related to mental health, scientific literature provides evidence that gratitude can promote well-being, life satisfaction, and positive affect (e.g. Balgiu, 2019; Xiang & Yuan, 2021; Yang et al., 2021). In addition, higher levels of gratitude are related to lower levels of psychological maladjustment, such as depression, anxiety, and stress

(e.g. Iodice et al., 2021; Jans-Beken, 2019; Valikhani et al., 2019). Specifically, several studies provide evidence that grateful people tend to report lower levels of anxiety symptomatology (e.g. Petrocchi & Couyoumdjian, 2016; Sun et al., 2020; Wang et al., 2022). One theoretical approach to try to understand the negative relationship between gratitude and anxiety symptomatology is Fredrickson's broaden-and-build theory (1998). According to this theory, gratitude is a positive emotion that would foster broader though-action repertoires in people, promoting the building of social and personal resources (Fredrickson, 1998). This building of resources would favour a better management of different situations, reducing, as a consequence, the development of mental health problems (Fredrickson, 1998). Following this theory, previous studies show that gratitude can prevent anxiety symptomatology through promotion of several resources, such as social support, capacity of resilience and adaptive coping (Petrocchi & Couyoumdjian, 2016; Sun et al., 2020; Wang et al., 2022). Despite these findings, more research is needed to examine the role of gratitude on anxiety symptomatology with adolescents. This is especially important in cyberbullying contexts where to our knowledge there are no studies that analysing the role of gratitude on anxiety symptomatology.

Regarding interpersonal relationships and aggressive situations, gratitude can foster the relatedness and connectedness with other, as well as can increase the quality of social relationships (Caleon et al., 2019; Dennis & Ogden, 2022; Jiang et al., 2022). All of this can help prevent suffer aggressive behaviour, such as cybervictimisation (Kowalski et al., 2019; Strohmeier & Gradinger, 2022; Zych et al., 2019). These benefits of gratitude on social functioning can be explained by Algoe's find-remind-and-bind theory (2012). Following this theory, the development of gratitude would facilitate the finding or reminding of the benefits received from others and the good experiences

that people have in social exchanges and their daily situations (Algoe, 2012). The remembering of these positive social experiences helps to bind, improve, and strengthen the interpersonal relationships with those people (Algoe, 2012). This improvement, strengthening and more satisfaction in social relationships can protect against aggressive experiences, such as cybervictimisation (e.g. Kowalski et al., 2019; Strohmeier & Gradinger, 2022) Therefore, based on Algoe's theory (2012) and benefits of gratitude in social exchanges (e.g. Caleon et al., 2019; Dennis & Ogden, 2022; Jiang et al., 2022), some researchers wanted to deepen on the role of gratitude in aggressive context (e.g. Cho & Fast, 2012; Stieger et al., 2020). Specifically, they explored if gratitude could help prevent people from being victim to aggressive situations in adult population. Findings provide evidence on the potential protective role of gratitude on suffering different forms of aggressions (e.g. Cho & Fast, 2012; Stieger et al., 2020). In this sense, the most grateful people reported fewer transgression experiences (such as suffering denigrate behaviours, insults, threats, and physical aggressions by others) than the least grateful people (Cho & Fast, 2012; Stieger et al., 2020). Nevertheless, so far, we are not aware of research that has explored this potential benefit of gratitude in preventing aggressive experiences in adolescents, let alone in contexts of cyberbullying.

As previously mentioned, cybervictimisation can trigger serious health consequences (e.g. Camerini et al., 2020), finding that a high percentage of adolescents report anxiety symptomatology as a result of this experience (Martínez-Monteagudo et al., 2020). Furthermore, cybervictimisation is an important risk factor for future cyberbullying experiences (e.g. Marciano et al., 2020). Therefore, although possible risk and protective factors for cybervictimisation have been examined, more research is needed, especially prospective or longitudinal studies (e.g. Zhu et al., 2021). So, on the one hand, in this study we have considered the scientific evidence on the reciprocal

relationships between cybervictimisation and anxiety symptomatology, as well as Rosen and colleagues' victim schema model (2009). In this sense, we have considered anxiety symptomatology as an antecedent and a consequent, to analyse its possible mediating role to understand the explanatory mechanisms of cybervictimisation over time. On the other hand, we wanted to deepen our knowledge about the role of gratitude on mental health and in cyberbullying contexts, trying to fill some of the gaps in the literature in this regard. For this purpose, we have based on the theoretical approaches to gratitude (i.e. Algoe, 2012; Fredrickson, 1998), together with previous evidence of its potential benefits in preventing anxiety symptomatology (e.g. Sun et al., 2020) and aggression experiences (e.g. Stieger et al., 2020). So, we want to examine if gratitude could also have protective effects against of cybervictimisation over time. Specifically, exploring if cybervictimisation in a first time and anxiety symptomatology over time could mediate in the link gratitude-cybervictimisation prospectively (see Figure 1). The following hypothesis were proposed:

Hypothesis 1: Gratitude (Time 1; T1) would be directly related to cybervictimisation (Time 2; T2).

Hypothesis 2: Gratitude (T1) would be indirectly related to cybervictimisation (T2), through cybervictimisation (T1).

Hypothesis 3: Gratitude (T1) would be indirectly related to cybervictimisation (T2), through anxiety symptomatology (T2).

Hypothesis 4: Gratitude (T1) would be indirectly related to cybervictimisation (T2) through serial mediation of cybervictimisation (T1) firstly and anxiety symptomatology (T2) later.

[Insert Figure 1]

Methods

Participants

A sample of 1225 adolescents from five education centres of the Andalusia region (Spain) participated in this research at T1. Of these adolescents, 85.47% (1047 students) participated again 16 weeks later (T2). Data from 66 participants were excluded from the final sample due to the battery of questionnaires not being completed correctly. Therefore, a total of 981 adolescents comprised the final sample of this study, of which 55.45% were female and 97.55% of the sample was Spanish (six adolescents did not report their nationality). Age range was 12–18 years (M_{age} = 13.72, *SD* = 1.31) and the study grades of the sample were Grade 7 (26.10%), Grade 8 (27.01%), Grade 9 (23.24%) and Grade 10 (23.65%).

Measures

Firstly, four sociodemographic details (i.e. gender, age, study grade and nationality) were requested from every participant and then three assessment measures were used.

At T1, gratitude was assessed using the *Gratitude Questionnaire* (GQ; McCullough et al., 2002). In this study, the five-item Spanish version for adolescents (Rey et al., 2018) was used to measure the disposition to be grateful. Each item was answered using a seven-point Likert-type format, ranging from 1 = totally disagree to 7 = totally agree. In the current study, Cronbach's α was .78.

At both T1 and T2, cyberbullying behaviours were assessed using the cyberbullying victimisation subscale of the *European Cyberbullying Intervention Project Questionnaire* (ECIPQ; Del Rey et al., 2015). The Spanish version validated by Ortega-Ruiz and colleagues (2016) was used in this study. This subscale measures the

frequency of cyberbullying behaviours suffered during the last two months. It comprises 11 items answered using a five-point Likert-type format, ranging from 0 = never to 4 = more times a week. In this study, Cronbach's α values were .83 (T1) and .88 (T2).

At T2, anxiety symptomatology was assessed using the anxiety subscale of the *Depression, Anxiety and Stress Scales* (DASS-21; Lovibond & Lovibond, 1995). The Spanish version validated by Bados and colleagues (2005) was used in this study. This subscale comprises 7 items assessing the frequency of anxiety symptomatology over the last seven days. Each item is answered using a four-point Likert-type format, ranging from 0 = did not apply to me at all to 3 = applied to me very much or most of the time. In the current study, Cronbach's α was .85.

Procedure

Initially, a total of 12 educational centres were contacted for participation in the study but only 41.67% (five centres) agreed to collaborate. In this study, the ethical principles of the Declaration of Helsinki (2013) were followed. Moreover, the study was approved by the Ethics Committee of [details removed for blind review]. Directors of the participating centres were informed about the research and signed a written informed consent form. Every centre informed the legal tutors' adolescents about the study. Written informed consent (in four centres) and passive consent (in one centre) were obtained from the legal tutors. Students participated voluntarily and anonymously (i.e. no personal data was requested), filling out a pencil-and-paper battery of questionnaires at two time points, with a period of 16 weeks between the data collections. To guarantee anonymity at both time points, a pseudonym was requested. Any questions from participants were resolved by two of the research group who were present during the data collections.

Data analyses

Firstly, descriptive statistics, reliability indexes and Pearson's correlations among the study variables [i.e. cybervictimisation (at T1 and T2), gratitude (T1) and anxiety symptomatology (T2)] were performed using the SPSS 23.0 programme. Then, to analyse the prospective relation between gratitude (T1) and cybervictimisation (T2) via cybervictimisation (T1) and anxiety symptomatology (T2), a serial mediation analysis using the PROCESS macro (Model 6; Hayes, 2018) was conducted (see Figure 1). Gender (coded 1 for males and 2 for females) and age were included as covariates in the analysis. In addition, mean-centred variables were used. Likewise, indirect and direct effects in the serial mediation analysis were examined using a bias corrected with 5000 bootstrap resamples and a 95% confidence interval (CI) estimate. According to Hayes (2018), an indirect effect is significant if the confidence interval does not contain zero.

Results

Descriptive results

Adequate Cronbach's α indexes were obtained for each assessment instrument. Moreover, cybervictimisation, gratitude and anxiety symptomatology were significantly associated, as expected. Thus, cybervictimisation (at T1 and T2) and anxiety symptomatology (T2) correlated positively with each other, whereas gratitude (T1) was negatively associated with them (see Table 1).

[Insert Table 1]

Serial mediation analysis

The results of serial mediation analysis showed that gratitude (T1) had a negative effect on cybervictimisation (T1) (B = –.065, p < .001) and on anxiety symptomatology (T2) (B = –.091, p < .001). Nevertheless, the direct effect of gratitude (T1) on cybervictimisation (T2) was not found (B = –.010, p = .388). Furthermore, cybervictimisation (T1) predicted anxiety symptomatology (T2) (B = .519, p < .001) and cybervictimisation (T2) (B = .507, p < .001). Likewise, anxiety symptomatology (T2) had a positive effect on cybervictimisation (T2) (B = .204, p < .001) (see Table 2 and Figure 2).

With regard to indirect effects, the results reported significant indirect effects of gratitude (T1) on cybervictimisation (T2) through cybervictimisation (T1) (path a_1b_1 = –.033; bootstrap SE = .008; bootstrap 95% CI = [–.050, –.019]) and through anxiety symptomatology (T2) (path a_2b_2 = –.019; bootstrap SE = .005; bootstrap 95% CI = [–.030, –.009]). Also, the indirect effect of gratitude (T1) on cybervictimisation (T2) through cybervictimisation (T1) firstly and anxiety symptomatology (T2) later was significant (path $a_1d_{21}b_2$ = –.007; bootstrap SE = .002; bootstrap 95% CI = [–.011, –.004]) (see Figure 2).

[Insert Figure 2 and Table 2]

Discussion

As some researchers have pointed out (e.g. Martínez-Martí et al., 2010; Salvador-Ferrer, 2017) it is necessary to analyse how gratitude works in the Spanish context. This is important given that there are few studies realised in Spanish population (e.g. Salvador-Ferrer, 2017). Further research will not only provide a better

understanding of how gratitude functions in this population, but will also allow us to corroborate whether the findings found in other cultures (e.g., the United States) can be generalised to the Spanish context (e.g. Martínez-Martí et al., 2010). In this regard, over the last decade, several studies have been conducted on the role of gratitude and its relationship with indicators of psychological adjustment in different samples (e.g., adolescents, elderly people, adults, and university students) (e.g. Bernabé-Valero et al., 2019; Pérez-Rojo et al., 2021; Rey et al., 2019; Sánchez-Álvarez et al., 2020). Nevertheless, further investigation is needed on the role of gratitude, especially in Spanish adolescent population and in cyberbullying situations, as there are few studies on the issue. Thus, we intended to deepen and broaden the understanding about the possible benefits of gratitude in mental health and aggressive experiences in Spanish adolescents. In this sense, in this study the potential protective role of gratitude on cybervictimisation and anxiety symptomatology 16 weeks later was examined in an adolescent sample. Although our results showed that gratitude did not have a direct effect on cybervictimisation 16 weeks later, in contrast to our Hypothesis 1, gratitude did have an indirect effect on it, confirming our Hypotheses 2, 3 and 4. Thus, these findings would agree with previous studies (e.g. Cho & Fast, 2012; Stieger et al., 2020), suggesting that being a grateful adolescent may have a potential protective effect against cybervictimisation experiences over time, not directly but through several underlying mechanisms that are discussed below.

Regarding the indirect relation found between gratitude and cybervictimisation 16 weeks later, through the mediating roles of cybervictimisation (T1) (Hypothesis 2) and of anxiety symptomatology (T2) (Hypothesis 3), these findings agree with theoretical approaches (i.e. Algoe, 2012; Fredrickson, 1998) and previous research (e.g. Camerini et al., 2020; Jans-Beken, 2019; Stieger et al., 2020). On the one hand,

corroborating Fredrickson's broaden-and-build theory (1998), our findings suggest that the development of awareness of and appreciating positive experiences would foster personal resources (e.g. a better coping), helping to prevent mental health problems 16 weeks later (e.g. anxiety symptomatology) (Petrocchi & Couyoumdjian, 2016) and reducing some risks of suffering cyberbullying behaviours over time (Camerini et al., 2020). On the other hand, higher levels of gratitude not only may foster adolescents' other personal resources (e.g. Kong et al., 2021; Zhang et al., 2020), which can be protective factors against cybervictimisation (e.g. Kabadayi & Sari, 2018; Zych et al., 2019), but also, being a grateful adolescent means a higher tendency to respond with amiability to the good actions that other people realise for their benefit (McCullough et al., 2002). In addition, as Stieger et al. (2020) suggested, grateful adolescents could 'evoke specific reactions from others' (Stieger et al., 2020, p. 441). Thus, according to Algoe's find-remind-and-bind theory (2012), all this can lead to significant positive effects on their social exchanges and relationships (e.g. higher social and peer perceived support, more prosocial behaviours or more relatedness with others; Bono et al., 2019; Caleon et al., 2019; Kong et al., 2021), which may help to prevent antisocial behaviours and the suffering of transgression experiences (Bono et al., 2019; Stieger et al., 2020). Therefore, our findings suggest that the development of gratitude in adolescents could help them to diminish risk factors, such as suffering cybervictimisation previously or reporting anxiety symptomatology (e.g. Camerini et al., 2020; Marciano et al., 2020). Moreover, considering the aforementioned benefits of gratitude in social and personal functioning, as well as Stieger et al.'s suggestion (2020) that grateful people could 'evoke specific reactions from others' (Stieger et al., 2020, p. 441), it is tentative to assume that gratitude could also prevent cybervictimisation through the promotion of protective factors (e.g. self-esteem, relatedness with others or social support, among

others; Caleon et al., 2019; Kong et al., 2021; Zhang et al., 2020). Nevertheless, further studies are necessary to delve into these possible underlying mechanisms in the relation between gratitude and cybervictimisation.

Finally, in relation to our fourth hypothesis, the results corroborated the indirect relation between gratitude and cybervictimisation 16 weeks later through the mediating roles of cybervictimisation (T1) firstly and anxiety symptomatology (T2) later. On the one hand, according to Rosen et al.'s victim schema model (2009), our results suggest that those adolescents who suffer cybervictimisation (T1) might have more difficulty managing their emotional distress, which might foster more anxiety symptomatology (T2) (Holfeld & Mishna, 2019; Rosen et al., 2009). This could lead to more vulnerability for these adolescents, which would favour a higher probability of suffering cybervictimisation a second time (i.e. 16 weeks later) (Marciano et al., 2020; Rosen et al., 2009). On the other hand, considering the aforementioned theoretical approaches and research (e.g. Algoe, 2012; Fredrickson, 1998; Jans-Beken, 2019; Stieger et al., 2020), these findings provide the first evidence for the potential protective role of gratitude on aggressive experiences in cyberspace over time. Thus, although further studies are necessary, it is shown that the development of appreciation and response to positive experiences in adolescents may help to diminish the likelihood of suffering their first cyberbullying experiences, which would alleviate the negative impact on mental health as a consequence, favouring the prevention of suffering further cyberbullying experiences.

Despite the strengths of this study, several limitations should be considered for the generalisation and interpretation of these findings. Firstly, the sample was a relatively reasonable size but was collected from a specific region using a convenience sample. Thus, generalisation to other populations and geographical areas is limited.

Moreover, although a prospective design was used, the period between the two data collections was 16 weeks. Therefore, it would be interesting if future studies could corroborate and confirm these findings in other populations and over longer periods (e.g. 6 or 12 months). Even though validated self-report measures were utilised for the Spanish population, some response bias could have occurred. In addition, considering the complexity of the phenomenon of cyberbullying, further studies should consider the analysis of others' point of view (e.g. familiar member or teachers) and other social, personal, familiar or mental health variables (e.g. depression symptoms, family support or social competences), in addition to gratitude and anxiety symptomatology. Likewise, it would be interesting and enriching if future research could deepen on the role of gratitude in cyberbullying. For instance, it could analyse other possible roles of gratitude (e.g. moderator) in the relationship between cybervictimisation and mental health problems. All this could allow a greater understanding of these situations and their consequences, as well as help improve their management and prevention.

Although there are some limitations, important theoretical and practical implications can be derived from this study. From a theoretical point of view, this study provides evidence of some underlying mechanisms (i.e. anxiety symptomatology) to understand how cybervictimised adolescents can suffer cyberbullying behaviours a second time, considering Rosen et al.'s victim schema model (2009). In addition, this study provides the first evidence for the potential protective role of gratitude in suffering cybervictimisation, broadening Stieger et al.'s findings (2020) to other populations (i.e. adolescents) and other aggressive behaviours (i.e. cyberbullying). This may encourage future studies to deepen understanding of the role of gratitude, not only as a buffer against the negative impact on mental health from these situations but also as a possible protective resource from them. Although further studies are necessary to

confirm and corroborate these results, from a practical point of view our findings suggest the importance of considering the development and training of recognition, appreciation, and response to positive experiences in adolescents, specifically as a potential resource that complements cyberbullying prevention programmes. On the one hand, due to the benefits of gratitude on mental health, it may favour better management or coping with difficult situations (e.g. cyberbullying context) and protect against the risk factors of these situations. On the other hand, being a grateful adolescent may foster personal and social resources, as well as positive social exchanges, which improves the management or helps to prevent cyberbullying situations, not only diminishing the performance of these behaviours on other peers (e.g. Zeng et al., 2020) but also protecting them from suffering these aggressive experiences.

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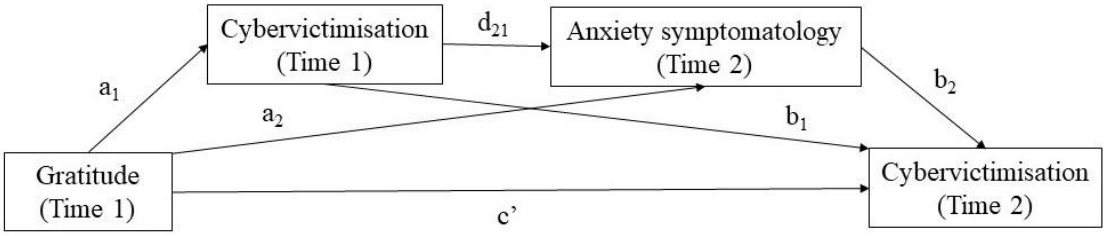

Fig. 1 The proposed serial mediation model.

Table 1 Descriptive statistics, reliability, and correlations

	1	2	3	4
1. Gratitude (Time 1)	-			
2. Cybervictimisation (Time 1)	-.21***	-		
3. Anxiety symptomatology (Time 2)	-.20***	.32***	-	
4. Cybervictimisation (Time 2)	-.17***	.51***	.43***	-
α	.78	.83	.85	.88
Mean	5.69	.23	.61	.26
Standard deviation	1.14	.38	.67	.46

*** $p < .001$.

Table 2 Results of the serial mediation analysis

Antecedent	Consequent		
	M_1 = Cybervictimisation (T1)		
	Coefficient	Standard error	95% CI (lower to upper)
IV = Gratitude (T1)	-.065***	.010	-.086 to -.045
CO = Gender	.017	.024	-.029 to .064
CO = Age	.034***	.009	.017 to .052
Constant	.110	.143	-.172 to .391
R^2	.057		
F (*df*)	19.718*** (3, 977)		
	M_2 = Anxiety symptomatology (T2)		
	Coefficient	Standard error	95% CI (lower to upper)
IV = Gratitude (T1)	-.091***	.018	-.127 to -.055
M_1 = Cybervictimisation (T1)	.519***	.055	.411 to .627
CO = Gender	.146***	.041	.067 to .226
CO = Age	-.002	.015	-.032 to .028
Constant	.803**	.247	.319 to 1.287
R^2	.134		
F (*df*)	37.845*** (4, 976)		
	DV = Cybervictimisation (T2)		
	Coefficient	Standard error	95% CI (lower to upper)
IV = Gratitude (T1)	-.010	.011	-.031 to .012
M_1 = Cybervictimisation (T1)	.507***	.034	.439 to .574
M_2 = Anxiety symptomatology (T2)	.204***	.019	.167 to .242
CO = Gender	-.051*	.024	-.098 to -.003
CO = Age	.002	.009	-.016 to .020
Constant	.127	.148	-.164 to .418
R^2	.344		
F (*df*)	102.307*** (5, 975)		

Note. IV (Independent variable); DV (Dependent variable); M (Mediator); CO (Covariate); CI (Confidence interval); T1 (Time 1); T2 (Time 2). * $p < .05$; ** $p < .01$; *** $p < .001$.

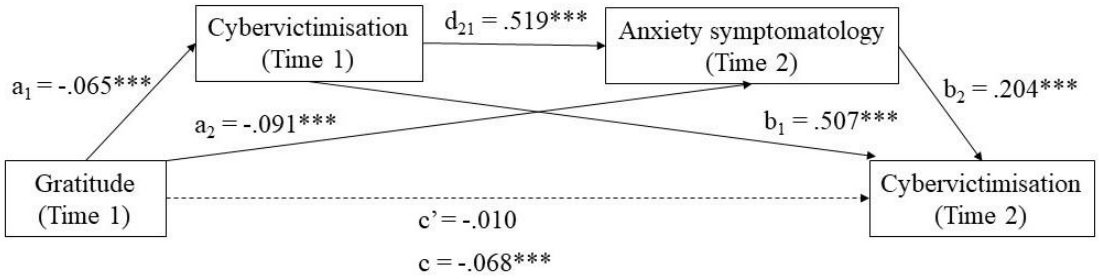

Fig. 2 Results of the serial mediation results. The dotted line indicates nonsignificant pathway. ***$p < .001$.