

Versión aceptada del artículo (Postprint) / *Accepted version of the article (Postprint)*

Este es una versión aceptada de un artículo (tras la revisión por pares y antes de su edición final por la editorial)

This is an Accepted Manuscript of an article (after peer review and prior to the publisher's final formatting)

Título / *Title*

Cybervictimization and suicidal ideation in adolescents: A prospective view through gratitude and life satisfaction

Autores / *Authors*

Chamizo-Nieto, M. T., & Rey, L.

Publicado en / *Published in*

Journal of Health Psychology

Fecha de publicación online first / *Online first publication date*

4 Enero 2023 / 4 January 2023

Fecha de asignación a volumen y número / *Date assigned to volume and issue: 2023*

Volumen / *Volume:* 28

Número / *Issue:* 7

Páginas / *Pages:* 620-632

DOI: <https://doi.org/10.1177/13591053221140259>

Cybervictimisation and suicidal ideation in adolescents: A prospective view through gratitude and life satisfaction

Abstract

Previous research reports that cybervictims are more likely to experience suicidal ideations. Gratitude and life satisfaction have shown to predict suicide risk, but they have rarely been explored in the cyberbullying context. Hence, this study examined the roles of gratitude and life satisfaction in suicide risk in cyberbullying situations. An initial sample of 858 adolescents participated in a prospective study, completing questionnaires assessing gratitude, life satisfaction, cyberbullying experiences, and suicidal ideation. Results showed that low levels of gratitude and life satisfaction influence suicidal ideation in cybervictimised adolescents. Limitations and implications of this study are discussed.

Keywords

Experience, internet, suicide, protective factors, adolescence

Introduction

In adolescence, social relationships constitute one of the most relevant aspects influencing adolescents' development and psychological adjustment. Nowadays, advances in information and communication technology have caused numerous changes in adolescents' communication patterns. Despite the benefits derived from technologies and electronic devices, they may also lead to negative consequences, such as cyberbullying experiences (Barragán Martín et al., 2021).

The phenomenon of cyberbullying is constantly changing due, in part, to new technological advances. Although there are several definitions, in general this phenomenon is defined as an intentional and interpersonal harmful act that a person or a group performs toward a peer using electronic devices and media, such as the Internet, social networks, or smartphones (Evangelio et al., 2022). In contrast to face-to-face peer aggression, the cyberspace facilitates the aggressor's anonymity, a longer duration of the harmful act, and a wider audience, making it more difficult for the victim to defend him or herself (Evangelio et al., 2022).

Cyberbullying situations are suffered by adolescents around the world, although the percentages of prevalence differ among countries (Barragán Martín et al., 2021). For instance, a prevalence of 12.6% of adolescents who suffered cyberbullying was found in John et al.'s (2018) systematic review. Likewise, in a more recent review, Camerini et al. (2020) reported a mean prevalence of 14.4% for cybervictimisation.

Suffering cybervictimisation may lead to significant negative psychological maladjustment, such as higher internalising problems (e.g., depression, anxiety, loneliness, etc.), somatic problems, stress, and negative emotions, as well as lower levels of well-being and life satisfaction (Camerini et al., 2020; Iranzo et al., 2019). Moreover, the literature provides evidence that suffering cyberbullying may be related to more severe consequences, such as deliberate self-harm and suicide risk (Heerde and Hemphill, 2019; John et al., 2018). In fact, cybervictimised adolescents show a greater likelihood of suicidal ideation (Baiden and Tadeo, 2020; Hinduja and Patchin, 2019). Specifically, a systematic review reported that these adolescents were 2.15 times more likely to experience suicidal ideation (John et al., 2018). As evidenced by the increase in scientific publications in the last years, cybervictimisation is becoming a growing and severe public health problem (Barragán Martín et al., 2021). Thus, a great number of researchers point

to the need for further research to understand the relationship between cybervictimisation and its impact on mental health (Barragán Martín et al., 2021), especially on suicidal risk, given its prevalence levels in adolescents (John et al., 2018). Therefore, we wanted to explore these issues in greater depth, analysing the linkage cybervictimisation-suicidal ideation in adolescents over time.

One of the theoretical frameworks that have been proposed to try to understand the relationship between cybervictimisation and suicidal ideation is the interpersonal theory of suicide (Van Orden et al., 2010). According to this theory, suffering cybervictimisation would be a risk factor for developing two proximal risk factors of suicidal ideation: thwarted belongingness and perceived burdensomeness (Meng et al., 2022; Van Orden et al., 2010). So, being a cybervictimised adolescent may increase the feelings of loneliness, disconnection with others, depressive symptomatology, and the perception of stress and being a burden to others (Iranzo et al., 2019; Meng et al., 2022). All of this would increase the risk of suicidal ideation in these adolescents (Iranzo et al., 2019; Meng et al., 2022).

Nevertheless, according to John et al. (2018), further research is necessary to understand the mechanisms implicated between cybervictimisation and suicide behaviours, as well as to identify protective factors in this linkage. This is especially important, as not all adolescents who suffer adversity situations (e.g., cybervictimisation) experience psychology difficulties (e.g., suicidal ideations) (e.g., Brailovskaia et al., 2018). Therefore, some researchers have tried to fill this gap by examining possible factors (e.g., positive mental health and life satisfaction; Brailovskaia et al., 2018; Chang et al., 2019) that can protect against suicidal ideation in cyberbullying contexts, according to Johnson's bi-dimensional framework (2016). Following this framework, a variable may provide better coping if it attenuates the relationship between risk and consequence, and can be understood as continuum dimension and an internal factor (Johnson, 2016). Despite these findings, these studies were cross-sectional, so it would be necessary not only to perform future prospective or longitudinal studies, but also to examine other possible protective factors to deepen understanding the cybervictimisation-suicidal ideation link, according to Brailovskaia et al. (2018); Chang et al. (2019); and John et al. (2018).

Following Johnson's bi-dimensional framework (2016), previous literature has provided evidence that gratitude could be a resource that protects against suicidal ideation (e.g., Kaniuka, Rabon, et al., 2021; Rey et al., 2019). So, several studies show the benefits of being a grateful person on peer violent behaviour, promotion of mental health, and

prevention of suicide risk (e.g., Kaniuka, Rabon, et al., 2021; Zhang and Wang, 2019). Including previous conceptualisations of gratitude, Portocarrero et al. (2020) defined this personal resource as ‘a generalized tendency to respond with grateful emotion, by noticing and appreciating one’s positive experiences and achievements’ (Portocarrero et al., 2020, p. 3).

Gratitude in general contexts has shown to promote life satisfaction, well-being, resilience, positive affect, and perceived social support, as well as to decrease levels of psychopathology (e.g., Kong et al., 2021; Portocarrero et al., 2020). Moreover, being a grateful person may prevent suicide risk (i.e., ideation and behaviours), due to some of the aforementioned benefits of gratitude (e.g., fostering more adaptive coping, positive emotions, well-being and social resources, and reducing negative beliefs and expectancies; Kaniuka, Job, et al., 2021; Kaniuka, Rabon, et al., 2021; Kwok et al., 2019). For instance, since the development of gratitude facilitates the awareness and appreciation of positive experiences, this may help to foster the development of other protective factors against suicidal ideation, such as well-being and social support (Kaniuka, Job, et al., 2021; Kaniuka, Rabon, et al., 2021). So, grateful people tend to show a broader view on the situations that occurs to them, being more aware of the positive aspects and not only the negative ones (Portocarrero et al., 2020), as well as to better perceive the help they receive from others (Kaniuka, Rabon, et al., 2021). All this favoured an increase in their levels of well-being (Kong et al., 2021) and prevent suicide ideation (Kaniuka, Job, et al., 2021).

In aggression and violence contexts, some researchers have examined the role of gratitude as a possible variable that helps to understand the consequences on mental health after having suffered aggressive behaviours, finding different results. For instance, Kwok et al.'s (2019) study found that gratitude mediated the linkage between childhood maltreatment and suicidal ideation, considering that the development of this resource might be a potential protective factor helping to adaptatively cope with negative experiences. In contrast, Zhang and Wang's (2019) findings suggested that being a grateful person alone did not explain the relationship between bullying victimisation and depression, but through its influence over self-compassion. Although further research is needed to clarify the role of gratitude in these contexts, on balance, these studies would provide evidence of the potential capacity of gratitude to prevent negative impact on mental health as consequences of suffering aggressive situations. This may be due not only to the fact that appreciation of positive experiences favours the development of self-

compassion (Kaniuka, Job, et al., 2021; Zhang and Wang, 2019). It may also promote other personal resources, such as the development of adaptive coping strategies to deal with these difficult situations, as well as help to prevent the use of less adaptive strategies (Kaniuka, Rabon, et al., 2021; Kong et al., 2021). Therefore, considering previous findings and the potential capacity of gratitude to provide a better coping with negative experiences, we want to address this gap by examining the role of gratitude in the linkage cybervictimisation-suicidal ideation.

Moreover, according to Johnson's bi-dimensional framework (2016), in addition to gratitude, previous studies show how life satisfaction could also be a variable that helps to reduce suicidal ideation, favouring a more adaptive cope with negative experiences (e.g., peer violent contexts) (Chang et al., 2019; Varela et al., 2019). On the other hand, life satisfaction is a component of subjective well-being (Diener et al., 1985) and is defined as 'the subjective assessment of an individual towards his or her life quality on the basis of self-defined standards' (Chang et al., 2019, p. 270). Higher levels of life satisfaction are related to more familial and community support, psychological well-being, and quality of life (e.g., more positive emotions and less depression, sadness, and loneliness) (Freire and Ferreira, 2018; Varela et al., 2019). Moreover, higher levels of life satisfaction predict a lesser frequency of suicidal ideation (Chang et al., 2019; Y Yang et al., 2021). Specifically, recent findings suggest that the level of life satisfaction is one of the variables that may provide a better coping and help to understand the relationship between suffering negative experiences (e.g., cybervictimisation) and reporting suicidal ideation in students (Chang et al., 2019; Y Yang et al., 2021). Nevertheless, further research is necessary in this regard. Thus, considering previous research and some limitations of Chang et al.'s (2019) research, such as a cross-sectional design or measuring cybervictimisation by one question, in the current study we wanted to deepen our understanding of the mediating role of life satisfaction in the linkage cybervictimisation-suicidal ideation over time.

Furthermore, a relation between gratitude and life satisfaction has been found by several early studies (e.g., Balgiu, 2019; K Yang et al., 2021), suggesting positive affect hypothesis (Wood et al., 2010) and broaden-and-build theory (Fredrickson, 1998) as theoretical approaches to understand the mechanisms through which grateful people may experience higher levels of life satisfaction. According to positive affect hypothesis, 'gratitude is a positively valenced emotion, and is strongly related to the habitual

experience of positive emotions' (Wood et al., 2010, p. 901), so that more experience of positive emotions may promote life satisfaction (Balgiu, 2019). In Fredrickson's broaden-and-build model (1998), gratitude would be a positive emotion that may broaden cognitive and behavioural actions, fostering the building of personal and social resources to promote life satisfaction (Xiang and Yuan, 2021).

Thus, considering previous findings and theoretical approaches (i.e., Fredrickson, 1998; Johnson, 2016; Van Orden et al., 2010; Wood et al., 2010) about the links cybervictimisation-suicidal ideation and gratitude-life satisfaction, as well as the capacity of these two positive variables to prevent suicidal ideation in violence situations (e.g., Chang et al., 2019; Kwok et al., 2019), it is tentative to assume that gratitude could mediate the relationship between cybervictimisation and suicidal ideation through fostering life satisfaction.

Therefore, in the current study, we tried to resolve some gaps in the literature in this regard. For this purpose, we examined the relation between cybervictimisation and suicidal ideation over time through potential mediator roles of gratitude and life satisfaction by a serial mediation analysis. Thus, the following hypotheses were proposed:

(1) Cybervictimisation at time 1 (T1) would be directly related to suicidal ideation at time 2 (T2).

(2) Cybervictimisation (T1) would be indirectly related to suicidal ideation (T2), through a decreased level of gratitude (T1) and life satisfaction (T2), independently.

(3) Cybervictimisation (T1) would be indirectly related on suicidal ideation (T2), through a serial mediation of gratitude (T1), firstly, and life satisfaction (T2), later.

Method

Participants and procedure

An initial sample of 1,020 students participated at T1. Of these 1,020 students, 858 (84.12%) participated again (T2). The 15% of the missing sample in T2 (162 adolescents) was due to participants not being in class at the time of the second data collection, or because participants did not write their code correctly, so it was not possible to match T1 with T2. Likewise, since 61 students did not correctly complete the battery of questionnaires, the final sample comprising this study was 797 adolescents (55.71% females) aged 12–18 years old ($M_{age} = 13.75$, $SD = 1.31$; two participants did not report

their age). A power analysis using G*Power indicated a minimum required sample size of 89 participants to evaluate the serial multiple regression model with the estimation of one dependent variable and three predictor variables, and a power of 95%. A convenience sampling method was used to obtain the sample. Therefore, the sample size obtained greatly exceeds the minimum required, due to the willingness, interest, and availability of education centres to participate. The sample was collected from four education centres of southern Spain, with most being Spanish students (97.37%; five students did not report their nationality). Their range of study grades was from 7th to 10th.

Firstly, 12 education centres were contacted to participate in the current study, which is part of a larger project whose aim was to explore adolescents' personal resources and their indicators of adjustment in different contexts. Nevertheless, only four agreed (33.33%) to participate. Directors and board members were informed about the methodology of the study. Directors signed a written informed consent form to participate and informed to legal tutors' students about the research. In three education centres, written informed consent was obtained from the legal tutors. In one centre, passive consent was obtained (i.e., legal tutors did not clearly refuse adolescents' participation in the study after a school notification). The data were collected in two waves in the same school year to avoid experimental mortality since students may change centre in the next academic year, especially those in 10th grade. Therefore, due to the availability and requirements of the students and centres, the period between the two data collections was four months (T1: January/February; T2: May/June). Adolescents participated anonymously and voluntarily, completing a battery of questionnaires in both T1 and T2. To guarantee anonymity, a code was used in both times. During data collection, some researchers and one teacher were present. Any question or difficulty was solved. This study agreed with the Declaration of Helsinki (2013) and was approved by the Ethics Committee of University of Malaga (62-2016-H).

Measures

Sex, age, study grade, and nationality were requested as sociodemographic data from every participant. In T1, the following two questionnaires were used:

The Spanish version of the European Cyberbullying Intervention Project Questionnaire (ECIPQ) (Ortega-Ruiz et al., 2016; originally developed by Del Rey et al., 2015). In this study, only the cybervictimisation scale was used, which assesses the frequency of

cyberbullying behaviour suffered during the last two months. This subscale comprises 11 items answered using a five-point Likert-type format (0 = never to more, 4 = more times a week). Following the Elipe et al.'s criterion (2018), adolescents can be classified as non-cybervictims (i.e., those who marked the “never to more” or “yes, once or twice” options in all items), occasional cybervictims (i.e., those who marked the “once or twice a month” option in at least one of the items), and severe cybervictims (i.e., those who marked the “about once a week” or “more times a week” options in at least one of the items). Spanish version showed adequate psychometric properties ($\alpha = .97$ for this subscale; Ortega-Ruiz et al., 2016). In this study, a reliability of .83 was obtained by this subscale.

The Spanish version of the Gratitude Questionnaire (GQ-5) (Rey et al., 2018; originally developed by McCullough et al., 2002). The disposition to be grateful was assessed using five items, which were answered using a seven-point Likert-type format (1 = strongly disagree, 7 = strongly agree). The higher the score obtained, the higher the levels of gratitude adolescents have. This questionnaire is the most used instrument to assess gratitude (Card, 2019). The Spanish version validated for adolescents was used by its good psychometric properties in this population (Cronbach alphas of .74 and .77; Rey et al., 2018). A reliability of .77 was obtained in this study.

In T2, participants completed the following two scales:

The Spanish version of the Satisfaction With Life Scale (SWLS) (Atienza et al., 2000; originally developed by Diener et al., 1985). This scale comprises five items measuring the grade of global satisfaction with life. Each item was answered using a seven-point Likert-type format (1 = strongly disagree, 7 = strongly agree). The higher the score obtained, the higher the levels of life satisfaction adolescents have. The Spanish version showed adequate psychometric properties in adolescents ($\alpha = .84$; Atienza et al., 2000). In this study, a reliability of .86 was obtained.

The Spanish version of the Frequency of Suicidal Ideation Inventory (FSII-S) (Sánchez-Álvarez et al., 2020; originally developed by Chang and Chang, 2016). This inventory assesses the frequency of suicidal ideation that a person has had during the last year. It comprises five items answered using a five-point Likert-type format (1 = never, 5 = almost every day). The lower the score obtained, the lower the frequency of suicidal ideation adolescents have. The Spanish version validated was used by its adequate psychometric properties ($\alpha = .89$; Sánchez-Álvarez et al., 2020). In Spanish adolescents

this instrument also obtained a high reliability ($\alpha = .89$; Quintana-Orts et al., 2022). In this study, a reliability of .92 was obtained.

Data analyses

Analyses were performed using SPSS 23.0 and PROCESS macro (Hayes, 2018). Firstly, descriptive statistics, reliabilities, and Pearson's correlations among study variables were calculated using SPSS 23.0. To examine the prospective relationship between cybervictimisation (T1) and suicidal ideation (T2) via gratitude (T1) and life satisfaction (T2), a serial mediation analysis through PROCESS macro (Model 6; Hayes, 2018) was conducted. Sex, coded as 1 for male and 2 for female, and age were included as covariates. Moreover, mean-centred variables were used. Indirect effects in the mediation analysis were examined based on bias corrected with 5,000 bootstrap resamples and a 95% percentile confidence interval (CI) estimate. Following Hayes's (2018) indications, the indirect effect is significant when the CI does not include zero.

Data sharing statement

A data set including all clearly labelled relevant variables and the de-identified individual participant data, a syntax file and a data output using SPSS 23.0 and PROCES macro (Hayes, 2018), as well as an explanatory memo detailing all relevant analysis from this study will be available on FigShare and as supplementary material on the SAGE Journals platform.

Results

Descriptive statistics and Person's correlations

As seen in Table 1, adequate reliability indexes were obtained for each measure instrument. Also, mean, and standard deviation are provided. Low levels (below average) were found in cybervictimisation and suicidal ideation. In contrast, high levels (above average) were reported in gratitude and life satisfaction. Likewise, study variables significantly correlated in an expected way. Thus, gratitude (T1) and life satisfaction (T2) positively correlated, as did cybervictimisation (T1) and suicidal ideation (T2). Moreover, both cybervictimisation (T1) and suicidal ideation (T2) correlated negatively with both gratitude (T1) and life satisfaction (T2).

[Insert Table 1]

Mediation analysis

As seen in Table 2 and Figure 1, the results of serial mediation analysis reported that cybervictimisation (T1) significantly predicted gratitude (T1) ($B = -.550, p < .001$) and life satisfaction (T2) ($B = -.450, p < .001$). Gratitude (T1) did not show a significant effect on suicidal ideation (T2) ($B = -.017, p = .516$), while it did on life satisfaction (T2) ($B = -.425, p < .001$). Moreover, life satisfaction (T2) showed a significant negative effect on suicidal ideation (T2) ($B = -.256, p < .001$).

Regarding the indirect effects, the results showed a significant indirect effect of cybervictimisation (T1) on suicidal ideation (T2) through life satisfaction (T2) (path $a_2b_2 = .115$; bootstrap SE = .039; bootstrap 95% CI = .043, .196). Likewise, the specific indirect effect of cybervictimisation (T1) on suicidal ideation (T2) through gratitude (T1) and life satisfaction (T2) was significant (path $a_1d_2b_2 = .060$; bootstrap SE = .017; bootstrap 95% CI = .030, .096). However, the indirect effect of cybervictimisation (T1) on suicidal ideation (T2) through gratitude (T1) was not significant (path $a_1b_1 = .010$; bootstrap SE = .016; bootstrap 95% CI = -.023, .044).

[Insert Table 2 and Figure 1]

Discussion

To deepen and advance the understanding of the underlying mechanisms between suffering cyberbullying behaviours and reporting suicidal ideation over time, in the current study the mediating roles of gratitude and life satisfaction were examined in this relationship with an adolescent sample. As expected, the results showed that cybervictimisation had a positive and direct effect on suicidal ideation four months later. According to previous cross-sectional research (e.g., Chang et al., 2019; Iranzo et al., 2019) and short-term prospective research (Meng et al., 2022), our analysis shows that adolescents suffering cyberbullying behaviours are more likely to experience thoughts or ideas of performing a behaviour to hurt oneself up to four months later. Following the interpersonal theory of suicide (Van Orden et al., 2010), this may be because suffering aggressive behaviours throughout cyberspace favours the feelings of loneliness, a lack of belonging to other, a more perception of burden to others, as well as an increased of internalising problems, among other psychological maladjustment indicators (Camerini et al., 2020; Meng et al., 2022). All these negative consequences constitute risk factors for the development of suicidal ideations (Iranzo et al., 2019; Meng et al., 2022).

Regarding our second hypothesis about the indirect relation between cybervictimisation and suicidal ideation over time, through the mediating roles of gratitude and life satisfaction independently, our results partially supported it. On the one hand, contrary to Kwok et al.'s (2019) findings, the levels of gratitude alone did not mediate the influence of cybervictimisation on suicidal ideation. Although suffering aggressive behaviours may make it difficult to become aware of and appreciate daily positive experiences (Kwok et al., 2019; Zhang and Wang, 2019), for cybervictimised adolescents, a decrease in the levels of gratitude alone seems not to be enough to explain a greater tendency toward suicidal ideation four months later. These findings are in the same line as Zhang and Wang's (2019) results, which also did not find gratitude alone mediating the relation between bullying victimisation and internalising problems (i.e., depression). This may be due to the complexity of both phenomena (i.e., cybervictimisation and suicidal ideation), where there are multiple factors (e.g., personal-, media-, family-, school context-, and social relationship-related) (e.g., Camerini et al., 2020; Iranzo et al., 2019) with a possible greater influence of some factors to explain the underlying mechanisms of this linkage.

On the other hand, our analysis would agree with Johnson's bi-dimensional framework (2016), showing how life satisfaction mediated the link cybervictimisation-suicidal ideation over time among adolescents. These results represent a significant advance in the knowledge of previous studies on the relationship between suffering negative situations (e.g., cybervictimisation), and experiencing suicidal ideation (Chang et al., 2019; Y Yang et al., 2021), as they provide prospective data on the mechanisms underlying in this link. On the one hand, these results suggest that adolescents' levels of life satisfaction are negatively affected four months later after having suffered aggressive behaviours through technology devices. Moreover, these lower levels of life satisfaction may foster a greater tendency to present suicidal thoughts and ideas (Chang et al., 2019; Y Yang et al., 2021). On the other hand, in line with Johnson's bi-dimensional framework (2016) and previous cross-sectional studies (Chang et al., 2019; Y Yang et al., 2021), our results show that life satisfaction can be a factor that helps prevent suicidal ideation four months later after suffering an adverse experience (e.g., cybervictimisation). In fact, previous research showed that a better subjective assessment of one's quality of life is related to higher well-being and better psychological adjustment (e.g., lower levels of depression, sadness, loneliness, and negative affect) (Freire and Ferreira, 2018; Y Yang et al., 2021), and higher levels of mental health which may diminish suicidal thoughts (Brailovskaia et al., 2018). Thus, our findings show evidence on the relevance of

improving adolescents' levels of life satisfaction to foster better coping and prevent the long-term negative impact of mental health as a consequence of cybervictimisation.

Finally, our third hypothesis was supported as expected, finding that cybervictimisation positively predicted suicidal ideation four months later by low levels of gratitude, firstly, and low levels of life satisfaction, later. Similar to Zhang and Wang's (2019) cross-sectional study, in our case, although gratitude did not have a significant effect on suicidal ideation four months later directly, it did so through the levels of life satisfaction. Likewise, it would agree with previous research (Balgiu, 2019; Xiang and Yuan, 2021) and theoretical approaches (Fredrickson's broaden-and-build theory, 1998; Johnson's bi-dimensional framework, 2016; positive affect hypothesis; Wood et al., 2010). On the one hand, these results suggest that the more negative experiences suffered by adolescents (e.g., cybervictimisation), the more internalising problems reported four months later (e.g., suicidal ideation) by a decrease of psychological adjustment (i.e., decrease in levels of gratitude and life satisfaction), according to previous studies (e.g., Chang et al., 2019; Zhang and Wang, 2019). On the other hand, our findings show first evidence that gratitude can be a resource that may reduce mental health problems (e.g., suicidal ideation) in cyberbullying context because fostering other adjustment variables (e.g., life satisfaction), prospectively. In this way, grateful people would tend more frequently to be aware of and appreciate the positive experiences in their life, even in difficult situations (Bono et al., 2020). This could increase the likelihood of feeling positive emotions and promote the development of personal and social resources (e.g., reducing negative beliefs, increasing perceived social support, or fostering a more adaptively coping) decreasing the negative impact on mental health (Kaniuka, Rabon, et al., 2021). Thus, these benefits of gratitude could not only prevent health problems (e.g., anxiety and depressive symptomatology, or mental disorder), but also improve it (e.g., increasing positive affect, life satisfaction or psychological well-being) (Portocarrero et al., 2020). All this would help to reduce the likelihood of experiencing suicidal ideation in cybervictimised adolescents (Chang et al., 2019; Iranzo et al., 2019). Thus, although further research is necessary to identify more variables to prevent suicidal ideation in cyberbullying contexts, these findings suggest the need for and importance of promoting cybervictimised adolescents' personal resources (e.g., the appreciation of positive experiences), which improves levels of well-being in this population, in order to foster more adequate management of this stressful situation, preventing severe negative consequences on psychological adjustment.

Limitations

The present study is not without limitations that should be acknowledged for the interpretation of results obtained. Our study had a relative sample size and a prospective design. Nevertheless, our convenience sample from a specific area and the four-month period between the two data collections limit the generalisability of our findings. In addition, it should be noted that, although encouraging, the levels of cybervictimisation and suicidal ideation found were low in our sample. Hence, future studies might consider using a larger and heterogeneous sample, as well as a longer period (six months minimum) to be able to confirm if these findings hold in a longer term and in other populations. Also, it would be interesting to examine the relationship cybervictimisation-suicidal ideation in a clinical sample of cybervictimised adolescents. Furthermore, even though adequate reliability indexes were obtained in each measurement instrument, since they were self-report measures, there could have been some response bias. Likewise, cybervictimisation and suicidal ideation are two complex phenomena that influence several factors. Therefore, it would be interesting if further research could consider the information and point of view of other informants, as well as analyse other variables (e.g., personal, social, or familiar), to contrast, deepen, and complement these results.

Theoretical and practical implications

Despite some limitations, important strengths and implications can be derived from this study. Firstly, these findings provide evidence on the negative impact on quality of life and health in adolescents up to four months after having suffered cybervictimisation, which complements and expands the results of previous cross-sectional research. In addition, by using validated instruments, we tried to overcome some of the limitations of previous studies (e.g., Chang et al., 2019) where only a single item had been used as a measure of study variables. Secondly, this study tried to delve into underlying mechanisms in the linkage cybervictimisation-suicidal ideation from Fredrickson's broaden-and-build theory (1998); Johnson's bi-dimensional framework (2016); and positive affect hypothesis (Wood et al., 2010), analysing possible variables that provide a more adaptive coping in adolescent population. In this way, we have examined two positive factors (i.e., gratitude and life satisfaction), which have been less examined regarding this topic, as pointed out by John et al. (2018). Specially, the potential benefits of gratitude on mental health's adolescents in adverse situations, such as cyberbullying context. Thus, developing awareness of and appreciation of positive experiences may not

only buffer negative consequences on health in this population, but also improve other protective factors (e.g., life satisfaction; Chang et al., 2019) to more adequately face these situations and prevent more severe negative consequences (e.g., suicidal ideation). Lastly, these findings agree with and expand previous evidence on the relevance of analysing not only negative factors but also personal resources and other positive factors to improve their well-being and health. As Brailovskaia et al. (2018) suggested, not all cybervictimised adolescents suffered the same negative impact on health (e.g., suicide ideations, other health problems or mental disorders). Therefore, they underline the importance of developing and training protective factors in adolescents (e.g., gratitude), especially in the face of adverse experiences (e.g., being cybervictimised), not only would improve their health, but would also help to prevent the onset or chronification of long-term mental health problems (Brailovskaia et al., 2018).

Thus, from a theoretical point of view, these findings would encourage that future research could deepen and explore, considering a positive perspective, other potential positive factors to improve the approach to cyberbullying situations, as well as the prevention of severe mental health problems (e.g., suicide risk). From a practical point of view, this study would have relevant implications on adolescents' health. In this regard, developing education programmes for promoting some personal resources, such as gratitude, together with psychological treatments and therapies in adolescents, would increase the effectiveness to prevent health problems, such as mood disorders, anxiety, somatic complaints, sleep problems, distress, or suicide risk. Thus, training this resource would help mitigate psychological maladjustment and promoting health and well-being.

Conclusion

Due to the limited research on the underlying mechanisms between suffering cybervictimisation and reporting suicidal ideation over time from a positive approach, this research has suggested the relevance of some positive factors. There is evidence about the potential protective role of being a grateful adolescent on the development of suicidal thoughts and ideas in cyberbullying contexts. So, the promotion of gratitude in cybervictimised adolescents could not only mitigate the presence of suicidal ideation, but also help foster the development of other outcomes against it, such as levels of life satisfaction. Moreover, our findings seem to underline the importance of focusing on protective factors, not just risk factors, so that adolescents can train and develop personal resources and strengths to manage and cope more adaptively with cyberbullying

situations. Thus, further research is necessary on possible protective factors that might enhance the current prevention strategies and approaches to the consequences of cyberbullying and suicide risk in adolescents.

Declaration of Conflicting Interests

The authors declare that they have no conflict of interest.

Funding

This work was supported by University of Málaga, PAIDI Group CTS-1048 (Junta de Andalucía), Junta de Andalucía/FEDER funds (UMA18-FEDERJA-147) and R+D+i project of the Ministry for Science and Innovation in Spain (PID2020-117006RB-I00).

References

- Atienza FL, Pons D, Balaguer I, et al. (2000) Propiedades Psicométricas de la Escala de Satisfacción con la Vida en Adolescentes [Psychometric properties of the satisfaction with life scale in adolescents]. *Psicothema* 12(2): 314–319.
- Baiden P and Tadeo SK (2020) Investigating the association between bullying victimization and suicidal ideation among adolescents: Evidence from the 2017 Youth Risk Behavior Survey. *Child Abuse and Neglect* 102: 104417. DOI: 10.1016/j.chiabu.2020.104417.
- Balgiu BA (2019) Possible mechanism of the influence of gratitude on life satisfaction. *Journal of Psychological and Educational Research* 27(2): 75–87.
- Barragán Martín AB, Molero Jurado M del M, Pérez-Fuentes M del C, et al. (2021) Study of cyberbullying among adolescents in recent years: A bibliometric analysis. *International Journal of Environmental Research and Public Health* 18(6): 3016. DOI: 10.3390/ijerph18063016.
- Bono G, Reil K and Hescox J (2020) Stress and wellbeing in urban college students in the U.S. during the COVID-19 pandemic: Can grit and gratitude help? *International Journal of Wellbeing* 10(3): 39–57. DOI: 10.5502/ijw.v10i3.1331.
- Brailovskaia J, Teismann T and Margraf J (2018) Cyberbullying, positive mental health and suicide ideation/behavior. *Psychiatry Research* 267: 240–242. DOI:

10.1016/j.psychres.2018.05.074.

Camerini A-L, Marciano L, Carrara A, et al. (2020) Cyberbullying perpetration and victimization among children and adolescents: A systematic review of longitudinal studies. *Telematics and Informatics* 49: 101362. DOI: 10.1016/j.tele.2020.101362.

Card NA (2019) Meta-analyses of the reliabilities of four measures of gratitude. *The Journal of Positive Psychology* 14(5): 576–586. DOI: 10.1080/17439760.2018.1497690.

Chang EC and Chang OD (2016) Development of the Frequency of Suicidal Ideation Inventory: Evidence for the validity and reliability of a brief measure of suicidal ideation frequency in a college student population. *Cognitive Therapy and Research* 40(4): 549–556. DOI: 10.1007/s10608-016-9758-0.

Chang Q, Xing J, Ho RTH, et al. (2019) Cyberbullying and suicide ideation among Hong Kong adolescents: The mitigating effects of life satisfaction with family, classmates and academic results. *Psychiatry Research* 274: 269–273. DOI: 10.1016/j.psychres.2019.02.054.

Declaration of Helsinki (2013) Ethical Principles for Medical Research Involving Human Subjects. *Journal of the American Medical Association* 310(20): 2191–2194. DOI: 10.1001/jama.2013.281053.

Del Rey R, Casas JA, Ortega-Ruiz R, et al. (2015) Structural validation and cross-cultural robustness of the European Cyberbullying Intervention Project Questionnaire. *Computers in Human Behavior* 50: 141–147. DOI: 10.1016/j.chb.2015.03.065.

Diener E, Emmons RA, Larsen RJ, et al. (1985) The Satisfaction With Life Scale. *Journal of Personality Assessment* 49(1): 71–75.

Elipe P, Muñoz M de la O and Del Rey R (2018) Homophobic bullying and cyberbullying: Study of a silenced problem. *Journal of Homosexuality* 65(5): 672–686. DOI: 10.1080/00918369.2017.1333809.

Evangelio C, Rodríguez-González P, Fernández-Río J, et al. (2022) Cyberbullying in elementary and middle school students: A systematic review. *Computers and Education* 176: 104356. DOI: 10.1016/j.compedu.2021.104356.

- Fredrickson BL (1998) What good are positive emotions? *Review of General Psychology* 2(3): 300–319.
- Freire T and Ferreira G (2018) Health-related quality of life of adolescents: Relations with positive and negative psychological dimensions. *International Journal of Adolescence and Youth* 23(1): 11–24. DOI: 10.1080/02673843.2016.1262268.
- Hayes AF (2018) *Introduction to Mediation, Moderation, and Conditional Process Analysis. A Regression-Based Approach*. 2nd ed. New York, USA: Guilford Press.
- Heerde JA and Hemphill SA (2019) Are Bullying Perpetration and Victimization Associated with Adolescent Deliberate Self-Harm? A Meta-Analysis. *Archives of Suicide Research* 23(3): 353–381. DOI: 10.1080/13811118.2018.1472690.
- Hinduja S and Patchin JW (2019) Connecting Adolescent Suicide to the Severity of Bullying and Cyberbullying. *Journal of School Violence* 18(3): 333–346. DOI: 10.1080/15388220.2018.1492417.
- Iranzo B, Buelga S, Cava M-J, et al. (2019) Cyberbullying, Psychosocial Adjustment, and Suicidal Ideation in Adolescence. *Psychosocial Intervention* 28(2): 75–81. DOI: 10.5093/pi2019a5.
- John A, Glendenning AC, Marchant A, et al. (2018) Self-Harm, Suicidal Behaviours, and Cyberbullying in Children and Young People: Systematic Review. *Journal of Medical Internet Research* 20(4): e129. DOI: 10.2196/jmir.9044.
- Johnson J (2016) Resilience. The Bi-Dimensional Framework. In: Wood AM and Johnson J (eds) *The Wiley Handbook of Positive Clinical Psychology*. Wiley Blackwell, pp. 73–88.
- Kaniuka AR, Job SA, Brooks BD, et al. (2021) Gratitude and lower suicidal ideation among sexual minority individuals: theoretical mechanisms of the protective role of attention to the positive. *The Journal of Positive Psychology* 16(6): 819–830. DOI: 10.1080/17439760.2020.1818814.
- Kaniuka AR, Rabon JK, Brooks BD, et al. (2021) Gratitude and suicide risk among college students: Substantiating the protective benefits of being thankful. *Journal of American College Health* 69(6): 660–667. DOI: 10.1080/07448481.2019.1705838.

- Kong F, Yang K, Yan W, et al. (2021) How Does Trait Gratitude Relate to Subjective Well-Being in Chinese Adolescents? The Mediating Role of Resilience and Social Support. *Journal of Happiness Studies* 22(4): 1611–1622. DOI: 10.1007/s10902-020-00286-w.
- Kwok SYCL, Gu M and Cheung A (2019) A longitudinal study on the relationship among childhood emotional abuse, gratitude, and suicidal ideation of Chinese adolescents. *Child Abuse and Neglect* 94: 104031. DOI: 10.1016/j.chiabu.2019.104031.
- McCullough ME, Emmons RA and Tsang J-A (2002) The Grateful Disposition: A Conceptual and Empirical Topography. *Journal of Personality and Social Psychology* 82(1): 112–127. DOI: 10.1037/0022-3514.82.1.112.
- Meng F, Zhu X, Gao Q, et al. (2022) Integrating the Interpersonal Theory of Suicide Into the Relations Between Cyber-Victimization and Suicidality Among Adolescents: A Short-Term Prospective Study. *Journal of Interpersonal Violence*. DOI: 10.1177/08862605221086638.
- Ortega-Ruiz R, Del Rey R and Casas JA (2016) Evaluar el bullying y el cyberbullying validación española del EBIP-Q y del ECIP-Q [Assessing bullying and cyberbullying: Spanish validation of EBIPQ and ECIPQ]. *Psicología Educativa* 22(1): 71–79. DOI: 10.1016/j.pse.2016.01.004.
- Portocarrero FF, Gonzalez K and Ekema-Agbaw M (2020) A meta-analytic review of the relationship between dispositional gratitude and well-being. *Personality and Individual Differences* 164: 110101. DOI: 10.1016/j.paid.2020.110101.
- Quintana-Orts C, Rey L and Neto F (2022) Beyond Cyberbullying: Investigating When and How Cybervictimization Predicts Suicidal Ideation. *Journal of Interpersonal Violence* 37(1–2): 935–957. DOI: 10.1177/0886260520913640.
- Rey L, Sánchez-Álvarez N and Extremera N (2018) Spanish Gratitude Questionnaire: Psychometric properties in adolescents and relationships with negative and positive psychological outcomes. *Personality and Individual Differences* 135: 173–175. DOI: 10.1016/j.paid.2018.07.005.
- Rey L, Quintana-Orts C, Mérida-López S, et al. (2019) Being Bullied at School: Gratitude as Potential Protective Factor for Suicide Risk in Adolescents. *Frontiers in*

Psychology 10: 662. DOI: 10.3389/fpsyg.2019.00662.

Sánchez-Álvarez N, Extremera N, Rey L, et al. (2020) Frequency of Suicidal Ideation Inventory: Psychometric properties of the Spanish version. *Psicothema* 32(2): 253–260. DOI: 10.7334/psicothema2019.344.

Van Orden KA, Witte TK, Cukrowicz KC, et al. (2010) The Interpersonal Theory of Suicide. *Psychological Review* 117(2): 575–600. DOI: 10.1037/a0018697.

Varela JJ, Guzmán J, Alfaro J, et al. (2019) Bullying, Cyberbullying, Student Life Satisfaction and the Community of Chilean Adolescents. *Applied Research in Quality of Life* 14(3): 705–720. DOI: 10.1007/s11482-018-9610-7.

Wood AM, Froh JJ and Geraghty AWA (2010) Gratitude and well-being: A review and theoretical integration. *Clinical Psychology Review* 30(7): 890–905. DOI: 10.1016/j.cpr.2010.03.005.

Xiang Y and Yuan R (2021) Why Do People with High Dispositional Gratitude Tend to Experience High Life Satisfaction? A Broaden-and-Build Theory Perspective. *Journal of Happiness Studies* 22(6): 2485–2498. DOI: 10.1007/s10902-020-00310-z.

Yang K, Yan W, Jia N, et al. (2021) Longitudinal relationship between trait gratitude and subjective well-being in adolescents: Evidence from the bi-factor model. *The Journal of Positive Psychology* 16(6): 802–810. DOI: 10.1080/17439760.2020.1818812.

Yang Y, Liu Y, Jiang Z, et al. (2021) Negative affect and life satisfaction mediate the association between negative life events and suicidal ideation in college students. *Psychology, Health & Medicine* 26(6): 692–700. DOI: 10.1080/13548506.2020.1861637.

Zhang H and Wang Y (2019) Bullying victimization and depression among young Chinese adults with physical disability: Roles of gratitude and self-compassion. *Children and Youth Services Review* 103(59): 51–56. DOI: 10.1016/j.chilyouth.2019.05.035.

Table 1. Descriptive statistics, reliability, and correlations.

	1	2	3	4
1. Cybervictimisation (T1)	-			
2. Gratitude (T1)	-.19***	-		
3. Life satisfaction (T2)	-.22***	.39***	-	
4. Suicidal ideation (T2)	.29***	-.19***	-.44***	-
Alpha	.83	.77	.86	.92
Minimum – Maximum	0 – 4	1 – 7	1 – 7	1 – 5
Mean	.247	5.63	5.12	1.64
Standard deviation	.39	1.16	1.33	.91

T1 = Time 1; T2 = Time 2. *** $p < .001$.

Table 2. Results of the serial mediation analysis.

Antecedent	Consequent		
	M ₁ = Gratitude (T1)		
	Coefficient	SE	95% CI (lower to upper)
IV = Cybervictimisation (T1)	-.550***	.105	-.756 to -.344
CO = Sex	.222**	.081	.063 to .382
CO = Age	-.027	.031	-.088 to .034
Constant	5.793***	.441	4.927 to 6.658
R ²	.046		
F (df)	12.766*** (3, 791)		
Antecedent	M ₂ = Life satisfaction (T2)		
	Coefficient	SE	95% CI (lower to upper)
	IV = Cybervictimisation (T1)	-.450***	.112
M ₁ = Gratitude (T1)	.425***	.037	.352 to .499
CO = Sex	-.240**	.086	-.409 to -.072
CO = Age	-.100**	.033	-.165 to -.036
Constant	4.591***	.513	3.585 to 5.598
R ²	.194		
F (df)	47.627*** (4, 790)		
Antecedent	DV = Suicidal ideation (T2)		
	Coefficient	SE	95% CI (lower to upper)
	IV = Cybervictimisation (T1)	.474***	.075
M ₁ = Gratitude (T1)	-.017	.027	-.070 to 0.35
M ₂ = Life satisfaction (T2)	-.256***	.023	-.302 to -.210
CO = Sex	.253***	.057	.142 to .365
CO = Age	-.009	.022	-.052 to .034
Constant	2.659***	.355	1.962 to 3.356
R ²	.246		
F (df)	51.523*** (5, 789)		

IV = Independent variable; DV = Dependent variable; M = Mediator; CO = Covariate; SE = Standard error; CI = Confidence interval; T1 = Time 1; T2 = Time 2. ** $p < .01$; *** $p < .001$.

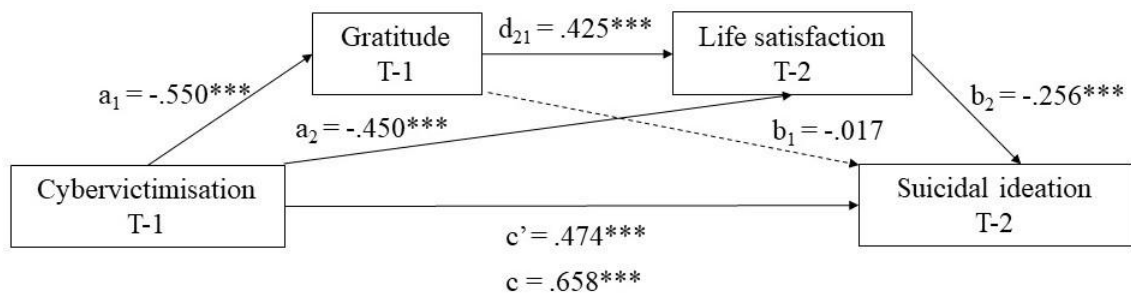


Figure 1. Results of the serial mediation model.

The dotted line indicates nonsignificant pathway. T1 = Time 1; T2 = Time 2. $***p < .001$.