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Cyberbullying impacts on victims' satisfaction with information and communication technologies: The role of Perceived Cyberbullying Severity

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ABSTRACT

This study aims to understand how individuals' perceptions of the severity of cyberbullying they endure affects their experience with the Information and Communication Technology (ICT) medium through which cyberbullying occurs. To this end, it proposes a theoretical model based on Transactional Theory of Stress and Coping and Expectation-Confirmation Theory. A survey-based study involving 115 cyberbullying victims is employed to empirically validate the proposed model. Results indicate that victims' perceptions of the severity of a cyberbullying episode negatively impact their satisfaction with ICT. Implications of these results for academics and practitioners are discussed and directions for future research are outlined.

1. Introduction

Traditionally, Information Systems (IS) research has focused on the positive outcomes associated with information and communication technology (ICT) use (i.e. benefits derived from adoption). More recently, there has been an increased interest among IS researchers in understanding the possible negative consequences that could arise when using ICTs (e.g., technostress, technology addiction, cyberbullying, etc.). These phenomena that relate to the negative impact of ICT use on individuals' or organizations' well-being have been collectively referred to as 'the dark side' of ICT use [1]. These negative impacts are brought about by ICT use, and as such, this dark side phenomenon is technology-based [2]. Hence, it is expected that users' experiences with and perceptions of the ICTs involved will be affected by these negative impacts. It thus becomes important for IS researchers to examine the influence of such negative consequences on the ICT user's well-being and experience with the ICT itself, which is the focus of this research.

Cyberbullying can be defined as hostile or aggressive behaviors performed through information and communication technologies (ICT) that are intended to harm or inflict discomfort on others [3–5]. This phenomenon has gained prominence due to several reported cases of suicides linked to cyberbullying [6,7].

Although cyberbullying shares some characteristics with traditional bullying, it has its own unique characteristics that may increase its negative consequences for victims. First, cyberbullying can occur at any place and at any time [8,9], preventing victims from feeling safe when they remove themselves from the bullying location (like they can in the case of traditional bullying) [10,11]. Second, in cyberbullying, the aggressors are able to remove themselves from the impact of their actions. Cyberbullies can be anonymous,[1] which gives them the possibility to create new identities or impersonate a victim's friends [12,13]. Anonymity leaves cyberbullies with little fear of repercussion or punishment [14], and encourages them to continue behaviors they would not perform in face-to-face interactions [15]. Furthermore, cyberbullies do not see their victims' reactions, something that in traditional bullying makes bullies realize the harm they are causing to the victim and may inhibit them from further bullying actions [16,10]. The third distinguishing characteristic of cyberbullying is the bully's ability to reach easily a large audience. In traditional bullying, the audience of a bullying episode is limited to the people physically present where the episode occurs (e.g., classrooms) [8]. In cyberbullying, the material posted by the bully (e.g., embarrassing photos) can be easily viewed and permanently accessed by a large online audience [16,13,10].

ICT embody certain qualities/features that may encourage cyberbullying. For example, individuals may experience a disinhibition effect when they are interacting with others online [17], where they may dissociate online activities from face-to-face actions. As such, they may feel that norms that apply to face-to-face social interactions do not apply to virtual interactions [18]. The online disinhibition effect has been proposed as a reason behind more aggressive behaviors in cyberbullying when compared with traditional bullying [19]. In addition, information conveyed through ICT can be highly equivocal (i.e., it can

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[1] It is worth noting that the majority of victims know who is cyberbullying them (e.g., the bully is part of their social group) [11,156].

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have several meanings and interpretations) [20] due to the lack of elements present in face-to-face communications (e.g., body language, voice intonation). This lack of social cues to gauge others' reactions may lead to a reduced social censorship when interacting with others online [18]. Finally, the possibility to have back-and-forth communications, with a larger duration in between, may facilitate sending more planned and hurtful online messages [21].

In studying cyberbullying, IS researchers have focused mainly on the prevalence of this phenomenon (see for example [22–24], and the potential motivations and antecedents of online aggression (e.g., gaining social status, personality traits [25,26]. Tokunaga [4] conducted a meta-synthesis of the studies published in cyberbullying between 2004 and 2009 and found that on average, 20%–40% of young people have experienced episodes of cyberbullying. According to this author, the variation in prevalence rates is explained by the diverse definitions and measures used by researchers. Previous studies in cyberbullying have analyzed this phenomenon mostly by determining whether participants have experienced cyberbullying. However, the mere occurrence of events (e.g., being tagged in an embarrassing photo) does not indicate that those events have negative consequences for those exposed to them (i.e. victims). The EU Kids Online network conducted a qualitative study finding that perceptions and consequences of cyberbullying vary among victims. For example, they found that the same act (e.g., receiving sexual content) may provoke a different reaction (e.g., laughter or fear), depending on the victim; in the same vein, a written comment (e.g., name calling) may be perceived as a joke if coming from a friend, but as hurtful if coming from a stranger [27]. These findings highlight the importance of studying a victim's perceptions of a cyberbullying episode[2] when analyzing the impacts of that episode on that victim.

Researchers in different fields have also explored the correlates of cyberbullying, finding that this phenomenon impacts victims psychologically (e.g., creating negative emotions such as anxiety [8,28]), scholastically (e.g., low school performance [29]) and socially (e.g., altering victims' relationships with family members and friends [30]). The broad array of cyberbullying correlates studied by researchers has not included how victims' experience with ICT is affected by their falling victim to cyberbullying episodes. Here, it is worth noting that negative experiences such as traditional bullying affect how victims feel not only about their bullies, but also about the place where the bullying occurs (e.g., school, workplace) (see for example [31–34]). In the same vein, and although a cyberbullying episode may affect how victims feel about their bullies, it may also affect how they feel about the medium via which the cyberbullying episode occurred (e.g., Facebook). Furthermore, some studies indicate that victims may stop using ICT where they experience cyberbullying [35]. This suggests that cyberbullying not only affects victims' well-being, but it may also have an impact on their experience with ICT. Although Sticca and Perren [36] suggested that positive feelings derived from using ICTs may be reduced with cyberbullying, researchers in the IS field have not investigated how cyberbullying episodes may affect users' experience with ICTs via which cyberbullying occurs.

Therefore, the main objective of this research is to understand how a victim's perception of a cyberbullying episode's severity (henceforth, this measure is to be referred to as Perceived Cyberbullying Severity) impacts her/his well-being and perceptions of the ICT medium involved (henceforth to be referred to as cyberbullying medium). Considering the stressful nature of cyberbullying, we leverage the Transaction Theory of Stress and Coping Lazarus and Folkman, 1984 as an appropriate lens to understand a victim's appraisal of this stressful event. We also employ Expectation-Confirmation Theory [37] to understand the specific effects of a victim's perception of the severity of a cyberbullying episode on their experience with the cyberbullying medium. Towards the above objective, these two theories are used to propose a research model to understand a victim's satisfaction with the ICT through which the cyberbullying episode occurred. Satisfaction is an appropriate dependent variable in this context as: (i) it has been shown to be an important predictor of individuals' intention to continue using a particular ICT (e.g., [38]) and (ii) it is well-suited to explore the effects of the "dark-side" of technology use phenomena on users' experience with technology, where users may continue utilizing an ICT albeit with less satisfaction (for example, due to high social pressures, or fear of missing out in the case of social media). As such, this research provides theoretical contributions in understanding the dark-side of ICT use phenomenon in general and cyberbullying in particular. It also provides contributions to practice in gaining an understanding of the true impact of cyberbullying on victims and the subsequent negative influence of such impact on their experiences with the ICT medium involved.

2. Background and theoretical foundations

2.1. Cyberbullying

Interest in the fairly recent phenomenon of cyberbullying has risen among researchers in different areas such as Information Systems, Psychology, Sociology, Criminology, and Education [11]. One of the topics that has been studied is the prevalence of this phenomenon, where authors have found rates ranging from 8.6% [39] to 59% [40] in college students and between 9% [23] and 20% [41] in working adults. The variation in prevalence rates can be explained by the different conceptualizations of cyberbullying and varied measures employed in research studies [42]. In defining cyberbullying, researchers have not agreed on how the three criteria that have been utilized to define traditional bullying (i.e. intentionality, repetition, and power differential) can be applied to this phenomenon (see [43] for a discussion about this matter). In terms of measures, researchers have employed self-reported surveys to determine the prevalence of cyberbullying [44] in terms of occurrence or frequency of experienced behaviors (see [16] and [44] for a discussion of cyberbullying measurement).

Along with the prevalence of cyberbullying, researchers have explored its correlates. There is evidence to associate cyberbullying with victims' experiencing negative emotions such as anger (e.g., [45] and anxiety (e.g., [42,8]. Other psychological correlates associated with cyberbullying include victims' experiencing feelings of loneliness (e.g., [46,47]) and depressive symptoms (e.g., [48,49]). Victims can also experience problems in diverse areas such as health (e.g., [50]), behavior (e.g., substance use [49]), academic performance (e.g., [51]), and personal relations (e.g., [30]). Finally, cyberbullying is also correlated with increased suicidal ideation among victims [52], who are almost twice as likely as non-victims to have attempted suicide [53].

Despite the findings on different correlates of cyberbullying, researchers have also found that some victims report not being affected by this phenomenon (e.g., [54,55]) with percentages as high as 43% (see for example, [56]). The reasons behind the variation in the type of impacts associated with cyberbullying is unclear [57]. However, it is important to note that the perceptions of a victim and whether a specific episode has an impact on her/him have been shown to be more salient themes in qualitative studies characterizing cyberbullying than the episode's occurrence or the characteristics coming from traditional bullying (e.g., intentionality, repetition) [57,58]. This may indicate that existing self-report measures pointing solely at the occurrence of cyberbullying episodes may fall short at addressing the important issues of impact and victim's perceptions.

An alternative measure to evaluate a cyberbullying experience utilizing a victims' assessment may be then helpful to determine its impacts on their lives. As previously mentioned, the mere occurrence of cyberbullying episodes may not determine the negative consequences

[2] In this research, a cyberbullying episode may consist of one action (e.g., a photo posted on a group wall) or multiple actions related to the same issue (e.g., several messages sent over a certain period of time).

that victims will experience. The use of a Perceived Cyberbullying Severity scale, as proposed in the current investigation, is well-suited to capture how victims assess a particular cyberbullying situation. Evaluating the perception of the level of severity of a cyberbullying episode may be useful in explaining the diverse correlates found in cyberbullying victims, and in particular, how those episodes may affect victims' experience with the cyberbullying medium. Next, a brief review of the theories employed in this research is presented.

2.2. Transactional Theory of Stress and Coping (TTSC)

Lazarus and Folkman [59] proposed a transactional approach to the stress process. The authors defined psychological stress as "a particular relationship between the person and the environment that is appraised by the person as taxing or exceeding her/his resources and endangering her/his well-being" [59], p. 19. This definition highlights the fact that although there are objective conditions that can be considered as stressors (e.g., natural disasters; having an argument with a spouse), individuals vary in the degree and type of reaction to these stressors. In order to understand the varying reactions of individuals when facing the same stressful situation, it is necessary to understand the cognitive processes that take place between the stressor and the individual's reaction. TTSC proposes cognitive appraisal as this intervening process, which can be understood as "the process of categorizing an encounter, and its various facets, with respect to its significance for well-being" [59], p. 31.

TTSC includes two types of cognitive appraisal: a primary appraisal of the stressor and a secondary appraisal of the coping mechanisms available to reduce the effects of the stressor [60]. In the primary appraisal phase, individuals determine if and how the situation is relevant to their goal attainment or well-being. There are three types of possible outcomes of this primary appraisal phase [59]. The first one is when the stressor is deemed as irrelevant (i.e. there are no implications for an individual's well-being). The second type is when the stressor is deemed as benign-positive, where the outcome of the situation is seen as positive (e.g., it may enhance well-being). The third type is when the stressor is deemed as stressful, which occurs when the situation negatively affects goals and/or well-being (i.e. the situation is harmful or threatening). It is in this last type of outcome that individuals move to the secondary appraisal phase, where they evaluate potential coping mechanisms to deal with the stressful situation [61].

TTSC has been used in the IS literature to analyze coping with disruptive ICT-related events at the workplace (e.g., [62]), stress generated by employees' interactions with ICT (e.g., [63]), and the strain derived from constant use of social networking sites (e.g., [20]). In the context of cyberbullying, TTSC has been used to analyze victims' psychological adjustments (e.g., [64]) and how they cope with this phenomenon (e.g., [65]). As such, this theory offers a suitable framework to study victims' assessments of cyberbullying episodes and the ICT medium they occur through, as well as the episodes' potential consequences for victims. Cyberbullying episodes are situations that may be appraised as harmful or threatening (e.g., threat of physical injury; a harmed reputation). The appraisal of these episodes as stressful will negatively affect victims (e.g., negative emotions) and may lead them to employ coping mechanisms (e.g., ask someone for help) to counteract these stressful situations.

2.3. Expectation Confirmation Theory

Expectation-Confirmation Theory (ECT) is drawn from the consumer behavior literature and has been used to study consumers' satisfaction and their post-purchase behavior (e.g., repurchase). ECT describes a process where consumers that are interested in a particular product or service, but do not have experience with it, rely on advertisement and consumer guides to acquire information about the likely performance of that product or service [66]. The expectations about product performance can range from the ideal standard (best scenario) to the worst imaginable [67]. After consumers have used the product or service, they develop perceptions about its performance. These perceptions are compared with their initial expectations, resulting in a summary judgment referred to as confirmation of expectations. This summary judgment may fall within a "zone of tolerance", where customers are willing to accept heterogeneity of product or service performance [68]. In this zone, simple confirmation (i.e. performance matches expectations), positive disconfirmation (i.e. performance exceeds expectations up to the ideal standard), and negative disconfirmation (i.e. performance falls below expectations but it is still above or at a minimum tolerable by individuals) may lead consumers to deem the product or service as satisfactory [67]. At the end, satisfied consumers will be more likely to form a repurchase intention [37]. In the case of a product or service performance falling below the minimum tolerable expectations, dissatisfaction will be developed and a complaining behavior is likely to occur [67].

ECT has been applied in IS studies examining users' satisfaction and intentions to continue using ICTs in the contexts of online communities [69], blogs [70] and e-commerce [71,72]. Although testing the ECT relationships is not the purpose of this research, this theory is considered a suitable known nomological network to explore the impacts of Perceived Cyberbullying Severity on victims' experience with ICT. In particular, it is expected that the severity of a cyberbullying episode will impact victims' satisfaction with the ICT through which they experienced cyberbullying (i.e. cyberbullying medium). The set of constructs considered by this theory are appropriate for this research as victims had positive expectations about the cyberbullying medium[3]; after using it, they could evaluate the cyberbullying medium performance (i.e., hedonic and utilitarian benefits they obtain from their interaction with it) and form judgements to either confirm or disconfirm their expectations. This in turn would determine the extent to which they are satisfied with this medium. This evaluation of the cyberbullying medium performance (i.e. hedonic and utilitarian benefits), as well as victims' satisfaction judgments, is expected to be affected by a negative experience such as cyberbullying.

3. Research model and hypotheses development

In order to achieve the proposed research objective, we conducted a study to explore how a victim's perception of the severity of a cyberbullying episode affects a victim's satisfaction with the cyberbullying medium. This study focused on Facebook as the cyberbullying medium for two reasons: (1) this site is the most used social networking media among adults, with 87% of young adults using this site [73] and (2) it is also one of the media most utilized for cyberbullying [74].

The proposed research model is presented in Fig. 1. Two points are worth noting regarding this model. First, well-established relationships from prior research are included in the model for statistical purposes only, but not hypothesized.[4] Second, pre-adoption expectations will not be included in the proposed model. Although ECT has a direct link between those expectations and satisfaction, this latter construct may be dominated by confirmation when individuals are familiar with a product and its features, where their expectations are overridden by that product's actual performance evaluation [66]. Such a situation can occur when users have had some experience with the ICT, as it is likely that their pre-adoption expectations are coloured by their actual experience. This is the case for participants in this research, who are

[3] It has been shown that individuals expect positive outcomes from interacting with social networking sites (like the cyberbullying medium chosen for this study) (see for example [157,158]. As such, the unanticipated occurrence of negative experiences may make those experiences more powerful and hurtful [86].

[4] The practice of including known relationships for statistical analysis but not explicitly hypothesizing them has been established in previous information systems articles (see for example [159,136,160,161].

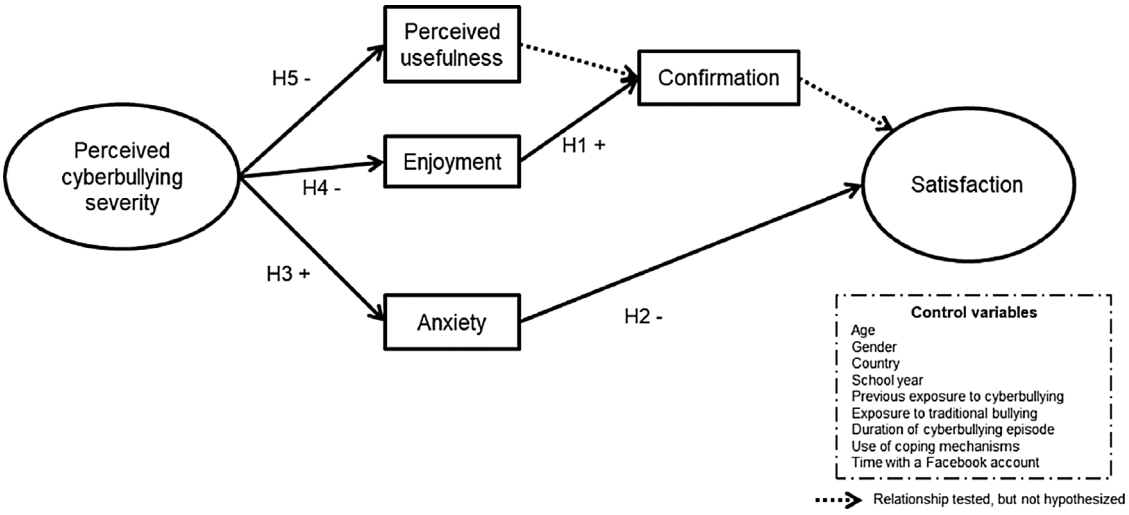

Fig. 1. Research model.

experienced users of the ICT medium in question (i.e. Facebook)[5] in which they experienced cyberbullying. It is likely that if those experienced users were asked to recall their initial expectations of using the cyberbullying medium, they would rely on the most salient or recent moments (such as a cyberbullying episode) of their experience, a phenomenon known as "peak-end" recollection heuristic [75].

The constructs and hypotheses included in the model, along with their appropriate support, are described below.

3.1. Satisfaction

Satisfaction with a particular product or service refers to a consumer's judgments about how well that product or service provides fulfillment [66]. Satisfaction is an affective construct and thus, it involves an experienced subjective state coupled with emotions [76,77]. Previous research has found that emotional experiences may have a direct impact on consumers' satisfaction with products or services (e.g., [78,79]). Therefore, satisfaction is potentially influenced not only by cognitive appraisals (e.g., perceived usefulness, confirmation), but also by experience-based emotions (e.g., enjoyment) [80]. Moreover, it has been shown that after all the cognitive factors are taken into account, experiencing positive emotions (e.g., being joyous or excited) increases satisfaction and experiencing negative emotions (e.g., being upset or distressed) has the opposite effect [81].

In the IS literature, satisfaction has been shown to be an important predictor of individuals' intention to continue using a particular ICT (e.g., [82,83,38]). In the context of this study, we seek to assess individuals' satisfaction with the ICT medium through which the cyberbullying occurred (Facebook in our research setting). This construct is chosen as the endogenous construct of the theoretical model because satisfaction is "an affective response derived from prior IT usage experiences, and can therefore be viewed as an experiential response to IT usage" [84], p. 3. In the IS literature on the "dark-side" of technology use, satisfaction with an ICT has been shown to be affected negatively by technostress [85]. Thus, it is reasonable to expect that experiencing a negative situation such as a cyberbullying episode (i.e., an experience that brings about negative emotions) can also affect negatively satisfaction with an IS. In addition, it is important to note that extant literature has shown that users may continue utilizing an IS despite experiencing negative emotions (for example, due to fear of missing out in the case of social media; see [86]. This is particularly the case when social norms to use an IS are strong (e.g., social media) or in mandatory IS use environments [87,88]. Therefore, satisfaction is deemed as a more appropriate endogenous variable to use compared to continued intention to use in terms of capturing the true impact of a negative phenomenon like cyberbullying on a user's overall experience with an IS.

3.2. Enjoyment

Enjoyment refers to the pleasure derived from using the technology in its own right, that is, without considering other beneficial utilitarian consequences [89]. Most applications of ECT to the study of satisfaction and IS continuance only include post-adoption evaluations related to the performance of a system (i.e. perceived usefulness). However, there are several IS contexts where users are not only concerned with performance (i.e. utilitarian benefits derived from using a system), but are also looking for additional benefits from their interaction with the system (e.g., hedonic benefits obtained while engaging in activities such as shopping online, or using a web site) [90,91]. The cyberbullying medium chosen as the focus of this study (Facebook) offers both hedonic and utilitarian benefits, since individuals may use it for fun in addition to achieving certain utilitarian benefits (e.g., networking with friends) [92,93]. When hedonic systems have been studied by IS researchers, the set of beliefs from the original Technology Acceptance Model (i.e. perceived usefulness and perceived ease of use) has been expanded to include enjoyment (see for example [94,95]. Experienced users of systems offering hedonic benefits will compare their original ICT enjoyment expectations to the actual enjoyment they derive from using those systems. As such, enjoyment becomes one of the aspects users may evaluate when forming their confirmation about the cyberbullying medium (i.e. Facebook). In this case, enjoyment is due to the overall experience of using the system as opposed to the cyberbullying experience itself. Thus, we hypothesize that enjoyment will have a positive effect on confirmation. Therefore, it is hypothesized that:

H1. *Enjoyment derived from using an ICT is positively related to confirmation of expectations about that ICT.*

3.3. Anxiety

Anxiety is a complex emotion that has been equated by some psychologists to fear, and considered by others as the uneasiness of expecting an uncertain threat [96]. Studies in the area of cyberbullying have shown that anxiety is one of the most common negative emotions

[5] Over time, individuals form enduring beliefs about a particular ICT [162,163] that may be challenged by a negative experience (e.g., a cyberbullying episode). Thus, it was deemed appropriate to use a sample of experienced users to study the effects of cyberbullying on victims' stable ICT beliefs.

reported by victims[6] (e.g., [45,42,28]). For example, individuals that are bullied at their workplace develop anxiety, which in turn leads them to experience lower satisfaction and commitment with their workplace (i.e. the venue where the bullying takes place) [97,98]. Similarly, in a school setting, bullying has been linked to lower school satisfaction [99] and higher school dropout rates [100]. It is thus expected that anxiety derived from cyberbullying will lead victims to experience less satisfaction with the ICT venue where the cyberbullying takes place (i.e. cyberbullying medium). Thus, it is hypothesized that:

H2. *Anxiety resulting from a cyberbullying episode is negatively related to satisfaction with an ICT.*

3.4. Perceived Cyberbullying Severity (PCS)

Victims of cyberbullying episodes show signs of stress triggered by these episodes [101,102], and as such, the episodes can be considered as stressful situations that will activate the appraisal and coping mechanisms described by TTSC. As stated in TTSC, "people and groups differ in their sensitivity and vulnerability to certain types of events, as well as in their interpretations and reactions" [59], p. 22. This highlights the importance of the appraisal process (i.e. evaluating the severity of the episode) when cyberbullying episodes occur. The degree of variability of the impact of a specific episode on an individual is consistent with the primary appraisal involved in TTSC [59], whereby individuals evaluate whether the cyberbullying episode is relevant to their goals and/or well-being. In this study, Perceived Cyberbullying Severity (PCS) is thus a construct utilized to measure a victim's primary appraisal of a cyberbullying episode.[7]

Assessing the perceived severity of a cyberbullying episode is relevant, as the perspective of a victim is critical to understanding the impacts of the episode on her/his psychosocial functioning [103]. Moreover, and due to the diverse forms of cyberbullying (e.g., different behaviors, different ICTs used), it is important to have a tool that allows for assessing the severity of cyberbullying situations from the victim's perspective [36]. However, researchers have not paid enough attention to studying the degree to which different cyberbullying episodes are perceived as being harmful by victims [36,104]. Some studies have explored perceptions of the severity of cyberbullying, by (i) varying the severity of hypothetical cyberbullying scenarios presented to participants and determining if participants would be willing to help the victims in those scenarios [105] or which coping mechanisms participants would recommend to the victims of those scenarios [48] and (ii) comparing participants' perceptions (victims and non-victims) of cyberbullying and traditional bullying and determining which one was perceived as being worse (see for example [45,106]). In addition, only the study conducted by Na et al. [64] is known to have utilized a scale to measure victims' cognitive appraisal (i.e. severity of anticipated harm or loss) of cyberbullying and its role in victims' psychological adjustment. Considering the very limited research in this area, it is worth exploring how perceived cyberbullying severity is associated with the impacts of cyberbullying on victims.

From the perspective of a victim's well-being, it is expected that PCS may lead individuals to appraise the cyberbullying episode as threatening to different extents. Appraisals of threats such as social exclusion and physical harm are accompanied by anxiety [107]. Moreover, feelings of powerlessness may make individuals believe they cannot control their environment, which in turn may prompt situational anxiety [108]. As such, it is expected that higher levels of perceived cyberbullying severity will lead to higher levels of the negative emotion of anxiety. Thus, it is hypothesized that:

H3. *Perceived cyberbullying severity is positively related to anxiety.*

From the perspective of a cyberbullying victim's experience with ICT, it is expected that PCS may affect the perceptions of the hedonic benefits derived from interacting with the cyberbullying medium. Past research has shown that receiving negative feedback or potential threats of punishment related to a particular task affects negatively the enjoyment of performing that task [109]. In the case of hedonic systems such as social networking sites, users may enjoy interacting with others and receiving positive feedback about their behavior on the platform (e.g., comments or photos posted). A cyberbullying episode occurring through such systems may then make the victims associate the activity of using those systems with obtaining a negative outcome (e.g., having their interactions with others or photos posted criticized). Moreover, the positive feelings associated with usage may be reduced [36]. In this vein, it is expected that higher levels of perceived cyberbullying severity will lead victims to derive lower levels of enjoyment from using the cyberbullying medium. As such, it is hypothesized that:

H4. *Perceived cyberbullying severity is negatively related to enjoyment.*

In addition, the appraisal of a negative event such as cyberbullying may also affect a victim's perception of usefulness (PU) of the cyberbullying medium. Perceived usefulness has been defined as the extent to which a person believes that the use of a system will help her/him improve her/his job performance [110]. In the case of the cyberbullying medium selected for this study, these perceptions of usefulness can be manifested in the extent to which the social networking site allows users to effectively build and maintain relationships (e.g., keep in touch, make new acquaintances, and reach out to others) [111]. Individuals' perceptions of usefulness can be affected by negative experiences or aspects involved in the interaction with the ICT. For example, in the context of e-commerce, buyers may perceive risks that are characteristic of online transactions or services (e.g., financial loss, privacy violations). Those perceived risks, understood as "a combination of uncertainty plus seriousness of outcome involved" [112,113] [112,113], p. 454, have been shown to reduce consumers' perception of usefulness of online services [114,113]. Similar logic and arguments link lower trust in an e-vendor to lower PU [115] and lower trust in an ERP vendor to lower PU [116].

In the cyberbullying context, when a victim experiences an episode, it is expected that her/his perception of the episode as a serious one (i.e. severe) will decrease her/his perceptions of usefulness of the ICT through which the cyberbullying occurred (i.e., cyberbullying medium). For example, users join Facebook expecting to gain certain benefits related to establishing a social network of family and friends to interact with on an ongoing basis. To achieve these benefits, the user needs to put significant effort on an ongoing basis to update his/her profile, respond to messages, partake in discussions, post content, etc. to keep up with peers. In this case, the more the user interacts with peers through the site, the more s/he will experience the potential benefits of using Facebook (e.g., in the form of social capital, friendship, etc.) [117]. If a Facebook user becomes a victim of cyberbullying through that ICT medium, and the episode turns out to be severe, s/he may be reluctant to log on. Even if s/he did continue using Facebook, s/he may not be as effective in carrying out the tasks needed to gain the associated benefits of using Facebook (due to being under duress). For example, the victim may be less willing to conduct public activities (e.g., posting comments on a Facebook group), or to spend time on Facebook, which would reduce her/his level of interactions with others. As such, the cyberbullying victim's perceived usefulness of Facebook will diminish. Thus, it is hypothesized that:

[6] It is worth noting that the anxiety construct included in the present study does not refer to the anxiety generated through the use of a particular ICT (i.e. "computer anxiety" or "ICT anxiety") widely studied in IS literature. It rather refers to the anxiety experienced when a person is subjected to aggressive behaviors through a particular ICT (i.e. the cyberbullying medium in our case). This conceptual difference required the use of a scale to measure different aspects than those addressed in traditional ICT anxiety scales (see [164] and [165] for examples of such traditional ICT anxiety scales).

[7] Recall that a cyberbullying episode may constitute one action (e.g., posting a picture in a website) or several actions related to the same issue (e.g., sending several threatening text messages over a certain period of time).

Table 1
Respondents' age distribution.

Age group	Percentage of participants
18–20	14%
21–23	11%
24–26	36%
27–30	39%

H5. *Perceived cyberbullying severity is negatively related to perceived usefulness*.

4. Methodology

4.1. Sample and procedure

Participants in this study were young adults (i.e. 18–30 years old) that experienced a complete cyberbullying episode[8] (i.e. episode is over) on Facebook within the past twelve months. This study focused on Facebook as the cyberbullying medium, because it is one of the most utilized media for cyberbullying [118]. Young adults were the focus as extant literature indicates that prevalence rates may be as high as 59% for this age group [40] and university students that experience cyberbullying report similar effects as younger victims (e.g., anxiety, depression, suicidal thoughts [119,120].

A reporting time frame of twelve months has been used by other researchers to collect data about cyberbullying situations experienced in the past (e.g., [121–124]). Using twelve months allows assessing a period that is "recent enough to allow for accurate recall, but broad enough to capture experiences throughout various times of the year (e.g., during school, summer, and breaks [in the case of students])" [125], p. 209. Researchers also suggest that about 20% of crucial details of an important event are irretrievable from memory after one year of its occurrence [126]. This highlights the appropriateness of selecting twelve months as a reporting period for this study. Collecting participants' perceptions of ICT-related events that have occurred in the past has been utilized in the past by IS researchers (see for example [127], who asked participants to recall emotions related to the announcement of an IS more than twelve months after the announcement occurred). Furthermore, and considering that negative events are more available in individuals' memory than positive ones [66], it was expected that participants in this study would be able to clearly recall a stressful situation such as a cyberbullying episode. In addition, the study focused on an episode that occurred in the past to eliminate the ethical issues that would arise if data were collected with victims' currently experiencing cyberbullying as the study could heighten a current victim's negative feelings and proper psychological support could not be provided. Ethics approval was secured prior to any data collection.

Data were collected at one point in time using an anonymous online survey. The anonymous nature of the survey may help participants feel safe and increase their willingness to share their experiences, given the sensitive nature of the data collected [104]. Participants were recruited via e-mail by a market research firm in Canada and the U.S. Participants were asked to focus on the completed cyberbullying episode during the rest of the survey. In the event that a participant experienced more than one cyberbullying episode in the past 12 months, s/he was asked to focus on the most recently completed episode. Participants were also asked to focus on their perceptions and feelings at the time they thought the cyberbullying episode was at its worst point. While perceptions of cyberbullying severity might vary during the course of a cyberbullying episode, the worst point of perceived severity allows for understanding the full impact of cyberbullying on victims (i.e. negative emotions and impacts on their experience with ICT). Furthermore, it is likely that the worst point of the cyberbullying episode is when the worst consequences may happen (e.g., highest anxiety).

[8] The approach of asking participants to recall a lived cyberbullying episode was selected over presenting participants with hypothetical scenarios, because we expected that individuals would not be able to report emotions (such as anxiety) associated with hypothetical situations they have not experienced yet.

4.2. Measures

In order to ensure content validity, this study used previously validated instruments to measure the six constructs in the proposed research model after appropriate adaption to the context of this study. It is important to note that although the construct of PCS is based on items validated in other contexts (e.g., healthcare), its use in the context of assessing a victim's cyberbullying severity perceptions is still novel considering that most prior cyberbullying research has focused on cyberbullying occurrence and its potential correlates. The measurement instruments, along with sources of the scales, are included in Appendix A. In addition to the survey items related to the research model, open-ended questions were used to gather specific details of the cyberbullying episode (i.e. type of cyberbullying experienced; change of victims' Facebook use after the episode).

5. Results

Data were screened to examine for valid responses, missing values, outliers, and multivariate statistical assumptions [128]. After data screening was conducted, 7 cases were dropped (5.7%) and 115 valid data cases were used in all the analyses presented here. The average age of participants was 25.2, with a standard deviation of 3.4 (see Table 1 below for the age distribution of respondents), and 31.3% of them were male. At the time the cyberbullying episode occurred, 12% of participants were in high school and 43% were university students.

5.1. Research model validation

Structural Equation Modeling (SEM), specifically PLS, was used to validate the research model proposed in this study. The software used was SmartPLS – version 2.0M3 [129]. The evaluation of the model specified in PLS followed a two-step approach [130,131]: the assessment of (i) the measurement model, and (ii) the structural model. Common method analysis was also performed, since all construct measures in the model were collected at the same time. The process and outcomes of the measurement model validation are presented in Appendix B. Results of this analysis indicate acceptable levels of construct reliability, convergent validity, and divergent validity. Details on common method bias analysis are presented in Appendix C, suggesting that this bias is not a concern in this study.

5.1.1. Structural model

Having established the appropriateness of the measurement model and ruled out the presence of common method bias, the next step was to provide evidence for the validity of the proposed theoretical model, by examining the structural model. First, the R^2 values of the endogenous constructs were examined. As can be seen in Fig. 2, the R^2 obtained for almost all endogenous constructs was of at least 0.10 (a threshold recommended by [132]. The only exception to this was the construct of Perceived Usefulness (PU). Although it had a low R^2 value, this is not surprising as past IS literature has shown that PU has other antecedents such as perceived ease of use, and subjective norm (see for example [133]) and this study only evaluated the effect of the construct of Perceived Cyberbullying Severity (PCS) on PU. The antecedents of the endogenous construct, Satisfaction, explained 70% of the variance of this construct.

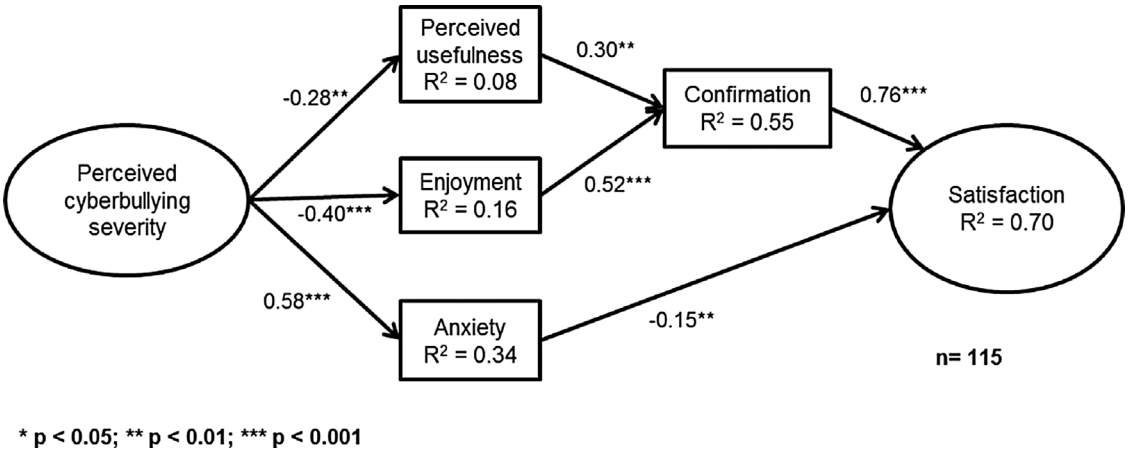

Fig. 2. PLS model results.

Second, the proposed hypotheses were evaluated. As indicated in Fig. 2 below, all the hypothesized relationships were supported.[9] In addition, the proven relations between PU and Confirmation, and Confirmation and Satisfaction were also supported. Finally, the Goodness of Fit (GoF) index[10] and the Stone-Geisser test (Q^2)[11] were employed to evaluate the structural model. The GoF value obtained for the model was of 0.55, which exceeds the 0.36 cut-off value for large effect sizes of R^2 [134] and indicates a good performance for the model. The Q^2 values obtained for all the endogenous constructs in the model are above zero (see Table 2 below), indicating that the model has predictive relevance [130].

Table 2
Cross-validated redundancy values (Q^2).

Endogenous variable	Q^2
Satisfaction	0.62
Confirmation	0.46
Perceived Usefulness	0.06
Enjoyment	0.13
Anxiety	0.25

5.1.2. Control variable analysis

In addition to the constructs included in the model, other variables were analyzed to control for their potential influence on the endogenous constructs of the model. In total, nine control variables were analyzed: age (ranging between 18 and 30), gender, country of residency (either Canada or the U.S.), year at school participants were at when the cyberbullying episode occurred (henceforth to be referred to as school year, which ranges from being in high school to not being at school at the time), previous exposure to cyberbullying episodes[12] (yes/no), experiencing traditional bullying while subjected to the cyberbullying episode[13] (yes/no), duration of the cyberbullying episode[14] (ranging from less than one week to more than six months), use of coping mechanisms[15] (yes/no), and amount of time for which participants had a Facebook account for when the cyberbullying episode started (ranging from less than a year to eight years). Details on the analysis conducted to determine the influence of these control variables is presented in Appendix D. The results suggest that the control variables do not alter the results obtained in the hypothesized relationships of this study.

6. Discussion

In order to achieve the research objective of this paper, a theoretical model based on a combination of Transactional Theory of Stress and Coping and Expectation-Confirmation Theory was proposed. This model explored how a victim's perception of the severity of a cyberbullying episode affects her/his satisfaction with the cyberbullying medium. This model was validated using SmartPLS (n = 115) and its explanatory power was strong (70% of the variance in satisfaction was explained by the model). In addition, all the five hypotheses of the model were supported at the $p < 0.01$ level. Specific findings for each of the hypotheses in this model are provided and discussed below.

6.1. The effects of PCS

The first set of hypotheses of the model is concerned with the effects of PCS on the victim (H3 to H5). In this study, it was hypothesized that PCS would impact victims' well-being and their experience with ICT. In terms of victims' well-being, it was posited that PCS would be positively related to participants' experiencing anxiety. This relationship had a statistically significant beta coefficient of 0.58 ($p < 0.001$) with a large effect size ($f^2 = 0.52$), supporting hypothesis H3. The large effect of PCS on anxiety highlights the importance of accounting for victim's interpretations of cyberbullying episodes when assessing its correlates, beyond the mere occurrence of those episodes.

In terms of the impacts of PCS on victims' experience with ICT, it was proposed that PCS would be negatively related to participants' perceptions of enjoyment and usefulness of the cyberbullying medium. The first relationship, between PCS and enjoyment (H4), had a significant beta coefficient of −0.40 ($p < 0.001$) with a medium effect size ($f^2 = 0.19$). Finally, the association between PCS and perceived usefulness (H5) had a significant beta coefficient of −0.28 ($p < 0.01$), exhibiting a small effect size ($f^2 = 0.09$). These results suggest that perceived cyberbullying severity can have direct impacts on the user perceptions of the technology involved (i.e., it can negatively affect the benefits users of those ICT would otherwise experience).

[9] The following direct paths were also tested between: (i) PCS and satisfaction ($b = 0.055$, n.s.); (ii) enjoyment and satisfaction ($b = 0.17$, n.s.); (iii) perceived usefulness and satisfaction ($b = 0.000$, n.s.).

[10] The GoF is used as a global fit measure for PLS models and has different values as baselines, according to the different effect sizes of R^2 [134].

[11] The Stone-Geisser test measures how well observed variables are reconstructed by the model.

[12] TTSC suggests that exposure to novel stressful situations may affect an individual's perceptions of those situations.

[13] Victims of cyberbullying may also experience simultaneously traditional bullying [166] and therefore, controlling for traditional bullying allows demonstrating that the effects of the cyberbullying episode are independent [167].

[14] TTSC suggests that the persistence of a stressful situation may also influence individuals' perceptions of that situation.

[15] As argued in TTSC, the use of coping mechanisms may reduce the negative impacts of a stressful situation (a cyberbullying episode in this case).

The results obtained for hypotheses H4 and H5 are further supported by the responses provided by participants to the open-ended question related to whether and how the nature of their Facebook use changed after the cyberbullying episode (a question that received 103 comments in total). In their answers, participants referred to how cyberbullying affected the benefits they derived from the cyberbullying medium. Their comments referred to negative feelings derived from using Facebook (6% of comments), a reduced use of Facebook in both frequency and time spent in the social networking site (30% of the comments), and moving from more public to private activities (10% of the comments). Some representative sample quotes, indicating a decrease in both usefulness and enjoyment, are included below:

> *"I try not to log on or join in conversation, comment or post anything, because I feel that people are just waiting to twist it or make inappropriate comments on it."* 29 year old female.

> *"I frequented Facebook less often after the incident. It wasn't the same fun activity anymore. I was left with a bad taste."* 24 year old female.

> *"[My Facebook usage] decreased slightly for a time, moving more toward private uses (private messages and the like, rather than publicly viewable posts)."* 25 year old male.

> *"It's less enjoyable because I realized people are going to jam their thoughts and beliefs down your throat whether you want them or not. And if you have anything 'unpopular' to say on any subject, you should be prepared to suffer everyone's bitching and criticism."* 30 year old female.

> *"I am very careful who I interact with, who I accept as friends. I also don't use Facebook that long in each of my interactions."* 29 year old female.

Overall, the PCS construct was shown to do a good job at measuring victims' assessments of the severity of cyberbullying episodes, revealing its influence on their well-being (in the form of a positive relationship with the feelings of anxiety) as well as on their experience with the ICT (in the form of a negative relationship with perceptions of usefulness and enjoyment of the cyberbullying medium).

6.2. Antecedents of satisfaction

Consistent with prior findings in the literature, perceived usefulness was shown to be an antecedent of confirmation of expectations. This study also included enjoyment as a potential hedonic antecedent of confirmation. The relationship between perceived usefulness and confirmation had a statistically significant beta coefficient of 0.30 ($p < 0.01$) exhibiting a small effect size ($f^2 = 0.13$). The association between enjoyment and confirmation had a statistically significant coefficient of 0.52 ($p < 0.001$) and exhibited a large effect size ($f^2 = 0.40$). The apparent predominance of enjoyment as an antecedent of confirmation is not surprising, considering the largely hedonic nature of the cyberbullying medium evaluated in this study (i.e. Facebook).[16] These two antecedents explained 55% of confirmation's variance.

Confirmation of expectations when using a cyberbullying medium (i.e. Facebook) was found to be the key influencing factor of satisfaction with the cyberbullying medium. The association between confirmation and satisfaction had a statistically significant beta coefficient of 0.76 ($p < 0.001$) and exhibited a large effect size ($f^2 = 1.60$), thus confirming previous findings of the literature. The importance of confirmation as a predictor of satisfaction is consistent with results obtained in previous IS continuance studies (e.g., [84,135,136]).

It was also hypothesized that anxiety resulting from a cyberbullying episode would affect a victim's satisfaction with the cyberbullying medium. The relationship between these two constructs had a significant beta coefficient of -0.15 ($p < 0.01$) and exhibited a small effect size ($f^2 = 0.07$). Although the influence of anxiety on satisfaction was smaller than that of confirmation of expectations, the results indicate that experiencing anxiety due to a cyberbullying episode does affect in a negative way users' satisfaction with the ICT through which the cyberbullying episode occurs (i.e. cyberbullying medium). This result supported hypothesis H2 and suggests that even a personal correlate of cyberbullying may end up negatively affecting users' experience with ICT.

Taken together, these results suggest that the impact of cyberbullying should be assessed based on its perceived severity as opposed to its mere occurrence (as the assessment of severity differs from victim to victim). Our results also clearly indicate that cyberbullying not only affects victims' well-being (i.e., anxiety) but also has a clear detrimental effect on their perceptions of the benefits they derive from the cyberbullying medium. These detrimental effects at the person and technology level were shown to be negatively correlated with the victims' satisfaction with the cyberbullying medium, with potential ensuing repercussions on the use of such technology.

6.3. Theoretical implications

First, from an academic standpoint and to the best of our knowledge, this is the first known research study to investigate the impact of cyberbullying episodes on users' experience with ICT. The only other known study that has spoken to the effect of cyberbullying on ICT use is that of Sticca and Perren [36], which suggested that cyberbullying may ruin the pleasure of using Internet and mobile phones. However, in that study, the authors used hypothetical cyberbullying scenarios and asked participants (who were not necessarily victims of cyberbullying) to compare those scenarios and to determine whether cyberbullying was worse than traditional bullying. Thus, our study is the first known study to (i) propose a theoretical model to examine the effects of the perceived severity of a cyberbullying episode on users' satisfaction with ICT, and (ii) empirically validate this model with actual victims of cyberbullying.

Second, this research answers Tokunaga's [4] call for using well-established theories in deriving hypotheses in the area of cyberbullying, which is important for gaining a deeper understanding of the cyberbullying phenomenon and how it affects victims. An examination of 67 studies conducted in the area of cyberbullying shows that 88% did not mention any theory in the elaboration of the papers, with the remaining 12% using varied theories such as TTSC (to study victims' psychological adjustments [64], Social Dominance Theory (to study prevalence and antecedents [137,138]), Social Cognitive Theory (to explore bystanders' behavior [139]), Protection Motivation Theory (to study behaviors adolescents can adopt to prevent cyberbullying [140]), and General Strain Theory (to examine the emotional and behavioral effects of cyberbullying victimization [141]). Our study used Transactional Theory of Stress and Coping (TTSC) and Expectation-Confirmation Theory (ECT) to derive hypotheses aimed at explaining cyberbullying impacts on victims' satisfaction with ICT.

Finally, this research contributes to the advancement of the cyberbullying literature by validating and utilizing a perceived cyberbullying severity (PCS) construct to explore cyberbullying impacts on victims. Prior to this study, some papers addressed the issue of how severe or harmful a cyberbullying episode was perceived by participants (e.g., [142,36]) by manipulating certain conditions (e.g., publicity of messages) on hypothetical scenarios. Only the study by Na et al. [64] utilized a measure similar in nature to PCS to analyze victims' psychological adjustments. The PCS construct can be employed by researchers in the area of cyberbullying to investigate how victims perceive episodes across different cyberbullying media (e.g., e-mail, social networking sites) or cyberbullying behaviors (e.g., offensive comments, embarrassing photos). In addition, this construct can also be adapted to measure individuals' perceptions of severity of other ICT-related negative experiences (e.g., privacy violations, security breaches).

[16] van der Heijden [95] found that enjoyment was a stronger predictor than perceived usefulness of the intention to use hedonic systems.

6.4. Practical implications

The results of our study provide technology companies like Facebook with insights on the aspects that may affect their users' experience and that may end up alienating them. The theoretical model validated in this study found that users' perceptions of usefulness and enjoyment of ICT are negatively impacted, and users' satisfaction is ultimately affected, as a consequence of the severity of a cyberbullying episode. In addition, 36% of the comments obtained in the open-ended question related to changes in Facebook use after the cyberbullying episode highlight that users lost interest in spending time on Facebook or reduced their usage after they experienced a cyberbullying episode through this medium (as shown in the sample representative quotes below).

"I now use it very rarely. Only to interact with family" 24 year old male.

"I have pretty much quit using Facebook." 26 year old male.

"I didn't want to check it so I didn't have to see the mean stuff I figured was waiting there for me when I logged in. I figured if I didn't see it, it couldn't hurt me." 25 year old male.

"My trust for Facebook is gone now" 28 year old female.

In addition to the lost interest in using Facebook, most of the participants reported using at least another social media application in addition to Facebook (e.g., Twitter, Instagram).[17] Given users' available options to switch among social media applications, it may be worthwhile for companies like Facebook to explore whether they are doing enough to protect their user base from negative situations like cyberbullying committed through their platform. They should also be concerned with how fast they react to users' concerns once a cyberbullying situation has occurred (e.g., removing reported photos). Quick actions by these companies may be required, if they want to prevent users from experiencing the full consequences of cyberbullying episodes that ultimately affect their satisfaction with these companies' ICT platforms. Moreover, quick actions may help to reduce potential reputational damage for these companies. This has been shown in the context of other negative situations that occur through ICT (see for example Home Depot's recent customer data breach [143]).

6.5. Limitations and future research

The first limitation of this investigation is its focus on only one cyberbullying medium (i.e. Facebook). The specific characteristics of this particular medium may not be present in other media (e.g., group pages where people can post links, photos, and comments) and thus, the experience of cyberbullying through these media may be different for victims. An example of this is Twitter's limitation of 140 characters. Despite the focus of this study on one cyberbullying medium, it is worth noting that Facebook is one of the most utilized media in cyberbullying, and it includes characteristics found in many other similar online platforms (e.g., sharing photos, commenting on others' activities). Future studies can explore how cyberbullying affects the experience of victims with other media such as social networking sites (e.g., Twitter, Instagram), e-mail, and instant messaging apps (e.g., WhatsApp, WeChat).

A second limitation of this investigation relates to a methodological choice for its design. During data collection, participants were asked to recall their perceptions and feelings at the time when a cyberbullying episode occurred (i.e. in the past). Asking participants to recall their perceptions and feelings of an event that took place in the past may introduce recall bias. Past research indicates that the time interval between the exposure to a situation (e.g., dietary habits, medication usage) and the point at which details of this situation are solicited influences recall [144]. However, and as mentioned before in the methodology section, the reporting period used in this research was the past twelve months in an effort to reduce the potential of recall bias. Additionally, a study focusing on an episode in the past was selected because it eliminates ethical issues that could arise if data were collected with victims who are currently experiencing cyberbullying. In such a situation, the study could heighten a victim's negative feelings without psychological support.

A third limitation of this study is the generalizability of its results to younger cyberbullying victims (i.e. adolescents). Adolescents face identity issues and drastic physical changes [5] that may play a role in determining their appraisal of how severe a cyberbullying episode can be and the magnitude of the consequences of such an episode. As such, results of this research may not be generalizable to this population. However, and as indicated previously, it is important to note that young adults who are victims of cyberbullying experience similar effects as adolescent victims (e.g., anxiety, depression, suicidal thoughts [119,145,120]) and are likely to experience similar impacts on their experience with ICT. Future research should explore the validity of the findings of this research to adolescent victims, since this age group experiences a significant share of cyberbullying.

A fourth limitation relates to the types of IS benefits analyzed in this study. This study focused on the utilitarian (i.e., perceived usefulness) and hedonic (i.e., perceived enjoyment) benefits users derive from utilizing the medium through which cyberbullying occurs. Considering that the cyberbullying medium selected for this study (i.e., Facebook) is predominantly social in nature, the PU scale used did capture some of the social utility aspect of FB. However, future studies may delve more deeply in understanding the social benefits users derive from their interactions within this social networking site and how those benefits are affected by their perceptions of severity of a cyberbullying episode.

In addition to future research addressing the limitations of this study, there are two other interesting and important venues for research on cyberbullying. First, and considering that we found that concurrent exposure to traditional bullying did not affect the explored consequences of cyberbullying, future studies can explore whether experiencing traditional bullying before a cyberbullying episode augments its negative consequences for victims. Second, future research can explore the effectiveness of using certain coping mechanisms in reducing cyberbullying negative consequences. It would be valuable to explore the extent to which the use of those coping mechanisms helps victims prevent the occurrence of future cyberbullying episodes.

7. Conclusion

Researchers interested in the phenomenon of cyberbullying have explored its prevalence and negative consequences for victims. However, they have not included a measure to consider the assessment of a victim. Such a measure is important to understand the varied effects of cyberbullying, including why some victims are not affected by this phenomenon. This research addressed this gap, by using a measure of a victim's perception of the severity of a cyberbullying episode. In addition, and considering that cyberbullying researchers have not explored how this phenomenon affects victims' experience with ICT, this study developed and validated a research model that accounts for the mechanisms through which perceived cyberbullying severity affects victims' satisfaction with the cyberbullying medium. This research is an important step in furthering our understanding of the cyberbullying phenomenon and contributes to the development of literature in the area of the "dark side" of information technology use.

[17] Only 9.6% of participants indicated they do not use additional social media applications.

Appendix A. Measurement instruments

Construct	Source(s)	Item descriptor	Item
PCS	[146,147]	pcs_0	The cyberbullying episode was a serious situation
		pcs_1	The cyberbullying episode had major consequences on my life
		pcs_2	The cyberbullying episode strongly affected the way others see me
		pcs_3	The cyberbullying episode had serious consequences for me
		pcs_4	The cyberbullying episode caused difficulties to those who are close to me
		pcs_5	The cyberbullying episode was severe
		pcs_6_r	The cyberbullying episode did not have much effect on my life
		pcs_7	The cyberbullying episode was significant
Anxiety	[148]	anxiety_0	I often felt nervous
		anxiety_1	I often felt jittery
		anxiety_2	I often felt fidgety
		anxiety_3_R	I often felt calm
Perceived Usefulness	[111]	PU_0	Using Facebook enabled me to acquire more information or know more people
		PU_1	Using Facebook improved my efficiency in sharing information and connecting with others
		PU_2	Facebook was useful for interacting with other members
Enjoyment	[149]	ENJ_0	I found it interesting to use Facebook
		ENJ_1	I found it fun to use Facebook
		ENJ_2	I found it exciting to use Facebook
		ENJ_3	I found it enjoyable to use Facebook
Confirmation	[136]	Conf_0	My overall experience with using Facebook was better than what I expected.
		Conf_1	The benefits provided by Facebook were better than what I expected
		Conf_2	Overall, most of my expectations from using Facebook were confirmed
Satisfaction	[150]	Satisfact_0	I was very content with Facebook
		Satisfact_1	I was very pleased with Facebook
		Satisfact_2	I felt delighted with Facebook
		Satisfact_3	Overall, I was satisfied with Facebook

Greyed items indicate those removed from the constructs.

Appendix B. Validation of measurement model

The first step in the evaluation of the measurement model was to determine the reliability of the reflective construct items. This was determined by checking the corrected item-total correlations (whose values need to be larger than 0.40) and the indicator loadings (which need to be larger than 0.50[18]) [151,152]. Those items that did not meet the criteria were dropped from the data set and excluded from further analysis. This resulted in one item dropped (see Appendix A for retained items).

The second step of the evaluation of reflective constructs was the assessment of their reliability. Cronbach's alpha was used, with a threshold of 0.7 [153]. As Table B1 below shows, reliability holds for all the reflective constructs included in the model. Next, the convergent and discriminant validity of the constructs were examined. Convergent validity was examined through the Average Variance Extracted (AVE) for each construct, making sure it exceeded the variance due to measurement error for that construct (i.e. AVE is above 0.5) [150]. This criterion was met by all constructs as seen in Table B1 below. The AVE by each construct was also used to evaluate discriminant validity, by verifying that its square root was larger than the correlation of that construct with any other construct [154]. As shown below in Table B1, the value of the diagonals (i.e. square root of the AVE – in bold) is larger than the values in their corresponding rows and columns.

Discriminant validity was further examined by verifying that the loading of each item on its corresponding construct (i.e. theoretical construct) was larger by at least 0.10 than its loadings on other constructs (i.e. cross-loadings) [130,155]. Table B2 indicates that this criterion is satisfied for all the items in the model.

Table B1
Construct reliability assessment, construct descriptive statistics and correlations.

Construct	Cronbach's alpha	Mean	S.D.	AVE	1	2	3	4	5	6
1. PCS	0.95	4.20	1.39	0.76	**0.87**					
2. Anxiety	0.88	4.81	1.26	0.74	0.58	**0.86**				
3. PU	0.92	3.87	1.46	0.86	−0.28	−0.28	**0.93**			
4. ENJ	0.96	3.07	1.44	0.89	−0.40	−0.48	0.59	**0.94**		
5. CONF	0.92	2.88	1.28	0.87	−0.36	−0.41	0.61	0.70	**0.93**	
6. SAT	0.96	2.86	1.35	0.89	−0.34	−0.47	0.53	0.68	0.82	**0.94**

[18] Although a threshold of 0.70 has been suggested to consider that an item is part of a construct, this value is too strict when scales are adapted for a different context or when theory is in its early stages of development [168,169].

Table B2
Loadings and cross-loadings.

	Anxiety	CONF[a]	ENJ	PCS	PU	SAT
anxiety_0	**0.92**	−0.32	−0.41	0.58	−0.17	−0.34
anxiety_1	**0.94**	−0.34	−0.40	0.56	−0.27	−0.37
anxiety_2	**0.86**	−0.30	−0.33	0.53	−0.21	−0.37
anxiety_3_R	**0.70**	−0.47	−0.52	0.29	−0.33	−0.54
Conf_0	−0.38	**0.94**	0.67	−0.35	0.57	0.80
Conf_1	−0.38	**0.96**	0.69	−0.31	0.57	0.78
Conf_2	−0.40	**0.90**	0.59	−0.35	0.56	0.72
ENJ_0	−0.39	0.68	**0.93**	−0.43	0.63	0.58
ENJ_1	−0.46	0.63	**0.96**	−0.34	0.54	0.65
ENJ_2	−0.43	0.66	**0.94**	−0.37	0.52	0.64
ENJ_3	−0.53	0.66	**0.95**	−0.34	0.52	0.70
pcs_0	0.61	−0.35	−0.41	**0.85**	−0.27	−0.36
pcs_1	0.52	−0.33	−0.40	**0.91**	−0.28	−0.27
pcs_2	0.44	−0.22	−0.29	**0.85**	−0.20	−0.23
pcs_3	0.39	−0.26	−0.30	**0.86**	−0.20	−0.24
pcs_4	0.44	−0.25	−0.26	**0.85**	−0.26	−0.21
pcs_5	0.55	−0.40	−0.34	**0.88**	−0.24	−0.38
pcs_7	0.53	−0.35	−0.36	**0.88**	−0.26	−0.31
PU_0	−0.30	0.53	0.52	−0.23	**0.91**	0.50
PU_1	−0.27	0.57	0.55	−0.30	**0.95**	0.49
PU_2	−0.22	0.58	0.56	−0.26	**0.93**	0.49
Satisfact_0	−0.43	0.79	0.61	−0.34	0.53	**0.95**
Satisfact_1	−0.48	0.78	0.64	−0.30	0.47	**0.97**
Satisfact_2	−0.38	0.70	0.65	−0.22	0.42	**0.91**
Satisfact_3	−0.46	0.82	0.66	−0.39	0.56	**0.94**

Bold figures correspond to item loadings on theoretical constructs.
[a] CONF: Confirmation, ENJ: Enjoyment, PU: Perceived Usefulness, SAT: Satisfaction.

Appendix C. Common method bias

In this study, some procedural remedies as recommended by Podsakoff et al. [170]. were followed to try to control for common method bias. First, respondents' anonymity was protected, by disengaging the possibility to capture IP addresses from the online survey and by not asking identifying information in the questionnaire. In addition, participants were informed that there were no right or wrong answers and were asked to respond to the questions as honestly as possible. These steps may help to reduce participants' evaluation apprehension, as well as the likelihood of obtaining socially desirable responses [171]. Finally, the scale items were improved by defining ambiguous or unfamiliar terms (e.g., defining what coping means before asking participants whether they coped). As a further effort to reduce item ambiguity, every point in the response scales was labeled (not only the end points) [172].

Harman's single factor test was used to examine for common method bias after data were collected. The items of the model yielded a solution with five factors with eigenvalue larger than one. The first factor accounted for 47.53% of the variance, while the five factors together accounted for the majority of the variance (82.05%). As per Podsakoff et al. [170], since more than one factor emerged from the analysis and the majority of the variance was accounted for by more than one factor, the results do not suggest the presence of common method bias.

Appendix D. Analysis of control variables

In order to analyze the effect of control variables on each endogenous variable, the significance of their paths and effect sizes were examined. In terms of significant paths, it was found that age and previous exposure to cyberbullying had a positive impact on anxiety, indicating that older participants and those that experienced cyberbullying before also experienced more anxiety as a result of the cyberbullying episode. In addition, the duration of the cyberbullying episode had a negative impact on confirmation, indicating that as the episode lasted longer, participants found less confirmation of the expectations they had of Facebook. It is important to mention that participants' simultaneous exposure to traditional bullying at the time of the cyberbullying episode did not have any significant influence on the endogenous constructs. This result shows that the impacts of the cyberbullying episode found in this study are independent of those of traditional bullying [167].

After evaluating the significance of paths involving control variables, the effect sizes of those paths were examined. The results indicated that the effects of all the control variables were small. Furthermore, the hypothesized relationships did not change with the addition of the control variables. Therefore, it could be concluded that the control variables did not alter the conclusions derived from the hypotheses of this study.

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