



# Exploring the impact of cyberbullying and cyberstalking on victims' behavioural changes in higher education during COVID-19: A case study

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## ABSTRACT

This study explores cyberbullying and cyberstalking in higher education from the victims' perspective. It presents a novel contribution by utilising a convenience sample of students and staff in a university setting in England. Their perceptions as victims were collected through a semi-structured online survey during the COVID-19 pandemic. This temporal setting helps to explore how external traumatic events, collective restrictions, and increased internet use affect online social interactions. A quantitative method is employed to gain a deeper understanding of the complexity of human behaviour and factors that contribute to changes in the everyday lives of victims. Despite the exploratory nature of this study, the empirical insights provide valuable contributions that can inform the development of innovative best practice and evidence-based policies to support victims in higher education.

## 1. Introduction

*Cyberbullying* (CB) is defined as purposeful and recurrent harm directed through digital devices platforms, such as computers and mobile phones (Hinduja and Patchin, 2014, 11). This harmful behaviour encompasses actions such as transmitting, publishing, or distributing negative, damaging, false, or malevolent content about another individual, leading to feelings of embarrassment or humiliation (Patchin and Hinduja, 2006). Pereira and Matos (2016) found that CB increases fear in victims more than other types of cybercrime. *Cyberstalking* (CS) is the repeated use of electronic communications to harass or frighten someone persistently, for example, by sending threatening emails or finding out information about the victim (Kraft and Wang, 2010). CS is also characterised by harassing and intimidatory behaviours and may include spying, monitoring, or controlling the victim's activities (e.g., hidden webcams, SpyWare, GPS devices). Cyberstalkers often pursue and contact their victims under anonymity through fake online profiles (Shorey et al., 2015; Smoker and March, 2017).

To protect the victims of aggressive cyber behaviours, several countries across the globe (e.g., Europe and especially the UK, Canada, United Arab Emirates) have codified laws dealing with cybercrimes, including CB and CS (Hosani et al., 2019). However, CB has no specific legislation or legal definition, and prosecution is applied under different legislative provisions (Hosani et al., 2019, 4).

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Various laws are used to prosecute CB crimes in the UK (e.g., Protection from Harassment Act, 1997; the Malicious Communications Act, 1988; the Communications Act, 2003; the Public Order Act, 1986; the Education and Inspections Act, 2006; the Telecommunications Act 1984, the Obscene Publications Act 1959, the Computer Misuse Act 1990, the Crime and Disorder Act 1998, and the Defamation Act 2013; Hosani et al. (2019). The court decides which Act should be applied considering the specific case and evidence (El Asam and Samara, 2016; Hosani et al., 2019). Despite the absence of specific legislation for CB, several UK organisations provide support and information to report these offences with dedicated helplines (e.g., the National Stalking Helpline in England). These organisations also offer legal support and advise people by giving practical recommendations for reducing risks.

In the UK, the Office for National Statistics (2020) recorded stalking and harassment offences increased by 20% year on year during the lockdown. Stalking and harassment offences (included through electronic) increased by 31% compared to the same period in the year prior - up to around 125,000 offences recorded from July to September 2019. During the 2020 COVID lockdowns, stalking and harassment continued to rise by 20% and, as pandemic restrictions started to ease, these crimes rose to 31% compared with the previous, pre-pandemic year. In three months, from July 2020 to September 2020, around 163,000 stalking reports were lodged nationwide (Shadwell, 2021; Martellozzo et al., 2022).

Environmental and social factors in higher education (HE) provision and delivery are as important as quality education as a priority mission. Negative behaviours such as CB and CS can disrupt a positive learning environment. They can also have potentially adverse consequences given the increased use of Information and Communication Technology (ICT) for teaching, administrative duties, and leisure purposes. Therefore, it is crucial to understand the effects of CB and CS in higher education, how they manifest, the consequences, and how victims respond to these adverse events (Bussu et al., 2023; Cox and Raditch, 2022).

CB and CS are linked to several actions, such as intrusive behaviours through electronic devices that affect relationship formation, online communication, and even social identity (Marcum and Higgins, 2019). Consequently, poor workplace performance, psychological distress, and social isolation can be experienced (Kaur et al., 2021; Fissel and Reynolds, 2020). CB and CS victimisation impacts in HE settings, leading to high material and immaterial socio-economic and well-being costs (Kaur et al., 2021). Although this topic is extensively studied in school settings, it is still under-researched in HE to evaluate specific impacts (Marcum and Higgins, 2019; Oksanen et al., 2021).

CB and CS tend to be analysed separately and primarily with a student focus (Watts et al., 2017; Brands and Van Doorn, 2022). Hence, the lack of research within a more comprehensive setting leads to scarce and less clear policies, protocols and a lack of best practice (Marcum and Higgins, 2019). As highlighted in the most recent literature review, during the COVID-19 pandemic and lockdowns, ICT facilitated remote access to teaching and learning resources and staff workplace objectives (Barlett et al., 2021; Shoib et al., 2022). However, the increased use of ICT has also revealed negative implications for online social interactions involving deviant behaviour, such as CB and CS (Kaur et al., 2021; Stevens et al., 2021; Kaur and Saini, 2023).

Mixed findings from prior research call for additional investigation into the phenomenon CB and CS in higher education contexts. Victimization experienced by students and staff remains inadequately explored. Importantly, the COVID-19 pandemic, the consequent restrictions, and new online interaction modes may have exposed these two groups to adverse behaviours.

An online semi-structured survey was conducted during the pandemic lockdowns to collect empirical data from a convenience sample of students and staff at a higher education institution in the North-West of England. This temporal setting helps to explore how external traumatic events, collective restrictions, and increased internet use affect online social interactions and the extent to which victims moderate their behaviour. This study provides a comprehensive understanding of victim experiences by examining patterns of victimisation, possible heterogeneity in perceptions, and impact, based on the role and characteristics of the victims. Through a multifaceted quantitative investigation, this research sheds light on various aspects related to CB and CS victimisation during the COVID-19 pandemic, offering valuable insights into the intricate nature of human behaviour. This study aims to bridge this research gap by examining the behavioural changes exhibited by victims, irrespective of their role and age, and their proactive management strategies in response to such adverse events (Marcum and Higgins, 2019; Kaur et al., 2021).

Cybervictimisation may cause students and staff to make changes to their daily routine as protective measures. The mitigation of risk factors can occur if the victim changes their lifestyle, purchases personal protection devices, or talks to family and friends (Ho et al., 2020; Hsieh et al., 2021). Other behavioural adaptations include responsible conduct in social media usage and the implementation of adaptive coping mechanisms (e.g., Kraft and Wang, 2010). However, victims may undergo changes in personal habits, bearing the impact of adverse experiences; thereby encountering negative affective states and manifesting psychological distress (Stevens et al., 2021; Kaur et al., 2021; Shaikh et al., 2021). Alternatively, it is plausible that victims may choose to retain their habitual patterns due to a perceived insignificance of their adverse events or underreport specific incidents.

## 2. An updated literature review

### 2.1. Cyberbullying and cyberstalking in higher education

A crucial issue affecting systematic research on CB and CS is that these behaviours do not have universally accepted definitions (Kobets and Krasnova, 2018) and have been only loosely defined (Field, 2018). Semantic and methodological concerns aside, a recent review of the literature (Bussu et al., forthcoming) showed how most studies exploring the impact of CB and CS on victims' mental health tend to focus on risk factors and best practice. Regarding best practice and interventions, one key finding from this review was that victims of CB and CS do not tend to report these events to the police or other relevant authorities.

Young adults are at greater risk of CB and aggression. Students spend significant time on social networks and sites for educational purposes (e.g., Wikipedia, Google, YouTube) and use chats (e.g., WhatsApp, Discord, Snapchat) to discuss academic issues and share

useful information. Shaikh et al. (2021) showed that students and lecturers communicate with each other through the increased use of mobile devices, ICT, and social networks (e.g., Twitter, Facebook) in their daily lives and that, crucially, the use of social media plays a moderating role between CB intention and behaviours. Similarly, a systematic literature review (Yusof Nur Amalina et al., 2021, 1393) highlighted key characteristics of CB that explain its pervasiveness in a HE setting: “*quality of technology, anonymity, publicity, physical distance, lack of supervision, no escape, and availability to access anytime and anywhere*”. Vikhman et al. (2021) discussed how the specific characteristics of CB (e.g., through ICT, anonymity, and disinhibition) can also be the basis of, or exploited for, CB prevention by tackling the use/misuse of online technology and socialisation. According to Naidoo (2020), further research on CB and CS is needed to collect and gather evidence to develop more effective countermeasures to ensure a secure digital environment, especially in times of emergency.

Reyns et al. (2016; 2018) developed gender-based theoretical models to examine the potential moderating effects of gender on the relationship between victimisation risk and lifestyle-routine activity, aiming to elucidate the risk factors of victimisation in young adults. The foundation of this approach can be attributed to the seminal work by Cohen and Felson (1979), who suggested that routine activities in everyday life determine criminal opportunities.

Reyns et al. (2016) found conditional support for the *lifestyle-routine activity theory* and the hypothesis that predictors of stalking victimisation in person may also vary depending on gender. Additionally, Reyns and Scherer (2018) investigated the risks of cyber-victimisation among university students with and without disabilities. Their findings revealed that different lifestyles and routines are significant predictors of victimisation, thus corroborating the robustness of the lifestyle-routine activity theoretical approach. Specifically, the study by Reyns and Scherer (2018) identified several indicators related to target attractiveness, such as relationship status and being female, as well as proximity to offenders through risky lifestyle behaviours, and alcohol or illicit drug abuse. Moreover, there is evidence that exposure to cybervictimisation risk through public activities, such as volunteering and employment, increased the likelihood of stalking victimisation among college students.

Cao and Wang (2020) present an innovative alternative approach to understanding the correlates of stalking victimisation, departing from the traditional routine activity theory and ill-supported lifestyle perspectives. Instead, they adopt two complementary approaches, the *neighbourhood social support model* and the *comorbidity model*, to investigate the correlates of face-to-face stalking and cyberstalking. Consistent with this framework, the authors demonstrate that social contexts and individual life habits play crucial roles in the risks of stalking victimisation. Specifically, they emphasise the importance of considering social support, such as cohabitating with friends or family, co-occurring health-related issues, and poor mental health in clarifying the factors associated with stalking victimisation. Furthermore, their research indicates that a lack of neighbourhood social support increases the likelihood of becoming a victim of stalking in person. Notably, Cullen (1994) was the first scholar to incorporate social support theory into the study of stalking and integrate the complementary *comorbidity approaches* (Cao and Wang, 2020).

Several studies have assessed the association between CB and CS and various social, physical, and psychological health issues (Fissel and Reyns, 2020). Furthermore, these hostile online behaviours often have a negative impact on victims' academic performance (Torres et al., 2020) and even influence university dropout rates (Bernardo et al., 2020). In a recent study, Bernardo et al. (2023) identified a link between cyberbullying victimisation and intentions to drop out of university, particularly in cases involving specific cyberbullying behaviours such as social exclusion and non-consensual dissemination of sexual images.

While some research has shed light on the determinants and consequences of CB and CS, there remains a need for extensive and systematic investigations in this field. Previous studies have highlighted the significant public health threats posed by CB and CS (Kraft and Wang, 2010; Walker et al., 2011), impacting not only young individuals (Wells and Mitchell, 2014) but also adult professionals (Oksanen et al., 2020).

In addition to negatively affecting the experiences of students and staff in higher education (HE), CB and CS related behaviours can also impact their well-being. These behaviours frequently have intangible costs, such as lower academic performance, social isolation, discomfort, and psychological disorders (Fissel and Reyns, 2020; Kaur et al., 2021). Indeed, a high frequency of CB victimisation through social networking, chat, or instant messaging increases the likelihood of academic problems, substance abuse, and low self-esteem (Peled, 2019). CB victimisation is often associated with psychological distress and suicidal ideation, especially in young people (Cénat et al., 2019). Moreover, previous research on the impact of CB and CS in HE indicated that students often directly address incidents of this kind rather than seeking assistance from institutional resources, not believing such situations are severe enough to be reported (Kraft and Wang, 2010).

## 2.2. Cyberbullying and cyberstalking in higher education during the pandemic

Existing literature lacks clear evidence on the prevalence of CB and CS in HE both before and during the COVID-19 pandemic. For instance, Faucher et al. (2014) reported that 20% of university students had experienced cyberbullying within the past year. Strawhun et al. (2013) found that 26.5% of their student sample admitted to cyberstalking behaviours. Reflecting the age range of most HE students, Working to Halt Online Abuse (WHOA, 2014) highlighted that 38% of cyberstalking victims were aged between 18 and 29. Kowalski et al. (2020) found that over 45% of participants had experienced CB at least once. Furthermore, Giumetti et al. (2022) revealed that 23.7% of university students had been victims of cyberbullying within the past year, aligning with the findings from prior studies conducted before COVID-19 (Faucher et al., 2014; Strawhun et al., 2013). Considering cyberbullying perpetration and victimisation rates in higher education, previous research has reported a wide range of 8–56% (Yubero et al., 2017).

Hence, understanding the impact of CB and CS on victims during the COVID pandemic is crucial, considering the increased use of social media and ICT resources for teaching provision. Interestingly, there is mixed evidence on the prevalence of CB and CS during the pandemic. The prevalence during the pandemic also depends on the countries where studies were conducted and is influenced by the

sociocultural context. For example, a South Korean study examined the prevalence of CB risk factors before and after the pandemic (Choi et al., 2021). The authors showed this phenomenon seemed to have decreased, possibly due to higher awareness and reporting of CB episodes by potential victims alongside better support systems. In other studies, for example, the prevalence rate of CB among Chinese students was low (Zhong et al., 2021). Some other studies found higher incidents of CB due to the increase in remote teaching during the pandemic (Barlett et al., 2021), and showed a negative impact of psychological distress on students' self-esteem (Alsawalqa, 2021), and coping strategies adopted by college students during the lockdowns (Yang, 2021).

The pandemic can be considered a new victimisation risk factor for undergraduate students and staff (Daigle et al., 2021). The literature has also shown how risk factors for CB and CS changed during the pandemic. In a survey, Jain et al. (2020) explored whether factors significant in CB susceptibility changed during the lockdowns and found differences during the various waves of the pandemic. The tendency to interact online with strangers and the number of hours spent on social media affected CB susceptibility before the pandemic lockdown (Period-I). Factors such as age, gender orientation, and being opinionated on public platforms only emerged as significant factors for CB susceptibility during the lockdown (Period-II). Risk factors and CB behaviours also changed over time due to lockdowns. For example, Barlett et al. (2021) found an increase in pro-CB attitudes and perpetration during the pandemic by comparing data collected from a sample of United States (US) adult participants before and after the COVID pandemic. To explore whether CB processes and frequency were affected during this period, the authors adopted the Barlett-Gentile Cyberbullying Model (Barlett and Gentile, 2012) and explored the psychological mechanisms involved in CB perpetration. This research highlighted a change in three (out of four) components of the BGCMB (Belief in the Irrelevance of Muscularity in Online Behaviour (BIMOB), CB attitudes, and CB behaviour), and stronger relationships between each of these variables. This outcome may suggest that CB differed quantitatively and qualitatively from pre-to mid-pandemic periods. According to the authors, these findings could be due to 1) the manifestation of increased stress and anxiety in the form of aggressive behaviours and 2) higher risks due to increased access to online platforms.

The COVID pandemic placed university students and staff at higher risk of cyber victimisation. Specifically, the rise in CS during the global lockdown is of additional concern because of the associated increased distress and rapid escalation, in addition to social distancing and isolation (Bourne, 2020). In addition, the increased social media use during lockdowns led to an expansion in antisocial online behaviour (Hollewell and Longpré, 2021). Some recent works suggest that COVID may have made CB/CS victimisation harsher. For example, Shoib et al. (2022, 2) remark: "Being diagnosed with COVID-19 or knowing infected people was associated with cyber victimisation". In contrast, in a sample of Russian students, CB during COVID-19 was characterised by a perceived lack/absence of support and victim blaming (Utemissova et al., 2021).

The literature seems to lack a comprehensive view of CB and CS behaviours and their impact on students and staff, as victims, within university campuses (Oksanen et al., 2021), as highlighted in a recent systematic review (Bussu et al., forthcoming). So far, most of the studies have focused on the American and Canadian university systems, which are notably different from European Countries.

In line with Marcum and Higgins (2019), it would be advantageous to replicate studies or implement new surveys to collect data from samples of various ages and roles (e.g., students and staff). It would be interesting to assess whether predictors of CB and CS are similar and, on this basis, plan preventive and supportive programs for each category. The consequences of CB and CS involve psychological and intangible effects and possible changes in individuals' behaviour (Fissel and Reyns, 2020; Kaur et al., 2021). Overall, literature about the impact of cyber victimisation on HE students and staff is still scarce and fragmented, and more research should be devoted to this context (Oksanen et al., 2021; Kaur and Saini, 2023). It is relevant to explore both groups' perceptions of CB and CS in a HE context because both behaviours have a similar negative impact on victims and represent instances of deviant behaviour associated with the use of social media (Kaur et al., 2021). This paper will cover gaps in the literature on CB and CS in higher education during the pandemic. It will focus on both victim categories: students and academic staff, and will adopt a quantitative approach.

### 2.3. Research aims and research questions

The literature shows that several aims remain unexplored. As a novel thread in the literature, this paper unveils the impact of CS and CB on the everyday lives of students and staff, their well-being, and potential support strategies. Investigating this phenomenon in a higher education context is an important priority to promote academic well-being and a safe digital world, especially during and after the pandemic.

- 1) *To explore CB and CS victimisation dimensions/patterns for students and staff in HE.* Patterns of CB and CS are investigated depending on role (staff or student), age, gender, and other key socio-demographic characteristics.
- 2) *To explore the profiles of victims of CB and CS and to investigate victims', students and staff, self-perception of CB and CS.* Exploration and understanding victims' profiles among students and staff and their self-perception of these online forms of victimisation.
- 3) *To explore the psychological impact of CB and CS in a university community.* Specifically, overall well-being and mental health are explored within CB/CS cases.
- 4) *To identify strategies to prevent CB and CS.* The findings will provide an empirical basis to implement support strategies for victims by identifying and reporting incidents of CB and CS. In this respect, it is important to understand the impact of victimisation on student and staff well-being to identify strategies and best practice to mitigate further strain on victims. Empirical data are essential to building a model for the impact on well-being at the university to prevent the phenomenon.

On this basis, the following *research questions* (RQ) are addressed, and further explored in the quantitative analysis.

- RQ1.** What are the dimensions and patterns of CB and CS among students and staff?
- RQ2.** What are the victims' perceived consequences of CB and CS (e.g., psycho-socio/emotional, academic, or work performances; reporting CB and CS)?
- RQ3.** How did victims perceive CB and CS during the COVID-19 pandemic?
- RQ4.** What is the relationship between CB/CS behaviour and victims?
- RQ5.** How can the literature and our research findings inform best practice and policies for victims of CB and CS?

### 3. Methodological framework

#### 3.1. Sampling technique

A convenience sampling involved students and academic staff at a university in the North-West of the United Kingdom. This sampling method is useful to retrieve sensitive information from a targeted section of the population likely to be involved as a victim of CB and CS. In this manner, valuable insight into the focused research leads to a lower error margin as the information is collected from the best-fit respondents. Furthermore, respondents can articulate negative experiences with a heightened level of awareness without external pressure, as might occur in a face-to-face interview (Kerlinger, 2014).

In quantitative studies, the convenience sampling approach is frequently employed despite its nonprobability nature and the inability to generalise findings (Etikan et al., 2016). However, this sampling method offers certain advantages, as it fulfills various criteria. These criteria include relative ease of access to sensitive information and the willingness of highly educated individuals with a heightened awareness of adverse behaviours and crimes to participate in the survey. On this basis, participants were recruited and informed of the contact details of the online questionnaire. Ultimately, the survey involved students and staff who self-identified as CB and/o CS victims. We recruited to consider the extent to which participants recognise the behaviour they report as problematic. The data collection lasted eight months in 2021. We collected 34 complete semi-structured questionnaires; on average, they took approximately 20 min.

Some explanations have been considered for the low response levels and smaller sample size for the study. The topic's sensitive nature led to the collection of victim experiences through an online questionnaire. Face-to-face interviews may have posed challenges in people's willingness to respond openly regarding their experiences while ensuring anonymity. For example, the topic addressed and the behaviours explored may have deterred some potential respondents from participating in qualitative focus groups.

Conditions set by the Ethics Committee required the study to be promoted internally through university channels, such as email and the platform Blackboard. Departmental approval was also needed to involve students as participants. These understandable restrictions had a negative impact on the final sample size and resulted in some departments not participating. Compliance with the University Ethics Committee's requirements limited recruitment to the University and prohibited direct one-to-one approaches to potential participants, which affected research dissemination and reduced the potential participant pool.

Besides, participants may have had concerns, especially staff, about completing the questionnaire at the University due to potential recognition. Despite emphasising participant anonymity in the invitation letter and participant information sheet, these concerns may have influenced their decision to take part.

The impact of the pandemic should also be noted. First, participant recruitment and data collection that occurred during the COVID-19 pandemic were restricted to university students and staff. Second, the lockdowns heavily relied on the internet and social media, which may have contributed to "technological" fatigue and resistance to participating in online surveys.

#### 3.2. Procedures

Based on the literature, the semi-structured online questionnaire explored participants' CB and CS experiences (Sheridan et al., 2001; Walker et al., 2011). The anonymous semi-structured survey was administered voluntarily and intended to gather information on self-reported CB and CS events. The survey contained instructions on how to withdraw and provided institutional contacts. All the participants completed a consent form, and each questionnaire had a unique identification number to enable anonymous withdrawal. The online survey was disseminated through various mailing groups at the University to attain the highest publicity.

The survey encompassed four primary sections, structured as follows:

1) *Demographic information.* This first section retrieves details regarding age, gender, ethnic background, university affiliation (staff or student), faculty, and living arrangements.

2) *Relationship between victim and cyberstalker/cyberbully.* Focusing on the cyberstalker/cyberbully from the victim's perspective, this second section captures any pre-existing connections between victims and the perpetrator, the duration and frequency of cyber events, the nature and progression of cyberstalking, its perceived impact, specific actions of the CS/CB offender, the victim's response, authorities' intervention, and available sources of support for victims (Sheridan et al., 2001; Walker et al., 2011).

3) *CB and CS behaviour.* In this third section, we integrated the Electronic Use Pursuit Behavioral Index (EUPBI; see Strawhun et al., 2013). This self-report tool invited respondents to unveil their exposure to cyberstalking and cyberbullying incidents within a standard 5-point Likert scale.

4) *Open-ended questions.* In this final section, participants were invited to provide open responses concerning their experiences with cyberbullying and cyberstalking, their impact on their lives, reporting, and suggestions for prevention strategies and support services.

These insights allowed us to explore protective measures adopted by victims and any specific recommendations for assisting victims. This paper will present and discuss the data derived from Sections 1, 2, and 4 of the survey

### 3.3. Probabilistic specification

Quantitative coded data retrieved from the semi-structured questionnaires were analysed using logistic modelling. Based on socio-demographic characteristics, these methods inform researchers about the relationship between CB/CS and victims' behaviours.

As a first exploratory investigation, a probabilistic analysis is run using categorical dummy variables from the semi-structured questionnaire and scale data from the CB and CS questionnaire. The dependent variable refers to victims' perceived consequences of CB and CS and well-being. Based on a logistic model within a dichotomous choice structure, one or zero, a dependent variable  $Y_i$  is observed (Hill et al., 2018). Hence, if individual  $i$  (either student or staff) experiences a given event,  $Y_1$  takes the value 1. Alternatively, if an individual  $i$  does not experience the event, then  $Y_2$  takes the value zero. The logistic model assesses RQ1 and RQ2: what factors influence the probability that the victim experienced a change in their life (i.e.,  $Y_1 = 1$ ), or not (i.e.,  $Y_2 = 0$ )?

As an insight into this complex phenomenon, logistic modelling was run based on the theoretical framework previously highlighted, namely, the neighbourhood social support model (Cao and Wang, 2020) and lifestyle-routine activity (Reyns et al., 2016; 2018). In this case, *change* is the dependent variable that takes the value of 1 if the victim changed their daily routine, purchased personal protection devices, talked to family and friends, and zero otherwise. Hence, the quantitative specification examines the probability of victims experiencing changes in their lives and/or habits due to CB and CS (RQ2), provided an array of controls (e.g., age, gender, place of residence), and determinants related to emotions and risk factors.

## 4. Results

### 4.1. Sample characteristics

Descriptive statistics provide a comprehensive overview of the sample's profile and characteristics, as presented in Table 1. Most online survey participants identified as women (73.5%), and the median age of the sample was 38.5 years, ranging from 20 to 61 years. Approximately 65% of the respondents were university staff, while the remaining 35% were students. In terms of ethnicity, the largest proportion of the sample identified as White-British (73.5%), and their residential locations were primarily in towns (35.3%), villages (29.4%), or on the outskirts of the city (26.5%), with only a small percentage residing in the city centre (5.9%). Nearly half of the respondents lived with a partner (47.1%) or their family (29.4%), while a minority resided on the university campus (8.8%). Regarding victimisation experiences, approximately half of the respondents reported being victims of cyberbullying (47.1%), while 29.4% reported being victims of cyberstalking, and 23.5% reported experiencing both forms of victimisation. Notably, Cao and Wang (2020) observed a significant association between living arrangements and the risk of stalking victimisation in person. Their findings indicated that individuals who live with partners or in shared housing are significantly less likely to experience stalking, whereas living alone is associated with a higher risk of being stalked. Yet, these hypotheses need further testing.

**Table 1**  
Descriptive statistics of the sample.

Gender	%	Age	
<b>Female</b>	73.5	Mean	37.3
		Median	39.0
		Mode	50
<b>Status</b>	%	Standard deviation	13.4
Staff	64.7	Min	20
		Max	61
<b>Ethnicity</b>	%	<b>Live where</b>	%
White-British	73.5	Town	35.3
White-any other country	17.7	Village	29.4
Asian or Asian British-Indian	5.9	Outskirt of a city	26.5
White-Irish	2.9	City center	5.9
		Countryside	2.9
<b>Victimisation</b>	%	<b>Live with</b>	%
Cyberbullying	47.1	Partner	47.1
Cyberstalking	29.4	Family	29.4
Both	23.5	Campus	8.8
		Alone	8.8
<b>Change behaviour</b>	%	Other	5.9
Yes	35.3		
<b>Vict_bull_stalk_in_person</b>	%		
Yes	61.8		
<b>Threat_insult_messages</b>	%		
Yes	38.2		

As an additional insight, this study examines the statistical characteristics of the sample and explores potential heterogeneities among clusters, specifically comparing staff and students. To assess sample heterogeneity based on these key features, a Mann-Whitney *U* test (MWU) is employed. This nonparametric test is suitable for categorical variables when the data do not meet the assumption of a normal distribution and the sample size is relatively small, as is the case here (Chen and Liu, 2021). The MWU test provides insights into addressing research questions (RQ1) regarding the dimensions and patterns of cyberbullying (CB) and cyberstalking (CS), as well as RQ3, which examines how victims perceive CB and CS during the pandemic, and RQ4, which investigates the relationship between offenders and victims (full statistical details can be provided upon request).

The eighteen items used as categorical variables in the test pertain to questions regarding the online means employed by offenders to target victims. These items are measured on a 5-point Likert scale: 1 = never; 2 = rarely; 3 = occasionally; 4 = frequently; 5 = very frequently. The grouping variables include gender (male and female), academic status (staff and student), living status (alone and not alone), and residence (village and outskirts of the city; town and village, respectively).

The MWU test suggests that the samples are homogeneous, as the null hypothesis of equal means is rarely rejected. Thus, staff and student experiences of victimisation (RQ1) were found to be similar, even during the COVID-19 pandemic (RQ3). The only exception was for item 11, "Posted negative comments on a blog or message board so that you would read them," where students tended to feel more vulnerable to this type of attack than staff.

Additionally, an independent samples test was conducted to compare the mean scores of respondents over and under 39 years of age (using the median as the cutoff). In cases where the null hypothesis was rejected (at a significance level of either 10% or 5% at most), relatively younger adults appeared to be more exposed to CB and CS compared to respondents above the median age. This pattern was particularly evident for item 5, "Sent threatening, insulting, or harassing messages to you." These findings align with previous literature that highlights how young people's increased online presence contributes to a higher risk of cyber victimisation (Wilson et al., 2022; Paillet and Chawdhry, 2020; Van Ouytsel et al., 2018), although they may be resilient in dealing with adverse events. Collen and Onan (2021) in this regard have shown that resilience is a positive mediator in the relationship between cyber-behaviour and psychological well-being. Resilience protects students from cyberbullying and prevents the impairment of their psychological well-being.

#### 4.2. Probabilistic results

Table 2 reports the full results from the robust standard errors estimation given the relatively small sample size. The pseudo  $R^2$  and, especially, the Wald test suggest the empirical goodness of fit in both models. The magnitude of the robust standard error also suggests some specification limitations, possibly due to the small sample size. The unrestricted specification and the restricted specification are robust. Notably, the coefficients for *Gender* (ref. male), *Age* and *Age squared*, and the victim's place of living (*village\_countryside*, zero otherwise) are not statistically significant (RQ1), and hence do not have any impact on the dependent variable. These findings further confirm the MWU findings that victims tend to experience similar feelings, irrespective of gender differences and place of residence (RQ1).

Regarding the risk factors, victims exhibited changes in their behaviours when subjected to in-person stalking and bullying (this dummy variable takes the value of one if the victim experienced a bullying and/or stalking event in person, rather than online, and zero otherwise). This finding suggests the potential involvement of a partner or even a family member as the perpetrator. Experiencing relationship difficulties, such as associations with deviant peers (Marcum et al., 2017; Navarro et al., 2016) and interpersonal jealousy (Strawhun et al., 2013), can influence the duration and intensity of these hostile practices (Kaur et al., 2021).

**Table 2**

Unrestricted and restricted probabilistic specification (dependent variable: change).

Variables	Unrestricted <sup>^</sup>	Restricted <sup>^^</sup>
<b>Controls</b>		
Female (ref: male)	0.259 (0.314)	
Place of residence: village_countryside (ref: otherwise)	1.467 (1.890)	
Age	0.977 (0.198)	
Age_squared	1.000 (0.000)	
<b>Covariates</b>		
Vict_bull_stalk_in_person (ref. otherwise)	15.201 (19.202)**	19.326 (23.248) **
Female_angry (ref. otherwise)	107.960 (158.356)***	20.085 (23.469) **
Threat_insult_messages (ref. otherwise)	2.169 (0.859)**	2.461 (0.944)***
Constant	0.117 (0.661)	0.010 (0.014) ***
Observations	34	34
Wald test	Chi2 (7) = 20.25***	Chi2 (3) = 15.35***
Pseudo_R <sup>2</sup>	0.392	0.363

Notes: Standard errors in parentheses; \* $p < 0.10$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$ ; Odds\_ratio =  $\exp^{a + bx}$  are reported: a positive sign of the coefficient is associated with an odds ratio greater than one, and viceversa. <sup>^</sup> Using a cut-off of 0.28, as suggested by lens, model sensitivity = 83.3%, while specificity = 72.7%. Overall, the model classifies 76.5% of the cases. The Hosmer-Lemeshow test [Chi2(8) = 5.21 (prob = 0.7352), and the null hypothesis cannot be rejected] indicates that the predicted probabilities matched the event rates. <sup>^^</sup> A cut-off of 0.27 is used, sensitivity = 91.7%, specificity = 63.6%, and the model classifies 73.5% of the cases. The Hosmer-Lemeshow test [Chi2(5) = 3.01 (prob = 0.6982)] indicates that the predicted probabilities matched the event rates.

Monitoring partners online has become increasingly prevalent among young adults and young people (Marcum et al., 2017; 2019). Previous studies found that university students with low self-control were likely to engage in victimising behaviours against their romantic partners, such as unauthorised access to social networking and bank accounts. A behaviour change was also experienced when victims received online threatening, insulting, or harassing messages.

Emotions played an important role, in particular, being angry and being female increased the probability of experiencing a change in daily routine (RQ2). Previous studies (e.g., Ak et al., 2015) highlighted the importance of “anger” and its mediating role among university students in cybervictimisation and CB. In fact, cybervictimisation was positively and directly related to anger-in and anger-out, and indirectly related to CB through anger-in. Previous studies identify a relationship between CB behaviour and revenge (Siderman, 2013; Ak et al., 2015). Anger-in, but not anger-out, may increase an individual’s feelings of retaliation because they cannot express their anger appropriately. However, in previous studies, students have been found to experience anger and other negative emotions such as sadness, fear, and paranoia (Acquadro Maran and Begotti, 2019).

## 5. Discussion and conclusions

This paper investigated the victimisation of CB and CS in higher education during the COVID-19 pandemic. Quantitative approaches, supported by previous research (Alexy et al., 2005; Oksanen et al., 2021; Bussu et al., forthcoming), were utilised to explore these adverse behaviours towards victims. The participants included both students and academic staff. However, the sensitivity of the topic presented several challenges to the study. To address the methodological gap and gain deeper insights into victims’ emotions, opinions, and behaviours (RQ1, RQ2) as well as the effects of the pandemic (RQ3), well-established quantitative methods were employed.

Victims tended to alter their daily routines in response to in-person stalking and bullying. Some individuals responded by acquiring personal protection devices (RQ2), while others sought solace and protection from family and friends, aligning with findings by Yubero et al. (2017). Yet, as found in the research by Hsieh et al. (2021) specific interpersonal resources, such as family members, intimate partners, and friends, do not appear to be enough to prevent cybervictimisation. Reducing the intensity and frequency of online activities and becoming a less active member of social networks can be useful means of self-protection for students and staff. However, in the long term, it can be more effective to evaluate the effectiveness of specific policies and practice for promoting individual and collective self-awareness and behavioural self-regulation (Hsieh et al., 2021).

Victims who were targeted by ex-partners or colleagues (both staff and students) may require additional institutional support. Providing appropriate and tailored support to victims could pose a challenge for institutions, especially when the perpetrators and locations of the offences are not directly linked to the workplace (RQ4; RQ5).

From the probabilistic analysis, “change in the victim’s daily routine” also depended on the victims’ self-perception of the behaviour’s invasiveness in their lives. The victims tended to change their habits if adverse actions when CB and CS were associated with bullying and stalking behaviours in person (Marcum et al., 2019; Kaur et al., 2021). Emotions played an important role, in particular, being angry and being female increased the probability of implementing a change in daily routine. Siderman (2013) revealed a link between CB and the motivation of revenge. The author found that some students may engage in cyberbullying to seek revenge.

Additionally, the behaviour of victims was found to change significantly when they received online messages that were threatening, insulting, or harassing (RQ1). In a similar line of research, Ak et al. (2015) emphasised the significance of “anger” and its role as a mediator among students who experience cybervictimisation and CB. Specifically, it was observed that cybervictimisation positively correlated with both anger-in and anger-out, and indirectly influenced CB through anger-in. Consequently, integrating interventions that focus on anger management and emotion regulation within educational programs for young adults could enhance their awareness and coping strategies in relation to these emotions (Wang et al., 2017). Implementing preventive initiatives would involve training students and staff on effectively managing their emotions (RQ5).

From the data, it also emerged that several participants did not report the CB and CS formally for various reasons: confidence in having skills and resilience for dealing with the offence; lack of evidence for making a formal report; because the victims have not considered severe enough the events to make a formal report (RQ2). Specifically, staff and male participants were often associated with taking direct actions against an offender, either through reporting or confronting the perpetrator (RQ1; RQ2; RQ3). Furthermore, some specific emotions, anger, and indifference, are also related to staff and male participants. In this regard, it would be relevant to explore more the associations among anger and other negative emotions, and CB and CS in HE. Negative strong emotions, caused by cyberbehaviour victimisation, have a negative impact on several people’s life dimensions such as academic performance, psycho-social and emotional well-being (Peled, 2019; D’Ovidio and Doyle, 2003) and are risk and predictor factors of CB in a short-term (Vranjes et al., 2018).

However, the absence/resistance to reporting was related to sadness and feeling threatened. These findings are relevant for designing more specific policies for supporting victims to feel comfortable reporting their offences (RQ5). Proactive and assertive victims feel more able to manage negative emotions and re-elaborate them positively (Bussu et al., 2023). Victims differ significantly in terms of their psychosocial characteristics and needs; for this reason, effective prevention and intervention programs should be targeted and flexible (Schenk et al., 2013; Kokkinos et al., 2014).

The empirical findings addressed here are important regarding policies because prevention and intervention strategies should focus on specific student and staff individual needs. Hence, it would be extremely useful to conduct studies with various groups of victims and perpetrators (i.e., students and staff, gender, and cultural groups) to compare findings. Surveying and interviewing the different age subsets, to determine differences in CB and CS predictors (Marcum and Higgins, 2019). The study also provides further indications for future interventions addressing CB and CS behaviour prevention at the macro-level (e.g., universities, schools) (RQ5). Targeted

actions should also include teaching and reinforcing normative beliefs and attitudes about the relationship between bullies/stalkers and victims in physical and cyber environments (Elledge et al., 2013). Best practice will design specific training for students and staff to develop self-awareness about their communication style and behaviour adopted through social media channels (Authors, forthcoming). There is also a need to explore victims' personal and interpersonal protective factors, such as resilience, coping strategies, effective communication, and other interpersonal life skills (Bussu and Burton, 2022) that contribute to protecting against CB and CS in HE (Collen and Onan, 2021).

From the information gathered through the questionnaires, it also emerged that several participants believed that COVID-19 had given people the occasion to contact their prior CB/CS victims, as it became easier to communicate online (RQ3). Notably, cybercrimes in the workplace are increasing due to students and staff using more social networks and mobile device applications (RQ3; see also Oksanen et al., 2021).

The analysis showed that young adults seem relatively more exposed to CS and CB in HE than older people. In this regard, future research may investigate the vulnerability levels between different population clusters. Previous literature has underlined that young people spend more time online, which may have increased cyber adverse events (Wilson et al., 2022; Paullet and Chawdhry, 2020; Van Ouytsel et al., 2018). Such a trend fostered by COVID-19 requires further research to determine which pandemic-related stressors lead to CB and CS and how to mitigate these effects. Additionally, Barlett et al. (2021) remark on the need to better understand the psychological effects and subsequent behaviour during the COVID-19 pandemic to promptly alleviate these adverse outcomes, rather than idly wait for the pandemic to pass (Authors, forthcoming). The results provide useful data for university and college policies in consideration that future traumatic events would be inevitable, as also addressed by the European Commission (2021) regarding the risk of new pandemics.

Previous policies focused on limiting the power of perpetrators and reaching out to the authorities for help (Karthikeyan, 2021). Robust new policies and reporting strategies in HE should target staff and students individually, considering the differences in age and gender. Institutions could also provide social media platforms for students and staff to communicate about their educational programs. Furthermore, institutions should elaborate clear guidelines to support staff and students who may be assaulted through social media networks to prevent an escalation of CB and CS and to improve security self-perception. Furthermore, institutions are responsible for providing safe institutional digital domains (Grimes, 2022). Hence, HE institutions should adopt more comprehensive and standardised reporting strategies for students and staff, related to cyberbullying and cyberstalking (Cox and Raditch, 2022; Bernardo et al., 2023) and periodically evaluate their impact (Watts et al., 2017).

Developing knowledge of cyberstalking and cyberbullying risks among students and staff can help to reduce aggressive behaviour online (Cox and Raditch, 2022). In this regard, an effort to increase academic community awareness about individual and collective behaviours online would effectively prevent potential risks of cyber-behaviours and adverse cyber-events (e.g., Donner, 2016; Kokkinos et al., 2014). In this regard, developing programmes for promoting academic cyber community cohesion and effectively informing students and staff about the risks of internet cyber behaviours can reduce cybervictimisation (Hsieh et al., 2021).

Future lines of research should expand the focus on the HE target population, with particular attention to academic staff as victims of CB and CS. Risk factors and the emotional and psychological profiles of the victims should also be addressed. Additionally, it is important to consider a proactive role for institutions (Alsawalqa, 2021).

To gain a deeper understanding and assess the generalisability of this approach, theory-driven empirical papers should explore frameworks such as neighbourhood social support and lifestyle-routine activity, with a specific emphasis on European countries. It is worth noting that this approach has primarily been implemented in Canadian universities (see, for example, Reyns et al., 2016; Reyns et al., 2018; Cao and Wang, 2020). Therefore, further research is needed in academic systems across the World to develop consistent policies and recommendations for preventing the negative impact of emergent technologies on people and their security (Edwards and Calaresu, 2018, 2023).

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## Conflicts of interest

The authors declare no competing interests that could influence the content of this paper.

## Ethical approval

Ethical approval for this study was obtained from the ethics committee of Edge Hill University, and all procedures adhered to the principles outlined in the Declaration of Helsinki.

## Consent to participate

Informed consent was secured from all individual participants who took part in the study.

## Consent to publish

Participants provided informed consent for the publication of their data in an aggregate manner. The authors have the necessary consent to publish the paper and all associated data and materials.

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