Individual factors predicting reactions to online harassment among Finnish professionals

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ABSTRACT

Online harassment and hate are personally and societally harmful phenomenona many social media users experience every day. Based on social psychological approach to online harassment and theories of coping behaviors, we investigated how professionals who use the Internet in their work react to online harassment. We collected survey data from Finnish university employees ($N = 2492$) and local politicians ($N = 510$). We used logistic regression modeling for the analysis. According to the results, frequent social media use was associated with active reactions to online harassment in both samples. Among politicians, concerns about becoming a future online harassment victim was consistently associated with both standing up against the attackers and recommending others to do so. Higher scores for anxiety and belonging to social media identity bubbles were found to predict recommendations for active reactions in both samples. Several further sample-specific factors were also identified. The results demonstrate that psychological and behavioral factors, as well as individual differences, play a meaningful role in reactions to online harassment among professionals. These influencing factors are necessary to understand the dynamics of online harassment situations and their aftermath, and as such need to be considered in prevention and intervention programs.

1. Introduction

The fast technological developments in the last few decades have given rise to various problematic online phenomena (Keipi et al., 2017; Williams, 2021). Online harassment (i.e., cyberharassment) encompasses a wide range of violent behaviors in the online space - for instance cyberbullying, characterized by recurring attacks (Farley et al., 2021). Also, online hate can be understood as a special category of broadly defined online harassment. Online hate (i.e., cyberhate, online hate speech) is an expression of hatred or prejudice toward a group of people based on specific group characteristics, for example their ethnicity, religion, or sexual orientation. Even if online hate targets individuals, it refers to and devalues a whole collective (Douglas et al., 2005; Hawdon et al., 2017; Kilvington, 2021). To investigate the phenomenon of online harassment and hate in its entirety, this study focuses on a wide range of personally directed attacks. It includes both relatively mild (e.g., angry messages, extensive criticism) and severe instances (e.g., identity theft, death threats) as well as various modalities—text-based messages as well as photo or video manipulations.

Social media has been especially crucial for the rise of online harassment and hate, making it possible for anyone to reach a wide audience with their comments (Keipi et al., 2017; Kilvington & Price, 2017; Klein, 2017). Online, public personas and other Internet users face an additional risk of being exposed to hateful messages and personal victimization in a public setting, where anyone can see or even join in on the abuse (Sticca & Perren, 2013). This may be especially challenging for certain professional groups such as academics and politicians whose work includes maintaining an online presence and sharing information with a wide Internet audience.

Thus far, most research on online harassment, hate and bullying investigated the negative outcomes of victimization and exposure (Keipi et al., 2017; Näsi et al., 2015; Oksanen et al., 2020; Reichelmann et al., 2020; Schenk & Fremouw, 2012; Winiewski et al., 2017) or their risk factors (Hawdon et al., 2017; Oksanen et al., 2014). If victims' reactions are discussed, it is usually from the perspective of their commonness (Schenk & Fremouw, 2012) or their effectiveness: both in stopping further harassment and lightening the victim's emotional toll (e.g., Armstrong et al., 2019; Völlink et al., 2013). However, the role of individual factors such as past experiences, beliefs, and concerns in the decision-making process has received less attention (Waqas et al., 2019;

Zych et al., 2015).

Understanding who, and under what conditions, decides to actively react to online harassment can help gain insight into the dynamics of such heated online interactions. Cyberbullying research on adolescent samples suggests these decisions will depend on various situational, individual, and societal characteristics (Allison & Bussey, 2017; Kowalski et al., 2014), but more research is still needed on adult populations. Considering that occupation is a significant contextual factor in the case of harassment in the adult population, attention should be given to especially vulnerable professional groups such as politicians, academics, and other knowledge workers who are most exposed to the public due to their occupation.

The present study aims to fill this gap in the literature. We examined two professional groups whose work can subject them to online harassment: university research and teaching staff and politicians. We focused on a range of individual factors – namely specific characteristics of the individuals and their personal experience with social media – such as their use of social media and related beliefs and concerns, as well as personality traits and demographic characteristics. We investigated the influence that these factors have on professionals' personal decisions whether to react when faced with online harassment as well as their attitudes concerning what is an appropriate reaction.

1.1. Harassment of academics and politicians

Academics and politicians are among the professional groups vulnerable to online harassment. Having an occupation that requires online self-promotion, as is often the case for both those professions, is a risk factor for becoming a target of online harassment (Pew Research Centre, 2014, 2021). A prominent online presence is a risk factor among politicians (Farrell et al., 2020; Gorrell et al., 2020; Southern & Harmer, 2021; Theocharis et al., 2016). Research shows that politicians are targeted also as a result of certain political events and debates (Gorrell et al., 2020; Ward & McLoughlin, 2020). Moreover, Branford et al. (2020) argued that the recent rise of anti-intellectualism paved the way for academics to become hate speech targets in a manner similar to how political beliefs or social status can increase an individual's risk for online victimization.

Although the prevalence of online harassment and hate against academics and politicians can be highly contextual and difficult to assess, past research provides some insight into the pervasiveness of the problem. Studies among members of national parliaments suggest victimization rates of 58–62% when a broad definition of abusive messages or inappropriate contact on social media is used (Every-Palmer et al., 2015; Inter-Parliamentary Union, 2018; Ward & McLoughlin, 2020). There is less information considering university staff. A study conducted in four Canadian universities revealed that 25% of the respondents were cyberbullied by students or colleagues (Cassidy et al., 2016), but it did not include other forms of online harassment. The studies mentioned above utilized relatively small samples of around 100–300 participants, with the exception of Ward and McLoughlin (2020), who used Twitter data from all members of the United Kingdom's parliament active on the platform.

Online harassment and hate aimed at academics and politicians pose a significant threat to the way societies function. For instance, harassment directed at scientists can deteriorate the societally perceived value of scientific inquiry, which in turn hinders scientific development by restricting scientists' access to funds and other resources (Branford et al., 2020). Moreover, it influences the quality of public debate because it can lead scientists to self-censor online as a way of avoiding abuse. Although the phenomenon has not been extensively studied, there is growing evidence that at least some scholars are already implementing such self-censorship (Cassidy et al., 2017; Ferber, 2018; Veletsianos et al., 2018). Online harassment may also negatively influence scholars' relationships with social media (Gosse et al., 2021).

Similar concerns have been voiced considering politicians. Evidence from the United Kingdom suggests that parliamentarians who decided not to seek re-election received more online abuse during their time in office (Gorrell et al., 2020). In Finland almost 30% of targeted municipality officials reported a decreased willingness to participate in decision making as a result of the experience (Knuutila et al., 2019).

Online harassment can also be used intentionally as a political tool to obtain specific goals. For instance, to silence or discredit those criticizing certain political views (e.g., Bulut & Yörük, 2017; Karatas & Saka, 2017) or to defend the scientific status quo and attack those proposing novel ideas (Noakes & Noakes, 2021). The situation is worsened by how social media sites do not provide sufficient protection from different types of attacks, therefore inadvertently facilitating both online harassment (Massanari, 2018) and the subsequent effect of self-censoring (Olson & LaPoe, 2018).

Although the topic is clearly an important one with far-reaching consequences, only limited empirical evidence is available for both academics (Branford et al., 2020) and politicians (Ward & McLoughlin, 2020). Past research among both professional groups was concerned primarily with assessing victimization risks, prevalence rates of victimization, the content of the abuse (Akhtar & Morrison, 2019; Every-Palmer et al., 2015; Gorrell et al., 2020; Van Sant et al., 2021; Ward & McLoughlin, 2020), and the scope of victims' responses and reactions (Barlow & Awan, 2016; Cassidy et al., 2016; Veletsianos et al., 2018; Wagner, 2020). The reasons behind their choices have not been systematically explored yet.

1.2. Coping behaviors

Coping can be defined as conscious, cognitive and behavioral efforts undertaken by an individual to manage the demands of a threatening situation that is putting a strain or even exceeding their resources to deal with these demands (Lazarus & Folkman, 1984). Experiencing online harassment can constitute such a stressful event and past studies confirm that online harassment victims use a wide range of coping behaviors to deal with the experience (Pew Research Centre, 2014; Veletsianos et al., 2018).

According to transactional stress and coping theory (Lazarus & Folkman, 1984), coping efforts are everchanging and the decision on how to react to the stressful situation will depend on appraisal of both how threatening is the situation (primary appraisal), and what resources are available to manage it (secondary appraisal). The coping response is based upon various individual and situational factors (Bandura, 1991; Folkman & Moskowitz, 2004; Schwarzer & Schwarzer, 1996). Situational factors in Lazarus and Folkman's (1984) theory include, among others, the timing and novelty of the event – as, for instance, the effectiveness of an individual's coping strategies in the past will influence the appraisal of how threatening is the current situation and the perception of what is the appropriate reaction to it. Individual factors include one's values and commitments, as well as various beliefs, of which perceived personal control is especially important. According to Lazarus and Folkman (1984), an individual's general belief in themselves is not enough to predict coping, as the situation's specific elements alter the perception of an individual's resources and capabilities. Similar reasoning is present also in other copingtheories. For instance, Bandura (1977; 1991) underlines the role of context in his concept of self-regulation and self-efficacy and its impact on behavior.

Therefore, the individual and contextual factors with the resulting belief in the strength of an individual's resources are an important element influencing the coping behavior. The decision to tackle the problem (using problem-focused strategies) is usually made when individuals believe they have resources to change the stressful situation (Folkman, 1984). In contrast, if not much can be done, individuals will focus on controlling their own emotional response (using emotion-focused strategies) (Carver et al., 1989). This approach has been previously utilized to understand children's, adolescents' and young adults' experiences with cyberbullying (Na et al., 2015; Perren

et al., 2012; Raskauskas & Huynh, 2015).

We based our investigation on this processual understanding of coping, as well as on social psychological approach to online harassment, namely the consideration of how behavior depends on the particularities of the social networks that individuals exist in. This can include the impact of a particular professional environment and relationships with others, as well as the characteristics of the medium of communication. This last notion is especially important in the online context, as interactions in the virtual sphere have their specific characteristics, included, but not limited to their fast and global reach, possible anonymity, lack of nonverbal social cues, and the material staying available online for a prolonged period of time (Farley et al., 2021; Felmlee, 2006; Joinson, McKenna, Postmes, & Reips, 2012; Keipi et al., 2017; Williams, 2021). Notably, previous findings suggest that the way people engage in the online social networks can alter the way they are impacted by online abuse (Oksanen et al., 2020).

1.3. Factors influencing decisions and advice-giving to act against harassment

Thus far, several factors have been identified that influence individuals' reactions to online harassment. Although the majority of studies in the topic concentrate on cyberbullying among children, adolescents, and university students (Jenaro et al., 2018; López-Meneses et al., 2020; Vranjes et al., 2018; Watts et al., 2017), it seems that at least some experiences connected to cyberaggression are comparable among adolescent and adult samples (Vranjes et al., 2018). Moreover, some of the studies included were set in the offline, as opposed to the online setting, and extending the results of offline studies needs to be approached with caution (Barlińska et al., 2013; Coyne et al., 2019; Knauf et al., 2018).

Notably, the online environment's characteristics can themselves create space for cyber-specific attitudes and experiences to alter an individual's perception of their resources and ultimately their decision how to react. Some past research results point towards such mechanisms. For instance, among adolescents, positive attitudes toward cyberspace were associated with a higher likelihood of confronting the cyberbullying perpetrator (Li & Fung, 2012). Moreover, frequent Facebook use has been previously linked to uncivil response intentions toward provocative comments (Koban et al., 2018).

Past research shows that a higher perceived social cost of responding to harassment lowers the chance for an active reaction (Crosby, 1993; Haslett & Lippman, 1997). However, research concerning the impact of previous victimization on the reaction to online abuse is mixed. On one hand, vulnerability to further attacks and concerns about retaliation may decrease the chances of an assertive reaction (Boeckmann & Liew, 2002; Swim & Hyers, 1999). However, young adults named previous personal experience with bullying and discrimination as a factor that motivated them to defend others (Kojan et al., 2020). Also, evidence suggests that adolescent victims of severe cyberbullying are more likely to confront the attacker than those targeted with less severe harassment, and they choose other active reaction strategies just as often as youth subjected to milder attacks (Macháčková, Cerna, et al., 2013).

Previous studies have pointed out the connection between confrontational reactions and emotions felt in reaction to the hateful act; however, these studies concentrated primarily on bystanders' reactions (Dickter, 2012; Macháčková, Dedkova, et al., 2013). Some have theorized that empathizing with the victim can generate a covictimization experience and cause stress, which individuals may try to reduce by defending the victim (Coyne et al., 2019). Considering victims, Priebe and colleagues' (2013) study indicated that adolescents who felt distressed about the online harassment they experienced more often chose active coping strategies compared to children who did not have strong emotions connected to victimization. However, this effect only appeared if they experienced some other troubling symptoms such as feeling irritable or having trouble sleeping (Priebe et al., 2013).

Along with specific personal experiences, relatively stable individual characteristics also may impact an individual's reaction. The Big Five model is a widely used personality taxonomy (Digman, 1990; John et al., 2008) that has been previously used in studying cyberbullying victims. For instance, cybervictimization has been tied to high neuroticism, extroversion, and openness to experience, as well as lower conscientiousness scores (Alonso & Romero, 2017; ElSherief et al., 2018; Peluchette et al., 2015). There is conflicting evidence concerning agreeableness, with studies pointing either toward high or low scores associated with cybervictimization (Alonso & Romero, 2017; ElSherief et al., 2018). Less is known about the role of the Big Five traits in victims' reactions. High extroversion and openness to experience were previously tied to bystanders' active reaction in cyberbullying situations (Freis & Gurung, 2013). However, openness to experience, along with agreeableness, was found to associate negatively with harsh responses to provocative, albeit not personally directed, Facebook comments (Koban et al., 2018).

Despite scarce and mixed evidence, it is reasonable to expect that personality influences victims' reactions to online harassment as well as the recommendations given to others. In the past, various traits of the Big Five were linked to preference for different problem-solving strategies. A meta-analysis in the field revealed that although results were largely inconsistent when it came to broadly understood coping strategies, certain traits consistently predicted choosing specific coping measures (Connor-Smith & Flachsbart, 2007). For instance, cognitive restructuring and focusing on problem solving were connected to higher extroversion and conscientiousness levels, as well as lower neuroticism levels. Moreover, higher neuroticism was related to emotional-focused coping and withdrawal (Connor-Smith & Flachsbart, 2007). Such influences are also expected to be present in the online context.

1.4. Advice-giving for victimized others

It is important to understand how people advise others victimized by online harassment. Group norms and perceived attitudes may be highly influential for individual behaviors in online harassment situations (Allison & Bussey, 2017) and recommendations given to victims may be a good measure of such attitudes. It has been argued that in situations with potentially serious consequences, perceived norms highly influence the advice (Petrova et al., 2016; Thorsteinson et al., 2020). Moreover, past research found that while advising, people focused more on the desirability of a specific outcome than they would when deciding for themselves (Lu et al., 2013). Similarly, Danziger et al. (2012) found that advice, compared to decision making, was directed by more idealistic considerations.

Understanding what is perceived as an appropriate reaction to a given situation, and by whom, is crucial for many reasons, including prevention and fostering productive reactions. Past research concerning bystanders of cyberbullying among adolescents indicates that attitudes toward certain actions help predict undertaking those actions (DeSmet et al., 2016). Furthermore, perceptions of others' attitudes toward cyberbullying may be even more important for behavior than perceptions of how others would react (Bastiaensens et al., 2016). Despite this, recommendations for cybervictims have been rarely studied (Smith et al., 2008; Stacey, 2009). Thus, in our study we also investigated the associations between individual factors and recommendations given to an online harassment victim.

1.5. This study

This study investigated academics' and politicians' experiences with online harassment and hate. We focused on the individual factors influencing victims' decisions to act against the online attacker and on giving advice in online harassment and hate situations among the two professional groups. The present research was mainly concerned with investigating assertive or active reactions, aimed at stopping or

punishing the perpetrator, such as blocking the perpetrator on social media, reporting the incident, or defending oneself. We were mainly interested in those reactions, as they may often lead to fast and far-reaching consequences for both the victim and the perpetrator. Hereafter we refer to these actions as active reactions.

In terms of theory, our study was grounded in social psychological approach to online harassment (Joinson et al., 2012; Keipi et al., 2017; Oksanen et al., 2020; Williams, 2021) and in theories of coping behaviors (Bandura, 1977; Lazarus & Folkman, 1984). Based on this and previous research on reacting to harassment and hate (Allison & Bussey, 2017; Kowalski et al., 2014), we expected to find variation in reactions due to individual differences in behavior and psychological factors and due to occupational field. Thus, our research questions were:

1. Do individual factors associate with victims' decisions to take an active stand against the online perpetrator?
2. Do individual factors associate with participants' recommendations for a hypothetical online harassment victim?
3. What are the differences in predictive variables between the two professional groups?

2. Method

2.1. Participants and procedure

This study included two samples: Finnish university staff and members of the local Finnish parliaments who filled an online survey in spring of 2020. We collected data from five major Finnish universities' research and teaching staff ($N = 2492$) by using contact information obtained from the universities' websites and HR departments. The survey was designed by the research team and validated measures such as Spielberger State-Trait Anxiety Inventory (STAI-6; Marteau & Bekker, 1992), Trauma Screening Questionnaire (TSQ; Brewin et al., 2002), Big Five inventory (Hahn et al., 2012), and Identity Bubble Reinforcement Scale (IBRS-6; Kaakinen et al., 2020) were used in addition to context specific questions created for the study. The survey was piloted with a small sample of university students ($n = 15$) and journalists ($n = 20$) in mid-March 2020.

We utilized random samples comprised of half of the universities' research and teaching staff. Participants were contacted via email and the response rate was 50.60%. In total, 40.79% of the invited staff finished the entire survey. Of the participants, 53.17% were female, 46.31% male, and 0.52% other or unknown genders. The mean age of the participants was 43.24 years ($SD = 11.22$). Most respondents (65.45%) had a PhD-level education. We found no major bias due to gender distributions. Women were slightly over-represented in the data compared to the investigated universities (53.15% vs. 48.05%), but the mean age was almost the same (43.24 vs. 43.43 years).

We collected data from local politicians who are members of Finnish local governments ($N = 510$) by contacting municipal members via the email addresses listed on municipal websites. We utilized random samples and the invitation to participate was sent to 2112 people, resulting in a 32.81% response rate. Of the invited participants, 24.15% finished the survey, of which 44.71% were female and 55.29% were male. The participants' mean age was 55.64 years ($SD = 12.35$). In total, 57.65% had at least a bachelor's degree. Our sample represented the distribution of Finnish parties closely, but women (44.71% vs 39.89%) and older respondents ($M_{age} = 55.64$ vs 49.52) were slightly over-represented in our sample compared to the 2017 figures of the Statistics Finland (2020).

Both samples completed identical surveys, available in Finnish or English. The median response time for the survey was 14 min 45 s for university staff and 17 min 43 s for local politicians. Participants were informed about the study objectives. Participation in the study was completely voluntary and participants had an opportunity to withdrawn from the study They were also provided contact information to one of

the principal investigators of the research project. The academic ethics committee of Tampere region stated that the research project did not include any ethical problems.

2.2. Measures

Online harassment and hate victimization. A set of 20 questions was used to assess if participants had been targets of work-related online abuse in the past 6 months. The questions included a wide range of harassing behaviors, from insults or angry messages (e.g., "You have received offending and angry messages via social media") to serious threats (e.g., "Your life has been threatened"). The list was based on questionnaires previously utilized in cyberbullying at work (Forssell, 2016; Oksanen et al., 2020) and cyberhate studies (Keipi et al., 2017; Reichelmann et al., 2020). See Appendix A for a full list of the questions. The response options included: *never, sometimes, monthly, weekly, daily.* Participants who reported experiencing at least one attack in the last 6 months were classified as targets of online harassment and were asked additional questions, including whether they knew the perpetrator. To assess the impact of harassment's seriousness on the victim's reaction, we created additional variables. We divided the list of 20 types of harassment into two categories, intended to reflect more versus less severe instances ("insults" vs. "assaults"). Although we recognize that the severity of the incident is to an extent a subjective matter, we made the classification based on multiple aspects, including classifying attacks based on minority status as assaults and considering the items' wording (for instance, so that "critique" is less serious than "harassment"). The insult category was comprised of 9 items, the assault category of 11. Two variables were created to include only the participants who experienced attacks of certain severity. The full classification is included in Appendix A. If the participant was subjected to attacks of varying severity, they were included in both variables.

Reaction preference to experienced online harassment. The key dependent variable was the preferred type of reaction that participants had undertaken in response to their own past experiences of an online harassment incident. The variable was created based on a list of 11 different reactions, including, e.g., blocking the perpetrator on social media, reporting the incident to the police, reducing public appearances, and doing nothing (see Appendix B for a full list). Participants chose whether they reacted in a given way (0 = no, 1 = yes). A dummy variable was created for active reaction preference on the basis of the median value ($Mdn = 0$). Participants who declared taking at least one of the actions classified as active were assigned the target category of active reaction preference.

Preferred type of reaction recommended for others. The second dependent variable was based on a between-subject in-survey experiment. Participants were randomly assigned to one of four experimental groups. They were asked to imagine that someone in their field received a death threat in social media following a public interview. The experiment manipulated: (a) closeness to the victim (close colleague vs. unknown person from their field) and (b) like-mindedness (participant agrees or disagrees with the view expressed in the interview). Participants were then presented with the list of the same 11 possible reactions and asked to indicate if they would recommend this action to the targeted individual (0 = no, 1 = yes). For the purpose of this study, all the participants' responses from all four groups were taken together to reflect a general recommendation given to a broadly defined fellow professional. A dummy variable was created on the basis of the median value in both samples ($Mdn = 2$). Participants who recommended taking at least two of the actions classified as active were assigned the active preference category. Those who chose no more than one of them were classified as preferring other strategies.

Anxiety. The experiment included also the six-item version of the Spielberger State-Trait Anxiety Inventory (STAI-6), adapted to measure state anxiety after reading a hypothetical scenario (Marteau & Bekker, 1992). The interitem reliability was good in both samples ($\alpha = 0.84$ for

university staff and $\alpha = 0.83$ for politicians).

Background factors. Background factors included age, gender (options included *male, female* or *other*), education, and minority identity status (response options for the question: "Do you belong to a minority group?" included *yes, no,* and *prefer not to say*). For education we used a dummy variable to reflect obtaining a higher education diploma for politicians and a PhD degree for the university staff. For minority identity status, we created a dummy variable to differentiate between participants declaring they belonged to a minority and those choosing *no* or *prefer not to say*.

Identity Bubble Reinforcement Scale (IBRS-6). The IBRS is a scale that assesses the level of an individual's engagement in online identity bubbles, namely social networks characterized by a high level of homophily, social identification, and information bias, which are factors reflected in the scale's three 2-item subscales (Kaakinen et al., 2020). Participants are asked to assess how much they agree with the statements using a 7-point Likert scale. IBRS-6 is grounded in the Identity Bubbles Reinforcement Model (Keipi et al., 2017) and was validated in Finnish and English versions. High scores on the IBRS have been previously associated with more severe psychological consequences of becoming a victim of workplace cyberbullying, presumably because for those individuals an attack on their online presence means threatening an important part of their identity (Oksanen et al., 2020). Therefore, the victims' reactions are also possibly impacted. Moreover, the specific features of involvement in identity bubbles may influence participants' views about social media and their perceptions of an adequate reaction to online harassment. In our study, the scale had a good interitem reliability in both samples ($\alpha = 0.79$ for university staff and $\alpha = 0.77$ for politicians).

Social media communication. Two questions assessed the frequency of sending messages to public social media (e.g., Facebook, Instagram, Twitter) for formal (work-related) and informal (nonwork-related) communication. The scale for both social media communication variables ranged from 0 ("I do not send any") to 4 ("Many times a day").

Concern about future victimization. Participants rated how concerned they were about "becoming a target of hate, shaming, or harassment on social media within the next 12 months" on a scale of 1 ("not at all worried") to 7 ("really worried").

Personality. Personality traits were measured with a 15-item Big Five inventory (Hahn et al., 2012). The options for each item ranged from 1 ("strongly disagree") to 7 ("strongly agree"). A variable was created for each trait. Cronbach's alpha values ranged from good to acceptable in both samples (from $\alpha = 0.52$ to $\alpha = .85$).

Trauma Screening Questionnaire (TSQ). Participants who reported being targets of online harassment were also asked to fill out the 10-item Trauma Screening Questionnaire, designed as a self-reported measure of posttraumatic stress disorder (PTSD) symptoms (Brewin et al., 2002). The questionnaire was adapted to target the symptoms experienced due to online harassment. Participants were also asked to report only symptoms that they experienced at least twice in the preceding week. The scale had an acceptable interitem reliability in both samples ($\alpha = 0.75$ for university staff and $\alpha = 0.67$ for politicians).

2.3. Statistical analyses

All analyses were performed with SPSS 26 software. We provide descriptive statistics for an overview of the data collected and for comparisons between the two samples in terms of victimization rates, reaction preferences, and other characteristics. We also report the results for comparisons of means. Based on the variable's properties, Student's *t*-test, Welch's unequal variances *t*-test, or Mann–Whitney *U* test was used.

Logistic regression analysis method was used to answer the main research questions considering the predictive factors for active reaction and recommendation preferences. We report four models considering first victims' behavior and then participants' recommendations

separately for both samples. For model estimation reasons, participants who reported identifying as a gender other than male or female (university staff $N = 13$) were dropped from the regression models. Odd ratios (ORs), *p*-values, and CIs are reported for the models. Model statistics included pseudo coefficients of determination (Nagelkerke pseudo R^2). Collinearity diagnostics were also performed for the models. Relatively low VIF values (<2) did not indicate any problems with multicollinearity in the data (Hair et al., 1995).

3. Results

3.1. Prevalence, reactions, and recommendations rates

Among university employees ($N = 2492$), 30.06% reported experiencing some form of online harassment in the preceding 6 months. The most common harassing behaviors included excessive criticism, experienced by 16.69% of all participants, offensive and angry messages (15.97%), and attacks against the individual as a person, their values or personal life (13.76%). Of the victims, 93.67% were targets of harassment classified as insults, and 12.52% experienced more serious attacks. Only 30.38% of the victims undertook an action directed at stopping the perpetrator. By far the most common reaction was to do nothing (53.14%), followed by blocking the perpetrator on social media (22.16%), and personally asking them to stop the harassment (9.61%).

Among local politicians ($N = 510$), 64.12% of the participants reported experiencing online harassment or hate in the last 6 months, which is a figure notably higher than that among university teachers and researchers. Overall, the most common harassing behaviors included attacks against the individual as a person, their values or personal life, experienced by 47.84% of all participants; angry or offending messages (45.10%); and false statements about the participants being spread on social media (43.92%). Among the victims, most experienced harassment classified as less severe (95.41%), but over one-third was subjected to more severe attacks (37.92%). Overall, 44.34% of the victims took at least one active reaction. By far the most popular reaction was to do nothing (58.10%), following by blocking the attacker on social media (26.61%), and reporting the incident to the police (16.21%).

Different patterns were found concerning the advice given in the experiment. A vast majority of university staff (90.45%) and politicians (82.55%) recommended the targeted person to report the offence to the police, followed by blocking the perpetrator on social media (60.46% and 49.61%). Other popular recommendations included turning to counseling (34.16% and 23.33%, respectively) and personally asking the offender to stop the harassment (23.24% and 33.92%, respectively).

A comparison of means showed statistically significant differences between samples. The average level of concern in becoming a future victim (U = 682,596.00, $p = .005$) and frequency of nonwork-related social media messages (U = 716,677.50, $p < .001$) were higher among politicians. University employees experienced a higher average level of experiment-induced anxiety (U = 491,426.00, $p < .001$). Differences were found also in all Big Five traits except agreeableness. The descriptive overview of all study variables is presented in Table 1.

3.2. Predictors of active reactions in the past

Firstly, comparisons of means were performed to check for significant differences between the active reaction preference and other preferences among victims in the university sample ($n = 749$). Victims who chose active reactions sent significantly more formal messages to social media (U = 67,103.50, $p = .003$), were more concerned about becoming a future victim (U = 65,728.00, $p = .014$), scored higher on the IBRS (U = 66,716.50, $p = .006$), TSQ (U = 73,842.50, $p < .001$), and had higher levels of neuroticism (t [747] = 1.97, $p = .049$).

There were 744 participants included in the full logistic regression model. The model fit the data well ($\chi^2 = 64.48$, $p < .001$). The results of logistic regression models for victims' past behavior in both samples are

Table 1

Descriptive statistics of covariates.

Categorical variables	Academics		Politicians	
	n	%	n	%
Active reaction recommendation	1608	64.53	292	57.25
Online harassment and hate victimization	749	30.06	327	64.12
Variables tested among victims				
Active reaction	227	30.31	145	44.34
Knowing the perpetrator	322	42.99	159	48.62
Experiencing insults online	701	93.67	312	95.41
Experiencing assault online	115	15.35	124	37.92
Demographics				
Gender				
Male	1154	46.31	282	55.29
Female	1325	53.17	228	44.71
Other	13	0.52		
Higher education[a]	1631	65.45	294	57.65
Minority status	368	14.77	37	7.25

Continuous variables	Academics				Politicians			
	Range	M	SD	α	Range	M	SD	α
Age	22–73	43.24***	11.22		23–81	55.64***	12.35	
TSQ score[b]	0–10	0.90	1.57	.75	0–10	0.80	1.34	.67
IBRS score	6–42	17.87	6.92	.79	6–39	18.28	6.39	.77
Concern over becoming a victim	1–7	2.07***	1.39		1–7	2.33***	1.61	
Formal social media communication	0–4	0.61	0.79		0–4	0.64	0.95	
Informal social media communication	0–4	1.18***	1.17		0–4	1.49***	1.31	
STAI score	6–42	30.02***	7.52	.84	6–42	27.04***	7.88	.83
Extroversion	3–21	13.12***	4.30	.85	3–21	16.17***	3.46	.80
Neuroticism	3–21	12.38***	4.05	.78	3–19	10.09***	3.43	.65
Openness	3–19	15.54*	3.27	.65	3–21	15.07*	3.31	.61
Agreeableness	4–21	15.18	2.99	.56	6–21	15.36	2.90	.52
Conscientiousness	5–21	14.58*	3.16	.55	5–21	14.90*	3.15	.62

* - difference between samples significant on $p < .05$ level, *** - difference between samples significant on $p < .001$ level.

[a] Higher education diploma for politicians; PhD degree for university staff.

[b] Only among victims.

Table 2

Preference for active reaction to online harassment and hate victimization, logistic regression models.

	Academics				95% CI for OR		Politicians				95% CI for OR	
	B	SE (B)	p	OR	Lower	Upper	B	SE (B)	p	OR	Lower	Upper
IBRS score	.03	.01	.082	1.03	1.00	1.05	.03	.02	.185	1.03	0.99	1.08
Concern over becoming a victim	.01	.06	.920	1.01	0.90	1.13	.33	.09	.000	1.38	1.16	1.66
Formal social media communication	−.01	.11	.961	1.00	0.80	1.23	−.12	.14	.374	.89	0.68	1.16
Informal social media communication	.18	.08	.028	1.19	1.02	1.39	.23	.12	.048	1.26	1.00	1.59
TSQ score	.18	.06	.002	1.20	1.07	1.35	.16	.11	.140	1.18	0.95	1.47
Knowing the perpetrator	.37	.17	.033	1.45	1.03	2.04	.16	.26	.539	1.17	0.71	1.95
Experiencing insults online	−.86	.32	.008	0.42	0.23	0.80	.90	.82	.273	2.46	0.49	12.33
Experiencing assault online	.85	.23	.000	2.34	1.49	3.67	.65	.28	.018	1.92	1.12	3.29
Extroversion	.03	.02	.153	1.03	0.99	1.08	.02	.04	.614	1.02	0.94	1.11
Neuroticism	.03	.02	.229	1.03	0.98	1.08	−.16	.05	.000	0.85	0.78	0.93
Openness	.01	.03	.827	1.01	0.95	1.06	.03	.04	.495	1.03	0.95	1.12
Agreeableness	−.03	.03	.265	0.97	0.92	1.03	.02	.05	.610	1.03	0.93	1.13
Conscientiousness	−.01	.03	.789	0.99	0.94	1.05	.01	.04	.916	1.01	0.92	1.09
Gender (ref. male; target female)	.17	.18	.340	1.19	0.83	1.70	−.39	.28	.158	0.68	0.40	1.16
Education (ref. lower; target higher)	.11	.23	.623	1.12	0.72	1.74	−.28	.27	.297	0.76	0.45	1.28
Age	−.01	.01	.418	0.99	0.98	1.01	.00	.01	.724	1.00	0.98	1.03
Minority status	−.11	.22	.614	0.89	0.58	1.38	.63	.46	.174	1.88	0.76	4.66
Model n	744						327					
Pseudo R^2 [Nagelkerke]	0.12						0.25					
Model χ^2	64.48						68.13					
p	<.001						<.001					

shown in Table 2. According to the results among university employees, experiencing PTSD symptoms (OR = 1.20, p = .002) and frequency of sending informal messages to public social media services (OR = 1.19, p = .028) were significant predictors of active reaction. None of the personality measures reached significance. Additionally, the type of harassment associated with the type of reaction, that is, less severe incidents were less likely to result in reactions aimed at stopping the perpetrator (OR = 0.42, p = .008) and more severe attacks more likely led to such reactions (OR = 2.34, p < .001). The model explained 11.74% of the variance.

The same analyses were performed among politicians, albeit with notably different results. There were 327 politicians subjected to online harassment or hate included in the analyses. According to the results of the t-tests performed, victims who reported reacting actively to the harassment more frequently used public social media for informal reasons (U = 15,695.00, p = .003), were more concerned about becoming future victims (U = 16,960.50, p < .001), scored higher on IBRS (t [322.937] = 2.151, p = .032) and TSQ (U = 15,251.500, p = .007). They also received higher openness to experience scores (t [325] = 1.98, p = .049) and lower neuroticism scores (t [325] =- 2.81, p = .005).

The logistic regression model fit the data well (χ^2 = 68.13, p < .001). Only two of the predictors significant in the university staff sample produced a similar result among politicians, namely the frequency of sending informal messages to public social media (OR = 1.26, p = .048) and experiencing more severe attacks (OR = 1.92, p = .018). Further, as expected, higher neuroticism scores were associated with lower chances for active reaction (OR = 0.85, p < .001). Finally, concern over becoming a future target of online harassment increased the chance for such a reaction (OR = 1.38, p < .001). Overall, the model explained 25.18% of variance.

3.3. Predictors of active reaction recommendations in the experiment

Finally, we analyzed the predictors of active reaction recommendations for a person who received a death threat. As noted above, since participants tended to recommend more than one reaction (university staff M = 1.75; SD = 0.01; politicians M = 1.66; SD = 0.04) and the median of the recommended active reactions reached 2, that value was used as a cutoff point between the two groups, thus only participants

recommending 2 or more active reactions were classified into that preference category. The variables in the model included the same individual factors as the past behavior model. One additional factor tested was the anxiety level reported after reading the experimental scenario.

Results of means comparisons showed that participants from the university sample in the active reaction recommendations group on average sent more of both formal (U = 807,312.00, p < .001) and informal (U = 826,301.00, p < .001) messages to public social media sites. They received higher average scores on STAI-6 measured post-experiment (U = 797529.50, p < .001) and IBRS (U = 817,253.50, p < .001). They were more concerned about becoming a future victim (U = 751,819.50, p = .009), and received significantly lower conscientiousness scores (t [2489] = -2.06, p = .040) and significantly higher neuroticism scores (t [2489] = 2.78, p = .006) than the other preferences group.

The logistic regression models for recommendations preferences are presented in Table 3. The total number of participants included in the logistic regression model was 2478. The model fit the data well (χ^2 = 99.08, p < .001) and several significant predictors were identified. According to the results, frequently sending both formal (OR = 1.22, p = .003) and informal (OR = 1.14, p = .004) messages to public social media services was associated with belonging to the active reaction preference group. A higher IBRS score (OR = 1.02, p = .006), as well as a higher anxiety state after reading the experimental scenario (OR = 1.02, p = .001) were connected to the active reaction preference. None of the personality measures reached significance (p < .05). The model explained 5.39% of the variance.

All 510 participants from the local politicians' sample who finished the survey were included in the analyses because no missing data was detected. Means comparisons indicated that participants belonging to the active reaction recommendation group more frequently sent informal messages to public social media sites (U = 37,567.50, p < .001), were more concerned about becoming future victims (U = 41,179.00, p < .001), and received higher average scores on the IBRS (U = 38689.50, p < .001) and the postexperimental STAI-6 (t [508] = 6.22, p < .001). The active recommendation preference group received lower conscientiousness (t [508] = -2.20, p = .028), lower extraversion (U = -27998.00, p = .019), and higher neuroticism scores (t [508] = 2.72, p < .001).

Table 3
Preference for active reaction recommendation for other people facing a death threat, logistic regression models.

| | Academics | | | | | | Politicians | | | | | |
| | | | | | 95% CI for OR | | | | | | 95% CI for OR | |
	B	SE (B)	p	OR	Lower	Upper	B	SE (B)	p	OR	Lower	Upper
IBRS score	.02	.007	.006	1.02	1.01	1.03	.04	.02	.037	1.04	1.00	1.07
Concern over becoming a victim	−.01	.033	.882	1.00	0.93	1.06	.23	.07	.001	1.26	1.10	1.46
Formal social media communication	.20	.068	.003	1.22	1.07	1.40	−.05	.12	.674	0.95	0.75	1.21
Informal social media communication	.13	.046	.004	1.14	1.04	1.25	.11	.10	.233	1.12	0.93	1.35
Anxiety	.02	.006	.001	1.02	1.01	1.03	.06	.01	.000	1.06	1.03	1.09
Extroversion	.00	.011	.971	1.00	0.98	1.02	−.08	.03	.022	0.93	0.87	0.99
Neuroticism	.02	.012	.210	1.02	0.99	1.04	.01	.03	.699	1.01	0.95	1.08
Openness	.01	.014	.415	1.01	0.98	1.04	.05	.03	.128	1.05	0.99	1.12
Agreeableness	.01	.015	.368	1.01	0.98	1.04	.00	.04	.906	1.00	0.93	1.07
Conscientiousness	−.03	.015	.058	0.97	0.95	1.00	-.03	.03	.454	.98	0.91	1.04
Gender (ref. male; target female)	.03	.09	.784	1.03	0.86	1.23	−.31	.22	.158	0.74	0.48	1.13
Education (ref. lower; target higher)	.06	.11	.570	1.06	0.86	1.32	−.04	.21	.836	0.96	0.64	1.44
Age	−.01	.01	.105	0.99	0.98	1.00	−.02	.01	.098	0.99	0.97	1.00
Minority status	−.12	.12	.331	0.89	0.70	1.13	.25	.39	.524	1.28	0.60	2.74
Previous victimization on social media	−.05	.10	.586	0.95	0.78	1.15	−.14	.22	.514	0.87	0.56	1.33
Model n	2478						510					
Pseudo R^2 [Nagelkerke]	0.05						0.20					
Model χ^2	99.08						81.40					
p	<.001						<.001					

The logistic regression model fit the data well ($\chi^2 = 81.40$, $p < .001$). A higher anxiety state after the survey experiment (OR = 1.06, $p < .001$) and higher IBRS scores (OR = 1.04, $p = .037$) associated with belonging to the target category. Also, participants who were concerned they could become targets of online harassment or hate were more likely to recommend active reactions (OR = 1.26, $p = .001$). Finally, higher scores in extroversion were associated with a lower chance of active recommendations preference (OR = 0.93, $p = .023$). The remaining factors were not significant (see Table 3). The model explained 19.81% of the variance.

4. Discussion

4.1. Overview of main results

The present research investigated the individual factors associated with professionals' reactions to online harassment experiences as well as those determining the recommendations given to someone else. We examined the differences existing between the two professional groups and found that a range of individual factors connected to both the reactions and recommendations in online harassment situations. Moreover, those factors differed across samples and circumstances. These results are in line with the theoretical assumptions drawn from transactional theory of stress and coping (Lazarus & Folkman, 1984) and provide further evidence for the importance of social context and online-specific factors in understanding the aftermath of online harassment.

The first notable result is the high percentage of participants who were subjected to online harassment or hate in the preceding 6 months. The prevalence rates are comparable to those established in previous studies (Cassidy et al., 2016; Every-Palmer et al., 2015; Inter-Parliamentary Union, 2018; Ward & McLoughlin, 2020). Ignoring the situation was by far the most popular option in both samples, which also aligns with past research (Cassidy et al., 2016; Cassidy et al., 2017; Inter-Parliamentary Union, 2018; Pew Research Centre, 2017). This does not necessarily indicate disregarding the event as not important, because purposeful ignoring has been previously identified as an important strategy aimed at discouraging the perpetrator by not acknowledging their behavior as worthy of attention (Macháčková, Cerna, et al., 2013; Perren et al., 2012).

A range of individual factors influenced victims' reactions, partially confirming our expectations based on coping behavior theories and previous research results. Frequent public social media communication predicted choosing active, perpetrator-focused reactions in both samples. As previously suggested, frequent social media users may view such media more positively than those who choose not to engage in social networks, and therefore may be more inclined to act in an online environment (Li & Fung, 2012). Having experience with social media may also increase the belief in the individual's control over the situation, leading to more problem-focused coping (Carver et al., 1989; Lazarus & Folkman, 1984; Raskauskas & Huynh, 2015). The impact of PTSD on victims' reactions among university employees was also in line with our expectations and with previous comparable results on a younger sample (Priebe et al., 2013).

Concern over becoming a future victim positively predicted active countermeasure preferences among politicians. Two interpretations of this result are possible. Undertaking such an assertive reaction may lead to concerns in the future. Alternatively, victims worried about future victimization, may be motivated to try and prevent it. That second interpretation contradicts the results of some offline-based studies (Boeckmann & Liew, 2002; Swim & Hyers, 1999). It is plausible that due to the specific dynamic of online interactions, it is easier for concerned victims to deal with the negative emotions by attempting to stop or punish the attacker in the online environment.

As expected, neuroticism negatively predicted active reactions in the past among politicians. This is in line with previous research on

neuroticism, which associates it with a low tolerance for ambiguous situations (Jach & Smillie, 2019). Finally, contrary to predictions, involvement in social media identity bubbles was not significant in any of the samples. It might be that perceived personal resources is too broad of a category to make specific predictions about identity bubbles in social media. It is also possible that the participants were aware of the limited scope of identity bubbles they operate in and remain cautious about other Internet users.

Notably, in both samples serious harassment was more likely to elicit active reactions. In previous studies, attacks seen as more severe, offensive, or those having a bigger societal impact prompted harsher reactions and punishments (Boeckmann & Liew, 2002; Dickter, 2012; Koehler & Weber, 2018). Similar motives may be present among victims deciding if and how to react to being attacked. Moreover, as more severe attacks more likely endanger important goals, they are also more likely to be appraised as threats (Folkman & Moskowitz, 2004; Lazarus & Folkman, 1984). The mode of harassment may also influence the appraisal. For instance, among adolescents, cyberbullying utilizing video materials was more distressing and elicited more active coping behaviors than attacks based on text messages (Pieschl et al., 2013).

Individual factors play an important role also in forming recommendations for online harassment victims. In this case, involvement in identity bubbles in social media predicted active reaction recommendations in both samples. It is possible that involvement in identity bubbles only works in the expected way of a perceived personal resource in case of advice giving, when psychological distance prompts idealistic considerations (Lu et al., 2013). Higher experimental-induced anxiety was also connected to active reaction recommendation preferences in both professions, confirming the role of the covictimization experience (Coyne et al., 2019).

Similarly to past behavior, concern over future victimization led politicians to recommend active reactions, and among university staff, frequency of both formal and informal social media communication predicted recommendations. In the recommendations politicians gave, extroversion was negatively associated with belonging to the active reaction preference group. This is a somewhat surprising result. It is possible that extroverted individuals actively suppressed their own preferences in an effort to comply with what they saw as a standard reaction, a mechanism suggested by advice-giving research (Petrova et al., 2016; Thorsteinson et al., 2020). Alternatively, past studies on coping behaviors show that extroverted individuals tend to rely on social support (Connor-Smith & Flachsbart, 2007). It is then possible that they recommended the same approach to others, instead of attempting to stop the attacker.

The explanatory power of our models varied between conditions and professional groups. For both professions, the recommendations model explained less variance than the past behavior model. This aligns with research on advice-giving, which suggests, that advisors are guided less by personal factors and preferences (Danziger et al., 2012; Lu et al., 2013; Petrova et al., 2016; Thorsteinson et al., 2020). Furthermore, explanatory power of the models was lower for university staff than for politicians in both conditions, suggesting that especially in case of academics, factors not considered in this study influence victims' reactions.

Overall, multiple differences between the samples were identified concerning both past behavior and recommendations, highlighting the importance of including members of various professions in online harassment and hate research. There are many potential reasons for such evident distinctions. Firstly, as shown in our results, members of the two professions differed in respect to various traits and other individual factors. It is possible that these pre-existing differences between the two professional groups influence, for example, the probability of them developing PTSD symptoms as a result of online victimization, or the chance of such symptoms prompting certain reactions, or the chance of judging a situation as threatening and requiring coping. The same is true about the characteristics of the environment in which an individual exists, and characteristics of social networks the professionals exist in. It

is possible that social networks in the workplace differ significantly between the two professional groups, altering their reactions. Specifically, in certain social contexts it may be more acceptable to act on the basis of individual traits, beliefs, or experienced distress than in others. Moreover, both professional groups probably engage with different online audiences, have different purposes for doing so and therefore their relationships with their viewers differ. This may further influence their behavior in case of receiving harassing content.

The type and scope of professional responsibilities may further alter the perceptions of what is a proper reaction to a given situation. Moreover, in our sample politicians were more likely to be subjected to harassment and hate, and more likely to be victims of serious attacks. This may be reflected in their attitudes toward online harassment and influence how certain factors impact their behavior. For example, concern over becoming a victim may be an important factor among politicians because they face more backlash for their opinions. Thus, the differences between the samples probably stem from multiple sources—individual, institutional, and situational.

4.2. Limitations and directions for future studies

The partially cross-sectional nature of our study limits establishing causal relationships, leaving a level of ambiguity in certain cases where both directions of the causal effect are theoretically possible. While our aim was to examine the significance of individual factors in online harassment reactions instead of finding fully explanatory models and although some of our models explained the variation reasonably well (20%, 25%), a few of our models had quite modest explanatory power (5%, 12%). All models included a number of contextual factors, as both theories (Bandura, 1977; Lazarus & Folkman, 1984) and research (Cassidy et al., 2017; Jenaro et al., 2018) on coping point towards their importance. However, a more detailed investigation of contextual and environmental factors may be useful for future studies seeking to establish a comprehensive explanatory model of the phenomenon.

Moreover, our categories of active and other types of reactions are quite broad. Utilizing a hierarchical model of coping (Connor-Smith & Flachsbart, 2007; Tobin et al., 1989) may be helpful in establishing precise categories for future explanatory studies. Our sample also included solely professionals working in Finland. Previous research has identified substantial national differences in levels of impolite communication (Theocharis et al., 2016). It is plausible that such differences are also present in the case of online harassment reactions and recommendations for them. Similar studies in different locations are needed to address this issue. Furthermore, this study was conducted during the COVID-19 pandemic. Evidence suggests that the level of online abuse did not rise during the COVID-19 crisis, at least not among politicians (Farrell et al., 2020). However, it is possible that the mental strain associated with the crisis still altered the targeted professionals' reactions. Future, postpandemic studies on the topic are needed to clarify this matter.

Despite its limitations, the current study certainly adds to the understanding of how victims of online harassment and hate react to the event and cope with its consequences. It also highlights the importance of recommendations and social norms in the context of dealing with online hate and harassment, pointing out how factors behind those may differ from what the victims take into consideration. As this is one of the first studies dealing with this topic, more research is needed to firmly, and in more detail, establish the importance of relations between certain factors and the following decisions of individuals subjected to online harassment. The use of diverse methods as well as including other potentially important factors is needed to achieve this goal. Nevertheless, this study paves the way for this meaningful research area and helps to understand the other side of the problem, as reactions of victims' and bystanders' attitudes are as crucial for understanding the online harassment phenomenon as the perpetrators' motivations.

5. Conclusions

The current research focused on online harassment and hate experiences of two professional groups: university academic staff and politicians. We found that engagement with social media was related to both past behaviors and recommendations for other victims. Namely, active social media users were more likely to react to online harassment experienced in the past by trying to stop or punish the perpetrator. Moreover, participants involved in social media identity bubbles were inclined to recommend such reactions to a hypothetical victim. Experiencing anxiety after reading the hypothetical scenario had the same influence on the advice given. Influence of other individual factors including personality traits, concerns over becoming a victim, and experiencing PTSD symptoms related to previous victimization was limited to a single professional group.

The results advance the understanding of who decides to actively oppose online attackers and when, pointing to individual experiences, beliefs, and concerns as indispensable factors in understanding behaviors of online harassment victims. These factors need to be considered in both theoretical and empirical research work on online harassment. This study's results indicate the need to include various professional groups in online harassment research because their experiences may differ significantly. The specific job characteristics and implications should also be considered when education and intervention programs are introduced.

Author contributions

Magdalena Celuch: Conceptualization; Formal analysis; Methodology; Validation; Visualization; Writing – original draft; Writing – review & editing. Nina Savela: Conceptualization; Data curation; Investigation; Methodology; Writing – review & editing. Reetta Oksa: Conceptualization; Data curation; Investigation; Writing – review & editing. Rita Latikka: Conceptualization; Data curation; Investigation; Writing – review & editing. Atte Oksanen: Conceptualization; Data curation; Funding acquisition; Investigation; Methodology; Project administration; Resources; Supervision; Writing – review & editing.

Declaration of competing interest

None of the authors have a conflict of interest to declare.

Appendix A

During the past 6 months, how often have you faced the following situations at work, or because of your work, on the Internet or social media?

Items with exact wording	Academics	Politicians
You have received offending and angry messages via social media. [I]	15.97%	45.10%
Attacks against you as a person, your values or your personal life have been made. [I]	13.76%	47.84%
Your appearance has been criticized. [I]	4.49%	15.49%
You have been underestimated or criticized because of your gender. [I]	9.79%	17.06%
You have been underestimated or criticized because of your age. [I]	7.14%	18.04%
You have been attacked because of your sexual orientation. [A]	1.52%	3.33%
You have been attacked because of your skin color, heritage or national or ethnic origin. [A]	5.42%	4.90%
You have been attacked because of your religion or ideology. [A]	6.54%	25.69%
You have been sexually harassed. [A]	5.66%	12.16%
Your professional skills have been underestimated unjustifiably and beyond normal critique. [I]	16.69%	35.88%
Extracts of your messages have been copied so that the meaning of the original message is distorted. [I]	8.47%	26.08%
Offensive photos/videos of you have been posted on social media. [A]	1.04%	8.24%
Photo or video manipulations of you have been published. [I]	0.88%	5.10%
False statements about you have been spread on social media. [I]	8.19%	43.92%
You have been shamed or targeted (e.g., other people have been provoked to attack you) on social media. [A]	4.29%	29.41%
Someone has impersonated you (identity theft). [A]	1.36%	5.29%
You have been threatened with violence. [A]	2.81%	18.04%
Your life has been threatened. [A]	0.96%	9.41%
Threatening messages about your friends/your family have been sent to you via social media. [A]	1.36%	9.41%
Threatening messages have been sent to your children or close ones with the intention to scare you. [A]	0.56%	2.94%

Note. I = insult category; A = assault category.

Appendix B

What kind of consequences have the incidents had on your own actions? Check all that apply

	Academics $n = 749$	Politicians $n = 327$
I blocked the person on my social media channel. [A]	22.16%	26.61%
I contacted the person personally and ask him/her to stop the harassment. [A]	9.61%	14.68%
I did the same to the offender to take revenge. [A]	0.53%	0%
I turned to counseling. [O]	6.54%	4.59%
I have avoided walking outside alone when it is dark. [O]	1.20%	1.83%
I have reduced public appearances and participation in public discussions. [O]	8.14%	12.54%
I have changed the way I talk about my work. [O]	6.94%	4.89%
I have thought about changing the subject matter of my work. [O]	3.34%	1.53%
I have thought about transferring to another position or to another field. [O]	6.68%	5.50%
I reported the offence to the police. [A]	3.34%	16.21%
The incidents did not have any impact on my actions. [O]	53.14%	58.10%

Note. A = active action; O = other type of action.

How should your close colleague/the person unknown to you act? Check all that apply

	Academics $N = 2491$	Politicians $N = 510$
Block the person on social media. [A]	60.46%	49.61%
Contact the person personally and ask him/her to stop the harassment. [A]	23.24%	33.92%
Send a revengeful response. [A]	0.36%	0.39%
Turn to counseling. [O]	34.16%	23.33%
Avoid going outside alone when it is dark. [O]	9.71%	9.02%
Reduce public appearances and participation in public discussions. [O]	3.36%	5.17%
Change the way he/she talks about his/her work. [O]	5.70%	9.80%
Think about changing the subject matter of his/her work. [O]	0.72%	1.57%
Think about transferring to another position or to another field. [O]	0.80%	1.37%
Report the offence to the police. [A]	90.45%	82.55%
Nothing. [O]	5.14%	6.47%

Note. A = active action; O = other type of action.

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