



Using A/B testing to study engagement with Snapchat advertisements promoting help-seeking after image-based sexual harassment and abuse victimization[☆]

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ABSTRACT

Online forms of sexual violence, such as image-based sexual harassment and abuse, can have serious consequences for victims' well-being. Still, not every victim seeks help. Therefore, the present study examined the engagement of youth with advertisements on Snapchat for the promotion of help-seeking at a victim support organization after image-based sexual harassment and abuse victimization. Two advertising campaigns, focusing on either image-based sexual harassment or abuse, were run on Snapchat targeted at 13-to-25-year-old Dutch users. A 2 x 2 x 2 quasi-experimental design was implemented, manipulating three variables in each campaign to measure the engagement (ratio of swipe-ups to impressions) generated by each advertisement variation. The analyses indicate that 2.93% and 3.79% of Snapchat users engaged with the image-based sexual harassment and abuse campaigns respectively. A significant increase in engagement was found in the image-based sexual abuse campaign when self-blame was mentioned in the advertisement. The acknowledgement of self-blame, a well-known barrier to help-seeking, and the reassurance that one is not to blame, may be beneficial in promoting help-seeking. In conclusion, the use of social media advertising by victim support organizations may be effective in promoting help-seeking. Further research on the role of personal characteristics on advertisement engagement is encouraged.

1. Introduction

For today's youth, social media platforms, such as Snapchat, WhatsApp and Instagram, comprise mediums for socialization, as well as sexual exploration (Naezer, 2018; Uhls et al., 2017). For example, a large number of adolescents participate in sexting, i.e. "the sending, receiving, or forwarding of sexually explicit messages, images, or photos to others through electronic means" (Klettke et al., 2019, p. 237). Sexting may have positive aspects, including meeting new people and exploring one's sexuality, thus contributing to sexual development (e.g. Burić et al., 2021; Burkett, 2015). Unfortunately, there are two sides to the same coin, with sexting potentially having negative consequences,

such as experiencing online forms of sexual violence.

Powell and Henry (2017) have devised the term 'technology-facilitated sexual violence' to encompass various online forms of sexual violence, including technology-enabled sexual aggression, online sexual harassment and image-based sexual abuse. In this article, we focus on forms of technology-facilitated sexual violence that contain visual material, which in other words, can be construed as: image-based sexual harassment and image-based sexual abuse.¹ Image-based sexual harassment (hereinafter, IBSH)² includes the receiving of unwanted nude or sexual images (i.e. so-called 'nudes' or 'dickpics'; Ringrose et al., 2021a). The term image-based sexual abuse (hereinafter, IBSA) includes a variety of abuses, comprising of the non-consensual taking or digital

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¹ In this article, the term 'image' refers to both photos and videos.

² According to Ringrose and colleague's (2021a) definition, image-based sexual harassment also includes the unwanted requests for nude or sexual images. Although receiving unwanted requests for nude or sexual images is considered problematic, this type of verbal harassment is not included in the current study due to the focus on online sexual harassment and abuse in which visual material is used.

creation of nude or sexual images, the non-consensual sharing or distribution of nude or sexual images, or threats to share or distribute nude or sexual images (Henry et al., 2020).

Scientific attention to IBSH and IBSA has gained more traction in the past decade, with various studies reporting estimates of its occurrence. A recent large-scale survey study ($N = 6109$) conducted amongst adults in Australia, New Zealand and the United Kingdom has shown that one in three respondents had encountered one or more forms of IBSA in their lifetime (Henry et al., 2020). Another recent large-scale survey amongst individuals of 16 years and older from the Netherlands ($N = 24,237$) indicated that 11% of respondents had experienced one or more forms of online sexual harassment and/or abuse in the past five years (Statistics Netherlands, 2023). Particularly adolescents, aged 13 to 24, are known to be at a higher risk of victimization (e.g. National Rapporteur on Trafficking in Human Beings and Sexual Violence against Children, 2022; Powell & Henry, 2019; Statistics Netherlands, 2023).

Experiencing IBSH and IBSA can influence multiple dimensions of victims' well-being, affecting their mental, relational and professional well-being (Cense & Redert, 2022; McGlynn et al., 2021). International research has shown that IBSH and IBSA victimization can lead to negative emotional responses in victims (e.g. Cripps & Stermac, 2018; Mandau, 2020, 2021; Salerno-Ferraro et al., 2022), and can cause serious mental health effects, including depressive disorders, anxiety disorders and post-traumatic stress disorder (e.g. Aborisade, 2022; Bates, 2017; Campbell et al., 2022; Huber, 2023). The consequences can be more encompassing, affecting victims' self-esteem, as well as violating their privacy and autonomy (e.g. Amundsen, 2021; Bates, 2017; Henry et al., 2023; Huber, 2023). Due to the near infinite character of the internet, images appear difficult to erase (Dodge, 2019), potentially leading to continuous re-victimization. Victims of IBSA may continually worry about the images unexpectedly re-emerging and/or about who has seen the images (Henry et al., 2023; McGlynn et al., 2021). The constant worry that someone has seen the images, may lead victims to withdraw from social interactions, resulting in social isolation (e.g. Campbell et al., 2022; Henry et al., 2023; Huber, 2023; McGlynn et al., 2021). The abovementioned consequences are, however, not exhaustive with victims experiencing a wider range of consequences (see McGlynn et al., 2021). Hence, it may be beneficial for victims to disclose the incident or seek help (Bates, 2017; DiTullio & Sullivan, 2019).

1.1. Seeking help after victimization

After victimization, victims can seek help from various sources, either informal sources, such as parents, family members or peers, and/or formal sources, for example the police, a school counsellor or the social media platform (Colburn et al., 2023; Dodge & Lockhart, 2022; Walsh & Tener, 2022). Although seeking help is often regarded as a positive coping strategy (Bates, 2017), victims may be hesitant to seek help (Campbell et al., 2022; Ringrose et al., 2022). From the existing research, it is apparent that seeking help is not a given. Douglass et al. (2020) report that of their 126 Australian respondents between the ages of 15 and 29, 69% had disclosed their experience, of which 63% told their friends, as opposed to the 10% who told their family and the 2.2% who told the police. Similar results are reported by Wolak and colleagues (2018) who highlight from their survey results from a sample of 813 18-to-25-year-old U.S. respondents, that 54% of respondents disclosed the incident, of which 35.1% told their parents, whilst only 15.7% reported to the police. Thus, it is apparent that victims prefer to seek help from informal sources, rather than formal sources (Henry et al., 2023; Klettke et al., 2019; Walsh & Tener, 2022). Especially adolescents prefer to share the experience with their peers rather than their parents or formal sources (Dodge & Lockhart, 2022; Klettke et al., 2019; Mishna et al., 2023; Ringrose et al., 2022).

Although some victims may make the conscious decision not to seek help, perhaps because they do not require or desire help, other victims

may experience barriers to help-seeking (e.g. Wolak et al., 2018). Research on the help-seeking behavior of victims of IBSH and IBSA is, however, still in its infancy. Nonetheless, a plethora of international studies have researched the barriers to help-seeking for victims of offline sexual violence, with studies reporting a wide variety of barriers to help-seeking, including feelings of shame and self-blame (e.g. DeLoveh & Cattaneo, 2017; Pijlman et al., 2023; Stoner & Cramer, 2019). With the consequences of IBSH and IBSA appearing comparable to victims of offline sexual violence (e.g. Bates, 2017), it can also be assumed that the barriers to help-seeking may be similar.

Recent literature has highlighted various potential barriers to help-seeking that victims of IBSH and IBSA may face. The most frequently mentioned barrier to help-seeking is the experience of feelings of shame (e.g. Cense & Redert, 2022; Hunehill Berndtsson, 2022; Hunehill Berndtsson & Odenbring, 2021; Van Mansom & Schwegler, 2021; Wolak et al., 2018). Victims may feel embarrassed about receiving unwanted nude or sexual images (e.g. Ringrose et al., 2021a), or having their images shared online (e.g. Henry et al., 2023). Therefore, they may not want other people, such as their family, to find out what happened (Cense & Redert, 2022; Van Mansom & Schwegler, 2021). In addition, a barrier specific to IBSA is self-blame; victims of IBSA are known to blame themselves for their victimization, which they may relate to their own 'naivety' in making and/or sending the images (e.g. Aborisade, 2022; Adler & Chenoa Cooper, 2022; Hunehill Berndtsson & Odenbring, 2021; Mandau, 2021; Van Mansom & Schwegler, 2021). In relation to the experience of shame and self-blame, IBSH and IBSA victims may fear negative and victim blaming responses from their social environment and wider society upon disclosure, such as judgmental attitudes, disbelief, disappointment or repercussions (e.g. Adler & Chenoa Cooper, 2022; Campbell et al., 2022; Henry et al., 2023; Huber, 2023; Mishna et al., 2023; Walsh & Tener, 2022; Wolak et al., 2018). This is a particular issue for young adolescents, who may be afraid their parents or other adults will not understand their situation, or will punish them by limiting access to their smartphones (Dodge & Lockhart, 2022; Mishna et al., 2023). Therefore, youth may not consider seeking help from adults to be a viable option (Mishna et al., 2023).

Lastly, victims may not have the knowledge of where to report or find help for the incident, or they may not be aware that the incident can be seen as an unlawful event for which help is available (Henry et al., 2020, 2023; McGlynn et al., 2021). In this light, they may minimize the severity and harmfulness of the incident (Flynn et al., 2021; Ringrose et al., 2021b, 2022). Consequently, victims may not report the incident or seek help. Although specific research on the help-seeking behavior of victims of IBSH and IBSA is limited, the aforementioned barriers appear to be only a few of a wider array of barriers to help-seeking that victims may experience. Thus, it is pivotal to explore accessible pathways to promote help-seeking.

1.2. Using social media advertising to encourage help-seeking

In scientific literature, various studies have been conducted in a range of disciplines (e.g., criminology, cybercrime, health sciences, psychology) on how messages (either online or offline) can influence human decision-making, given their specific design (e.g. Hancock et al., 2020; Kyvsgaard & Sorensen, 2021; Martijn et al., 2009; Mollen et al., 2017; Rosenblatt et al., 2018). Nowadays, online marketing through social media is a common means for advertising various products, services and (warning) messages, ranging from consumer goods to healthcare interventions (e.g. Birnbaum et al., 2022). Online advertising through social media has various advantages over traditional methods of advertising, including its simplicity and wide reach, as well as its speed and cost-effectiveness (Hui et al., 2015; Park & Calamaro, 2013; Teo et al., 2018). In the Netherlands, social media advertising of healthcare interventions was used during the COVID-19 pandemic to encourage the uptake of COVID-19 vaccines amongst the general population (Rijksoverheid, 2020, 2021). Although specific information on the effectiveness

of these advertising campaigns is sparse, it can be assumed that these advertisements can influence the general knowledge of existing options for help (Athey et al., 2023; Huesch et al., 2016; Wozney et al., 2019). Particularly, as warning messages and prevention campaigns have been found to be effective in influencing a wide range of behaviors, including discouraging smoking (Mollen et al., 2017), promoting a healthier diet (Rosenblatt et al., 2018), and preventing the accessing of pornography (Prichard et al., 2022a,b) and pro-anorexia websites (Martijn et al., 2009). Because youth are found to have positive attitudes towards social media advertising campaigns promoting mental healthcare (O'Reilly et al., 2018), social media advertisements may potentially encourage youth to seek out help or healthcare. Nonetheless, in order for the advertisement to reach its goal, it ought to be designed to attract the target population.

1.3. Influencing factors in advertisements

Advertisements may consist of various elements, including images and text, that are tailored to the target population. In this light, two textual elements may be of importance: the use of youth-targeted language and the effect of brand names.

In healthcare interventions, youth prefer accessible and informal language (e.g. Hawke et al., 2019; Liverpool et al., 2020). The use of youth-targeted language is also a popular method in advertising to appeal to the target population (Liu et al., 2019; Mansor, 2021). By aiming for convergence between the language used in the advertisement with the language used by the target population, the advertisement may be more effective (Hilte et al., 2020; Jakić et al., 2017; Liu et al., 2019). An example of youth-targeted language in advertising is the use of *slang*, which is known to lead to a positive evaluation of and/or more engagement with the advertisement (Koeman & Marzo, 2017; Liu et al., 2019). In relation to IBSH and IBSA, slang words, such as 'dickpics' and 'nudes', appear to be set in youth's vocabulary to describe photos of male genitalia or naked bodies (e.g. Mandau, 2020; Ringrose et al., 2021b). To this end, when considering the use of social media advertising to promote help-seeking amongst victims of IBSH and IBSA, it appears using youth-targeted language may be fruitful.

In addition, advertisements ought to be regarded as trustworthy by the recipient. Hence, advertisements may include direct references to the name of the organization or brand that is advertised. According to the source credibility theory, the persuasiveness of a message is determined partly by the perceived credibility of its source (Hovland & Weiss, 1951). Thus, to increase the effectiveness of an advertisement, it is important that the advertisement is credible (Lowry et al., 2014). For example, a concrete reference to a source (i.e. organization or brand), rather than an abstract or anonymous source, may make the message and source appear more credible (Adams, 1962; Rains, 2005). Relatedly, website domain suffixes related to credible sources, such as the government (.gov) and educational institutions (.edu), are deemed more credible than suffixes such as .net and .com (Wogalter & Mayhorn, 2008). Advertisements from a familiar source may result in more engagement than messages from unfamiliar sources (Bakr et al., 2019). Therefore, one may assume that for the promotion of help-seeking amongst victims of IBSH and IBSA, the mention of the name of the victim support organization as opposed to an un-named organization in the advertisement may be more effective.

1.4. The current study

Overall, social media advertising may help in promoting help-seeking and increasing knowledge of the options for help amongst victims of IBSH and IBSA. To date, no scientific research has studied the use of social media advertising for the promotion of help-seeking amongst this specific population, notwithstanding the possibility that the findings may have great practical relevance for victim support organizations. Considering prior studies addressing the barriers to help-seeking for

victims, and recent studies applying online advertising as a research strategy (Bekkers et al., 2022; Moneva et al., 2023), we developed two online advertising campaigns for Snapchat focused on encouraging help-seeking after experiencing IBSH and IBSA. Two separate campaigns were run: one addressing IBSH and one addressing IBSA. Snapchat was chosen as the platform because Snapchat is considered one of the primary social media platforms whereby Dutch youth experience IBSH and IBSA (National Rapporteur on Trafficking in Human Beings and Sexual Violence against Children, 2022; Van Mansom & Schwegler, 2021; Van Welzen & Pessers, 2023). Ringrose and colleagues (2021a, 2022) consider Snapchat to enable IBSH and IBSA victimization and perpetration through various factors; (a) Snapchat allows users to connect to large numbers of (unknown) users through their 'quick adds' feature; (b) Snapchat includes 'popularity measures', such as 'streaks' and 'score points', which highlight how many (consecutive) 'snaps' are sent and received, with individuals opening messages from unknown users (which could contain IBSH) to increase these numbers; and (c) the lack of measures for identity verification. Moreover, as images on Snapchat disappear after viewing, with the user being notified when a screen save is made, this may provide a fake sense of security when sending nude or sexual images, and may also complicate the reporting of victimization.

The purpose of the campaigns was to measure which advertisement targeted at victims of IBSH or IBSA leads to the highest engagement (i.e. the ratio of swipe-ups to impressions). To this end, the study applied a 2 x 2 x 2 factorial quasi-experimental design, running two separate Snapchat advertising campaigns with eight advertisement variations each, targeted at Dutch users aged 13 to 25. In each campaign, three different variables were manipulated. The first manipulation involved the mention of feelings of shame being present or absent. This was manipulated in both campaigns, as feelings of shame are known to be experienced by victims of IBSH and IBSA and function as a barrier to help-seeking (e.g. Hunehall Berndtsson & Odenbring, 2021; Wolak et al., 2018). Therefore, we aim to explore whether written acknowledgement of the feelings of shame and the reassurance that one does not have to be ashamed, would lead to higher engagement with the advertisement. The second manipulation, which was present in both campaigns, involved the name of the victim support organization being mentioned or no name being provided. It is hypothesized that the mention of the name will spark a sense of credibility about the victim support organization (e.g. Bakr et al., 2019), which will increase engagement with the advertisement. The third manipulation comprises the use of youth-targeted language, and was only present in the IBSH campaign. To discuss IBSH, youth often use slang terminology, such as 'dickpics' and 'nudes'. As youth-targeted language is preferred by youth and may be more effective in engaging with youth (e.g. Hawke et al., 2019; Liu et al., 2019), it is expected that using the words 'dickpics' and 'nudes' in the advertisement will increase engagement. The last manipulation encompasses the presence or absence of the mention of feelings of self-blame. Feelings of self-blame are known to be a barrier to help-seeking specific to IBSA victims (e.g. Mandau, 2021). Hence, this manipulation was only present in the IBSA campaign. With this manipulation, we aim to explore whether written acknowledgement of feelings of self-blame and the reassurance that one is not to blame, will lead to an increase of engagement with the advertisement. Overall, it can be stated that the presence of the manipulations was expected to increase engagement with the advertisements. For an overview of the research questions and hypotheses, see Table 1. For an overview of all advertisement variations and textual manipulations, see Table 4 and Appendix A.

2. Methodology

2.1. Research design

The main objective of the two advertising campaigns was to maximize the engagement (i.e. traffic) with the advertisements, or in other

Table 1

Overview of research questions and hypotheses.

RQ1: Which advertisement targeted at victims of IBSH leads to the highest engagement?	
H1.1: The mention of feelings of shame and reassurance that one does not have to be ashamed will lead to more advertisement engagement.	
H1.2: The use of youth-targeted language will lead to more advertisement engagement.	
H1.3: The mention of the name of the victim support organization will lead to more advertisement engagement.	
RQ2: Which advertisement targeted at victims of IBSA leads to the highest engagement?	
H2.1: The mention of feelings of shame and reassurance that one does not have to be ashamed will lead to more advertisement engagement.	
H2.2: The mention of feelings of self-blame and reassurance that one is not to blame will lead to more advertisement engagement.	
H2.3: The mention of the name of the victim support organization will lead to more advertisement engagement.	

Table 2

Advertisement variations for IBSH campaign.

	Manipulation	Variation							
		1	2	3	4	5	6	7	8
	Shame	Y	N	Y	N	Y	N	Y	N
	Helpwanted	Y	Y	Y	Y	N	N	N	N
	Youth-Targeted Language	Y	Y	N	N	Y	Y	N	N

Note. ‘Y’ indicates ‘yes’, meaning the manipulation is present, whilst ‘N’ indicates ‘no’, meaning the manipulation is absent.

Table 3

Advertisement variations for IBSA campaign.

	Manipulation	Variation							
		1	2	3	4	5	6	7	8
	Shame	Y	Y	Y	Y	N	N	N	N
	Helpwanted	Y	N	Y	N	Y	N	Y	N
	Self-Blame	Y	Y	N	N	Y	Y	N	N

Note. ‘Y’ indicates ‘yes’, meaning the manipulation is present, whilst ‘N’ indicates ‘no’, meaning the manipulation is absent.

words, to maximize the number of Snapchat users that ‘swipe-up’ on the advertisement to reach the landing page. To this end, three variables were manipulated in each campaign, which were expected to increase the engagement with the advertisements. Each campaign consisted of eight advertisement variations, which were run in randomized order to generate unique impressions and swipe-ups. The link in the advertisement, which led to the landing page, corresponded with the content of the advertisement. Therefore, one can assume that the users who swiped-up on the advertisement were interested in learning more about help-seeking after experiencing IBSH or IBSA. Both campaigns were run simultaneously to limit differential outside interference. However, it can therefore not be ascertained whether the user group who viewed the campaigns overlapped.

As stated, the advertising campaigns were run on Snapchat using their A/B-testing (i.e. split testing) application, which divides a daily budget over each advertisement and collects information on both the number of impressions and swipe-ups. The execution of the advertising campaigns was done by online marketers from the Victim Support Fund (Fonds Slachtofferhulp), due to their experience with using Snapchat for A/B-testing. The campaigns were run from the Snapchat account of WTFFF!?! (www.wtfff.nl), which is a platform for victims of IBSH and IBSA run by the Victim Support Fund. On the website, victims of IBSH and IBSA can share their experiences, read about others’ experiences and learn about existing options for help in the Netherlands. Due to the objective of the current study, i.e. promoting help-seeking amongst victims of IBSH and IBSA, it was considered beneficial to run the campaigns on the WTFFF!?! account.

2.2. The advertisements and landing page

In each campaign, three different variables were manipulated, which led to eight variations per campaign (see Tables 2 and 3). Based on the manipulation being present or absent, the texts in the advertisements varied. The manipulations were presented in the advertisements as certain sentences of text being present, or being absent or phrased differently. The text in the advertisements was written by the authors and were evaluated by two IBSH and IBSA victims. The texts can be found in Table 4.

The advertisements had a similar visual appearance and were designed based on a free template from Canva and personalized using the main colors from the WTFFF!?! website. Examples of the two advertisement variations can be found in Figs. 1 and 2 (for all variations, please refer to Appendix A). The advertisements are shown here as three images, but in reality, the advertisements were run as videos in which the background was static with the textual elements fading in and out. The duration of the advertisements was either six or nine seconds, depending on whether the shame or self-blame manipulation was present, as this added or subtracted a piece of text.

All advertisement variations included a swipe-up link to the same landing page: the Helpwanted website (www.helpwanted.nl). Helpwanted is a victim support organization for individuals who have experienced online inappropriate behavior. They provide information and advice through online chat, e-mail and telephone (Helpwanted, nd). Helpwanted is a well-known specific victim support organization for victims of IBSH and IBSA in the Netherlands, and was hence chosen as the landing page. Permission was requested from and granted by Helpwanted to use their homepage as the landing page. During the

Table 4

Text used for the manipulations in both campaigns.

Manipulation	Description	
	Present	Absent
Youth-Targeted Language	Have you ever received dickpics and/or nudes, whilst you did not want this?	Have you ever received sexual and/or nude images, whilst you did not want this?
Shame	Maybe you are ashamed of what happened, but that is not necessary!	N/A
Self-Blame	Maybe you think what happened is your fault. That is not the case!	N/A
Shame and Self-Blame	Maybe you are ashamed of what happened, or you think that it is your fault. That is not necessary, because that is not the case!	N/A
Helpwanted	Do you want advice about online sexual abuse? Helpwanted.nl can help you. Swipe up for more information!	Do you want advice about online sexual abuse? There are victim support organizations that can help you. Swipe up for more information!

Note. The statements are directly translated from Dutch to English for the purpose of this article. If both shame and self-blame were mentioned in the advertisement, the two statements were combined for brevity.



Fig. 1. Example advertisement of IBSH campaign (Variation 1)

Note. The translations are as follows (also see Table 4); Image 1: “Have you ever received dickpics and/or nudes, whilst you did not want this?”; Image 2: “Maybe you are ashamed of what happened, but that is not necessary!”; Image 3: “Do you want advice about online sexual abuse? Helpwanted.nl can help you. Swipe up for more information!”



Fig. 2. Example advertisement of IBSA campaign (Variation 2).

Note. The first text is a standard text used in each variation of the IBSA campaign. It states, in direct translation from Dutch to English: “Have you ever been blackmailed, shamed or abused with sexual and/or nude images?”. The translation of the rest of the advertisement is as follows (also see Table 4); Image 2: “Maybe you are ashamed of what happened, or you think that it is your fault. That is not necessary, because that is not the case!”; Image 3: “Do you want advice about online sexual abuse? There are victim support organizations that can help you. Swipe up for more information!”

running period, the Helpwanted website was regularly accessible. Although, it would have been interesting to assess which percentage of the website visits resulted from the advertising campaigns, no access was available at this time to the number of website visits during the running period.

2.3. Ethics

In the experiment, passive deception is applied; the Snapchat users seeing the advertisements are unaware that they are participating in a research study. A/B testing, and in this light passive deception, has been widely used for marketing as well as research purposes (e.g. Bekkers et al., 2022). Passive deception in this set-up is necessary due to the possibility that providing information about the actual purpose of the

advertisements, can obstruct the research by influencing people's behavior. As the outcome and study have a strong societal relevance for helping victim support organizations to effectively promote help-seeking amongst victims of IBSH and IBSA, the passive deception appears to be scientifically warranted (Article 8.07 of the APA Ethics Code; American Psychological Association, 2017).

The advertisements redirected the users to an external landing page: the website of victim support organization Helpwanted. We decided not to debrief the users on another landing page as this may lead to more distress than necessary, especially with potentially vulnerable individuals (i.e. victims of IBSH and IBSA). In the current state, the study appeared as a regular advertisement, and therefore led to the advertised landing page (i.e. www.helpwanted.nl). To ensure the users' privacy, we did not collect any personal data (e.g. IP-address or gender). Snapchat

adheres to the GDPR and the California Consumer Privacy Act (Snapchat, nd). Our study protocol was approved by the ethics review board of the Vrije Universiteit Amsterdam (CERCO) on February 28, 2023.

2.4. Users

Snapchat enabled us to randomly target individuals through age categories and location, without pre-specifying the reach to be attained as this is dependent on the campaign budget. The target group comprised of Snapchat users between the ages of 13 and 25 living in the Netherlands, as individuals in this age group are known to be at a higher risk of experiencing IBSH and IBSA (e.g. National Rapporteur on Trafficking in Human Beings and Sexual Violence against Children, 2022; Statistics Netherlands, 2023) and 13 being the minimum age for Snapchat users. Although Snapchat users between the ages of 13 and 25 were targeted, it cannot be ascertained whether the users provided true or false information pertaining to their ages in their Snapchat accounts. Therefore, it is recommended to interpret the results with caution.

2.5. The campaigns

The two campaigns ran simultaneously for 14 days, from March 8, 2023 to March 24, 2023. Unfortunately, due to an unexpected bug in Snapchat, the advertisement could not run from March 17 to March 19. This bug had reset the pre-set ending date of the campaign to an earlier date (March 17, 2023). After the bug was fixed, the campaign continued on March 20. Consequently, the campaign ran until March 24 to finish the 14-day running period. During the running period, the campaigns yielded 1,167,976 unique impressions and 26,194 unique swipe-ups, which shows a mean engagement rate of 2.24%. As regards the individual campaigns, the IBSH campaign generated 615,821 impressions and 12,254 swipe-ups, whilst the IBSA campaign yielded 552,155 impressions and 13,940 swipe-ups. These numbers reveal an overall engagement rate of 1.99% for the IBSH campaign and 2.52% for the IBSA campaign. The number of impressions and clicks were strongly positively correlated for both the IBSH campaign, $\rho = 0.82$, $n = 112$, $p < 0.001$, and the IBSA campaign, $\rho = 0.90$, $n = 112$, $p < 0.001$. The total cost of the two campaigns was 3360 euros, with 1680 euros being spent on each individual campaign. Overall, the cost per swipe-up was 0.14 euro for the IBSH campaign and 0.12 for the IBSA campaign, whilst the cost per 1000 impressions was 2.73 euros for the IBSH campaign and 3.04 euros for the IBSA campaign.

2.6. Analytic strategy

To gauge which manipulation led to more engagement with the advertisement, the engagement rate for each advertisement variation was calculated by dividing the number of swipe-ups by the number of impressions. Subsequently, per campaign, a separate three-way (2 by 2 by 2) independent factorial ANOVA was run, with the manipulations as the independent variables and the engagement rate as the dependent variable. The independent variables of the IBSH campaign consist of: (1) the mention of feeling of *shame*, (2) the mention of *Helpwanted*, and (3) the use of *youth-targeted language*. For the IBSA campaign, the following independent variables are identified: (1) the mention of feeling of *shame*, (2) the mention of *Helpwanted*, and (3) the mention of feelings of *self-blame*. The assumption of normality was violated for both campaigns. However, as the ANOVA is a robust analysis for normality violations, this was expected to have little consequences particularly with the current sample size ($N = 112$ per campaign) (Pallant, 2016). It was chosen not to exclude outliers, due to the nature of the experiment, as the outliers may present natural variations in the population. The assumption of homogeneity of variances was violated, as Levene's Test of Equality of Error Variance was significant for both analyses, with $F(7, 104) = 2.89$, $p = 0.009$ for the IBSH campaign and $F(7, 104) = 6.04$, $p < 0.001$ for the IBSA campaign. Therefore, a more stringent alpha level for

Table 5

Total performance of advertisements.

	Impressions	Swipes	ER
IBSH Campaign			
Variation 1: Shame (Y), Helpwanted (Y), YTL (Y)	88,159	1847	0.021
Variation 2: Shame (N), Helpwanted (Y), YTL (Y)	135,425	2301	0.017
Variation 3: Shame (Y), Helpwanted (Y), YTL (N)	17,919	373	0.021
Variation 4: Shame (N), Helpwanted (Y), YTL (N)	28,694	1085	0.038
Variation 5: Shame (Y), Helpwanted (N), YTL (Y)	71,513	1431	0.020
Variation 6: Shame (N), Helpwanted (N), YTL (Y)	14,677	342	0.023
Variation 7: Shame (Y), Helpwanted (N), YTL (N)	133,698	2122	0.016
Variation 8: Shame (N), Helpwanted (N), YTL (N)	125,736	2753	0.022
IBSA Campaign			
Variation 1: Shame (Y), Helpwanted (Y), SB (Y)	194,062	3420	0.018
Variation 2: Shame (Y), Helpwanted (N), SB (Y)	149,460	3289	0.022
Variation 3: Shame (Y), Helpwanted (Y), SB (N)	13,942	649	0.047
Variation 4: Shame (Y), Helpwanted (N), SB (N)	26,700	1092	0.041
Variation 5: Shame (N), Helpwanted (Y), SB (Y)	93,448	2584	0.028
Variation 6: Shame (N), Helpwanted (N), SB (Y)	45,289	1530	0.034
Variation 7: Shame (N), Helpwanted (Y), SB (N)	16,146	646	0.040
Variation 8: Shame (N), Helpwanted (N), SB (N)	13,108	730	0.056

Note. ER stands for engagement rate. YTL stands for youth-targeted language. SB stands for self-blame.

significance was set, $\alpha = 0.01$ instead of $\alpha = 0.05$ (Pallant, 2016).

3. Results

The overall performance of the advertisements can be found in Table 5. The mean engagement rates of the eight variations were 2.22% for the IBSH campaign and 3.55% for the IBSA campaign. Thus, showing a good to relatively high engagement rate (Adobe Express, 2022).³ Consequently, the influence of the manipulations was evaluated.

3.1. Advertisement campaign 1: image-based sexual harassment

To explore the impact of the mention of shame and Helpwanted, and the use of youth-targeted language on the engagement of the Snapchat users with the IBSH advertisement, a three-way independent factorial analysis of variance was conducted. Table 6 indicates that neither the main effects, nor the interaction effects were found to be significant. Due to the stringent significance level, the interaction effect between the use of youth-targeted language and the mention of Helpwanted was not significant: $F(7, 104) = 5.02$, $p = 0.027$.

3.2. Advertisement campaign 2: image-based sexual abuse

To explore the impact of the mention of shame, self-blame and Helpwanted on the Snapchat users' engagement with the IBSA advertisements, a three-way independent factorial analysis of variance was conducted. A statistically significant main effect was found for the mention of self-blame: $F(7, 104) = 13.10$, $p < 0.001$, with a medium effect size (partial $\eta^2 = 0.112$). The presence of the mention of self-blame accounted for 11.2% of the variance in the engagement with the advertisement. This indicates that the presence of the mention of shame in the advertisement led to a significant increase in the users' advertisement engagement. The remaining main and interaction effects were not deemed significant (see Table 7). Due to the strict significance level, the interaction effect between the mention of shame and

³ Unfortunately, little information is available on what a 'good' engagement rate is for Snapchat. However, compared to the engagement rates that are considered good for Facebook (2%) and Instagram (3%), the current engagement rates appear good to relatively high (Adobe Express, 2022). As, no information was available on the engagement rates of comparable advertising campaigns of Helpwanted or other victim support organizations, our ability to compare the rates was limited.

Table 6
Three-way factorial ANOVA for IBSH campaign.

Predictor	Sum of Squares	df	Mean Square	F	p	Partial η^2
Shame	<0.001	1	<0.001	0.10	0.758	0.001
Language	0.002	1	0.002	1.75	0.189	0.017
Helpwanted	0.001	1	0.001	0.59	0.443	0.006
Shame x Language	0.003	1	0.003	2.55	0.113	0.024
Shame x Helpwanted	0.001	1	0.001	0.68	0.411	0.007
Language x Helpwanted	0.005	1	0.005	5.02	0.027	0.046
Shame x Language x Helpwanted	0.000	1	0.000	0.34	0.561	0.003
Error	0.108	104	0.001			

Helpwanted was not significant: $F(7, 104) = 4.92, p = 0.029$.

4. Discussion

IBSH and IBSA victimization may lead to serious consequences for victims' mental health and daily lives. However, many victims are known to not seek or reach support, potentially due to the experience of barriers to help-seeking, such as feelings of shame and self-blame. With youth's proclivity to use social media, the purpose of the present study was to examine whether social media advertisements targeted at promoting help-seeking for IBSH or IBSA victimization are effective in reaching youth, and which advertisement would yield the highest engagement rate. This knowledge is considered valuable for victim support organizations in reaching IBSH and IBSA victims, and in improving awareness of their support provision amongst youth in general, to potentially encourage help-seeking. To this end, we conducted two quasi-experiments on Snapchat using A/B testing. Two advertisement campaigns were run, which contained three manipulations each, targeted at 13-to-25-year-old Snapchat users in the Netherlands. This resulted in a 2 x 2 x 2 factorial design. In the IBSH campaign, the mention of shame and Helpwanted (a victim support organization), and the use of youth-targeted language were manipulated. In the IBSA campaign, the mention of shame, self-blame, and Helpwanted were manipulated. The advertisement campaigns together reached a large number of Snapchat users in 14 days, yielding 1,167,976 impressions and 26,194 swipe-ups. This indicates that more than 2.2% of the Snapchat users were interested in information on help-seeking after IBSH or IBSA victimization, which shows a good engagement rate (Adobe Express, 2022).

As regards the IBSH campaign, it was shown that the engagement rates of the advertisement variations varied between 1.6% and 3.8%. Unlike our hypothesis that the presence of the manipulations would have a significant effect on the engagement with the advertisements, no significant main or interactions effects were found. Therefore, it can be

Table 7
Three-way factorial ANOVA for IBSA campaign.

Predictor	Sum of Squares	df	Mean Square	F	p	Partial η^2
Shame	0.002	1	0.002	3.10	0.081	0.029
Self-Blame	0.009	1	0.009	13.10	0.000	0.112
Helpwanted	0.001	1	0.001	1.56	0.215	0.015
Shame x Self-Blame	<0.001	1	<0.001	0.04	0.842	0.000
Shame x Helpwanted	0.004	1	0.004	4.92	0.029	0.045
Self-Blame x Helpwanted	0.001	1	0.001	1.51	0.222	0.014
Shame x Self-Blame x Helpwanted	0.002	1	0.002	3.46	0.066	0.032
Error	0.074	104	0.001			

assumed that the presence of the manipulations did not have a significant effect on the engagement with the advertisements. In relation to the IBSA campaign, the engagement rates ranged from 1.8% to 5.6%. Similar to the IBSH campaign, and unlike our hypotheses, most main and interaction effects were found to be non-significant. Nevertheless, the overall engagement rate appeared higher, and a significant main effect was found for the mention of self-blame. This indicates that the presence of the mention of self-blame in the advertisement significantly increased the users' engagement. As aforementioned, feelings of self-blame are a barrier to help-seeking for victims of IBSA (e.g. Cense & Redert, 2022; Mandau, 2021), and appear to be related to the experience of victim blaming by third parties and fear thereof (Aborisade, 2022; Mandau, 2021; Mishna et al., 2023). Victim blaming and harm minimizing sentiments appear present in society in relation to IBSA, particularly to the comparison with contact sexual victimization (e.g. Flynn et al., 2023; Zvi, 2022). In a recent study, the endorsement of rape myths was known to be a predictor of holding victim responsabilization, victim blaming and offense minimization sentiments (Harper et al., 2023). These sentiments are known to be predictors of IBSA proclivity and perpetration (e.g. Karasavva et al., 2023; Powell et al., 2019). Thus, victims may fear or actually receive blaming and harm minimizing responses from their social environment or professionals upon disclosure (Campbell et al., 2022; Dodge & Lockhart, 2022; Huber, 2023; McGlynn et al., 2021), which may affect their willingness to disclose the incident or enhance feelings of self-blame. Subsequently, victims may feel as if they do not deserve help (Henry et al., 2020; Mandau, 2021). Therefore, the assurance that one is not responsible for the abuse and can seek help, may be beneficial to victims (DiTullio & Sullivan, 2019), and to this end may have helped to promote help-seeking.

In addition, the mention of feelings of shame did not have a significant effect on the users' engagement in either of the campaigns. This is despite the notion that feelings of shame are known as a barrier to help-seeking for both IBSH and IBSA victims (e.g. Campbell et al., 2022; Wolak et al., 2018). Although the mention of shame and reassurance that being ashamed is not necessary, may be beneficial to some (DiTullio & Sullivan, 2019), to others it may be confronting. Particularly to those who have experienced shaming and victim blaming from their social environment (Dodge & Lockhart, 2022; Ringrose et al., 2021b; Ringrose & Regehr, 2023). Victims may simply want to forget or avoid thinking about the incident (Bates, 2017; Mishna et al., 2023; Ringrose et al., 2021b). Therefore, they may refrain from seeking help and engaging with the advertisement. On the other hand, the feeling of shame may not be omnipresent. IBSH, i.e. the receiving of unwanted nude or sexual images is increasingly normalized by youth (Budde et al., 2022; Mandau, 2020; Ringrose et al., 2022; Ringrose & Regehr, 2023). Girls and women describe it as a commonplace issue that they have to get used to online (Amundsen, 2021; Salerno-Ferraro et al., 2022; Setty et al., 2022). To this end, victims may not wish to seek professional help, but respond indirectly, by blocking the perpetrator or laughing it off with peers (Amundsen, 2021; Durán & Rodríguez-Domínguez, 2023; Ringrose et al., 2022; Ringrose & Regehr, 2023; Salerno-Ferraro et al., 2022). This may explain why the mention of shame was not effective in increasing users' engagement with the advertisements. However, this explanation is merely speculative and requires further inquiry.

In addition, in both campaigns the mention of the name of the victim support organization was manipulated. In neither campaign, a significant increase in engagement was seen when the name of the victim support organization Helpwanted was mentioned. It was expected that the mention of the name would make the advertisement more credible, leading to more engagement. However, it is possible that the advertisements were already deemed credible as a consequence of them being set out through the Snapchat account of a familiar platform (WTF?!? by the Victim Support Fund). To this end, the inclusion of the name of Helpwanted in the advertisement did not attain additional credibility. Overall, victims of IBSH and/or IBSA may be unfamiliar with the options for help (Henry et al., 2020). In relation to this, the addition of an

unknown name of an organization may not necessarily increase credibility compared to a completely anonymous source, since the anonymous source may be considered as credible as an identified source (Rains, 2007). Whilst the mere exposure effect states that the exposure to a stimulus may have a positive effect on an individuals' attitude towards that stimulus, a single exposure may not be sufficient (Montoya et al., 2017; Morgenstern et al., 2013; Zajonc, 1968, 2001). On the other side of the spectrum, if one is exposed to a stimulus too frequently, this may have a negative effect on one's attitude (Montoya et al., 2017; Zajonc, 2001; Zajonc et al., 1972). Therefore, the advertisement may not have worked for individuals that are unfamiliar or very familiar with Helpwanted. Again, this remains speculative and requires future research. Lastly, in the IBSH campaign, the use of youth-targeted language was manipulated. Although slang was used, this was not found to increase engagement with the advertisement. We believe that this may be a consequence of the already accessible language used in the other variation of the advertisement. Perhaps the use of slang did not make the advertisement more appealing to youth. However, one may expect the use of slang to be more attractive to young adolescents. Whilst we targeted a wider age range of 13-to-25-year-olds, we did not collect information on age. Therefore, it cannot be ascertained whether the use of slang led to more engagement in specific age groups, which is a limitation to our study.

Overall, for both campaigns it can be stated that the advertisements were effective in leading Snapchat users to engage with the advertisements, but that the manipulations appeared to have limited influence on the users' engagement.

4.1. Strengths and limitations

The findings of the present study have practical implications for mental health professionals and victim support organizations. On the one hand, it shows that using social media advertising is an effective and accessible means of getting information about their services to reach youth. On the other hand, it shows that variations in the content of the advertisement may not assert a strong influence. Nonetheless, the presence of specific factors may affect engagement with the advertisement. As regards promoting help-seeking for IBSA, it is apparent that the mention of self-blame and reassurance that it is not the victim's fault, can increase engagement with the advertisement. Due to the potentially severe consequences of IBSH and IBSA victimization, the possibility of continuous re-victimization and the barriers to help-seeking that victims may experience (e.g. McGlynn et al., 2021), the promotion of help-seeking through effective and accessible means is pivotal. Snapchat advertising, or social media advertising in general, may offer a solution. In this light, social media advertising may, amongst others, also be used as a means of spreading warning messages about the perpetration of IBSH and IBSA to deter potential perpetrators (Haddad et al., 2020; Prichard et al., 2022a), or perhaps as a means of creating awareness of the problematic normalization of IBSH and IBSA. Therefore, social media advertising may be beneficial for prevention, information provision and victim support.

Nonetheless, a limitation in the present study exists with regard to the lack of data collection on individual characteristics. Consequently, it is not possible to ascertain which type of advertisement was most efficient in engaging a specific group. Particularly the differences in the engagement of women and men are of interest. Society holds sexual double standards towards women's and males' sexual behavior, which results in a differential response to women and men victims of IBSH and IBSA (Flynn et al., 2023; Setty et al., 2022; Zvi, 2022). According to hegemonic gender norms, men are expected to be dominant and active in their sexuality, whilst women are expected to be sexually passive (García-Gómez, 2018, 2019). Therefore, when women receive unwanted nude or sexual images or have their own nude or sexual images shared, they do not meet the hegemonic gender norms and become subject to 'slutshaming' and victim blaming (García-Gómez, 2018, 2019;

Hunehäll Berndtsson & Odenbring, 2021; Ricciardelli & Adorjan, 2019; Ringrose & Regehr, 2023; Setty et al., 2022). Men victims of IBSH or IBSA seem to experience less sexual stigma or shaming (Ricciardelli & Adorjan, 2019; Setty et al., 2022). Still, these societal norms may create difficulties for men to disclose the incident, as they may not recognize the incident as victimization or feel unable to discuss it with their peers (Cense & Redert, 2022; Hunehäll Berndtsson, 2022). In addition, as aforementioned, we did not collect data on age. We acknowledge that the group of 13-to-25-year-olds constitutes a wide age range, and thus includes youth in different stages of their cognitive and emotional development, which may affect their engagement with and understanding of the advertisement. Therefore, the role of gender, age and other personal characteristics on the engagement with the advertisement ought to be the focus of future studies.

Additionally, it remains unknown whether the individuals who engaged with the advertisements were actual victims of IBSH or IBSA, and what their motive was for engaging with the advertisement. Although this information would have been valuable, it does not function as a large limitation because increasing the general public's knowledge in relation to the options for help for victims of IBSH and IBSA, is beneficial. Especially, given that this information can be used by individuals for supporting potential victims in their social environment. This is particularly important, because, as mentioned, seeking help from peers and informal sources is often preferred by victims (e.g. Dodge & Lockhart, 2022; Klettke et al., 2019).

In addition, there is a chance that the algorithm applied by Snapchat has led to a selection bias, as the algorithm may boost advertisements that are deemed to be effective after a period of machine learning. Therefore, it is possible that initially popular advertisement variations received an additional boost over time as opposed to the other variations, potentially creating outliers. Therefore, it is recommended to conduct future studies on a social media platform which applies a different algorithm. In relation to this, we cannot establish whether double-counting was present (i.e., multiple swipe-ups by the same individual) nor can we ascertain whether the engagement may have resulted from bots, which may occur on Snapchat (Lynch, 2022). Future research ought to utilize methods to control for double-counting and bot-related engagement. Lastly, as the study is set up as a natural experiment, it cannot be ascertained which external and real-world factors could have produced grey noise or outliers, and therefore have influenced the results. Thus, it is difficult to ascertain whether the outcome is a sole consequence of the manipulations in the advertisement within the frame of the explorative set-up of the present study. As a consequence, it is recommended for future studies to study the advertisement engagement in a controlled setting, in which personal and external factors can be controlled for, and further manipulations can be studied.

In conclusion, the present study indicates that social media advertising may be an effective means of informing and promoting help-seeking at a victim support organization for victims of IBSH and IBSA. As social media is likely to remain an omnipresent feature of today's society, victim support organizations may benefit from using social media advertising for the promotion of their services. Youth often express wishes of more sexting education and information on support services at schools, thus social media advertising may function as an extension of this (e.g. Jørgensen et al., 2019). By providing information on accessible and popular social media platforms amongst youth, barriers to help-seeking for victims may be lowered and information about the options for help can be spread amongst the general population. Given that peer support is often preferred by victims of IBSH and IBSA, social media advertising by victims support organizations may be the way forward.

CRedit authorship contribution statement

Valérie Pijlman: Conceptualization, Formal analysis, Funding

acquisition, Investigation, Methodology, Project administration, Resources, Supervision, Visualization, Writing – original draft, Writing – review & editing. **Arianne Burgmeijer**: Conceptualization, Resources.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

Data will be made available on request.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.chb.2024.108312>.

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