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Digital Self-Harm Among Adolescents - a literature review

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ABSTRACT

Introduction:

Digital self-harm (DSH) is a newly identified phenomenon in which adolescents anonymously publish hurtful content targeting their own person online. It is often associated with difficulties regulating emotions and the need for social validation. The phenomenon is more common among those belonging to minority groups, such as LGBTQ+ youth and those with disabilities. Digital self-harm can act as a marker of serious emotional disturbance and be a signal of suicide risk.

Materials and Methods:

Literature review was conducted using databases such as PubMed and Google Scholar, with search terms including “digital self-harm”, “fictitious online victimization”, “non-suicidal self-injury”,, “adolescents”.

Conclusions:

DSH remains an under-recognized phenomenon, despite growing research interest. It shows similarities with non-suicidal self-injury (NSSI), but its digital specificity suggests the need to separate it as a separate clinical category. At present, there is no unified theoretical framework or effective treatments - it is not known whether the interventions used for NSSI are equally effective in the context of DSH. It should be noted that research on DSH remains methodologically and geographically limited. Analyses that include European cultural and social perspectives are lacking. There is an urgent need for in-depth qualitative research to understand the motivations and psychological mechanisms surrounding this phenomenon. Educating teachers, parents and mental health professionals on how to recognize and respond to DSH behavior should become an integral part of public health policy.

Keywords: Digital Self-Harm, Self-Harm, Non-Suicidal Self-Injury, Adolescents

1. Introduction

1.1 Definition and Prevalence of Digital Self-Harm Among Adolescents

Digital self-harm (DSH) is a newly identified phenomenon in which an individual anonymously publishes hurtful content online against their own person. It includes the anonymous publishing or posting of offensive content via social media, discussion forums and other online platforms. A key aspect of DSH is that both the perpetrator and the victim are the same person - an individual who publicly presents him/herself as the target of the attack, while simultaneously acting as the aggressor in an anonymous manner [1,2]. In the literature, this phenomenon is also referred to as *self-cyberbullying*, *fictitious cyberbullying*, or *fictitious online victimisation* [3]. Studies on the prevalence of DSH indicate its global nature, although the values vary in different regions of the world, which probably depends on the methodology and the research sample. In the United States, E.Englander was the first to publish data on the subject in 2012, stating that 9% of students admitted to participating in digital self-harm [4]. Patchin and Hinduja, based on data from 2021, indicated that approximately 11.9% of young people had anonymously posted malicious content about themselves online. Comparing the above data to the results of work by the same researchers in earlier years shows an upward trend in this phenomenon, with a percentage of 9.0% in 2019 and 6.3% in 2016[1,2,5]. In Asia, 10.83% of Chinese college students have participated in DSH at least once in their lifetime [6]. Results from a study in New Zealand showed that 6% of young people aged 13-17 had experienced DSH in the past twelve months [7]. In Europe, on the other hand, a study conducted in Belgium found that 7.4% of adolescents aged 14-20 years admitted to engaging in DSH at least once and 6.4% reported repeated episodes of such behaviour [3].

1.2 The Impact of Social Media Exposure on Digital Self-Harm and Adolescent Mental Health

Given the ubiquity of social media and almost unlimited access to the internet, the phenomenon of DSH is an important area of research due to the potentially serious consequences for the mental and physical health of today's adolescents. Increasing exposure to the digital environment may encourage self-destructive behaviour in virtual spaces. It has been shown that the average time spent in front of a screen among children and adolescents aged 6-14 years is

2.77 hours per day, and almost half of the respondents use digital devices for a minimum of 2 hours each day [8].Findings indicate that excessive use of social media is associated with negative consequences such as depression, sleep disturbances, low self-esteem and social and appearance anxiety [9-11]. According to several studies, the use of smartphones and social media by adolescents is associated with increased levels of psychological distress, self-injurious behaviour and suicidal thoughts [12]. Despite the numerous risks, policies that restrict adolescents' access to online spaces may be ineffective due to the fact that it is an irreplaceable space for people in developing economies to acquire new knowledge. In addition, the rational and positive use of the Internet by adolescents can foster the building and deepening of social relationships through the free and unrestricted establishment and maintenance of contacts. The online space also provides an opportunity to share personal experiences and receive emotional support from peers, which can contribute to reducing stress and improving overall well-being [13]. At the same time, publishing one's own work and engaging in activities in line with individual interests can enhance self-esteem and life satisfaction among young users [12,14]. In the context of statistics on the virtual sphere of adolescents' lives, it becomes necessary to deepen our understanding of the impact of prolonged online presence on the development of self-destructive behaviour, in particular digital self-harm.

2. Results of Literature Review

2.1 Understanding the Complex Motivations Behind Digital Self-Harm in Adolescents

The functions of digital self-harm (DSH) can be classified into two main dimensions: intrapersonal and interpersonal, taking into account both positive and negative reinforcements of this behaviour [1]. Among the intrapersonal motivations, there is the need for self-punishment, enabling the individual to reduce emotional tension resulting from depressive symptoms or self-destructive thoughts, including self-hatred [7,15]. Some adolescents use DSH to make their own pain more palpable, giving it a real and socially noticeable dimension [1]. In this way, young people also seek new sensations, such as excitement or fun. On an interpersonal level, DSH can be a form of testing whether negative self-perceptions are commonly shared by others, allowing young people to understand whether their sense of self and identity is in line with that of their peers. It can also be a way of unmasking, those who have ever bullied a particular adolescent, as well as testing the loyalty of friends by assessing their reactions to self-harming content shared anonymously [15]. Among interpersonal functions, Englander (2012) found significant gender differences in the motivations for engaging in DSH-type behaviours,

indicating that girls were more likely to engage in these actions in order to gain sympathy, attract attention and elicit concern from those around them, while boys were more likely to be driven by impulsive anger, viewing DSH as a form of initiating a fight [4].

2.2 Digital Self-Harm and Psychosocial Risk Factors in Adolescents

Digital self-harm has been shown to be significantly associated with a number of psychosocial factors, including previous experiences of peer violence, mental health problems and social marginalisation[1,3]. Neither race nor age has been shown to correlate significantly with DSH, while factors such as substance use, previous self-injurious behaviour and participation in deviant behaviour significantly increase the risk of engaging in the phenomenon[1,16]. Young people belonging to minority groups, including LGBTQ+ students and those with physical or intellectual disabilities, are particularly susceptible to DSH, which may be due to their more frequent experience of social rejection [1,7]. Analysis of more recent data indicates that DSH significantly correlates with depression, eating disorders (studies on adult populations), and insomnia [3,5,6,17]. Furthermore, a study by Erreygers and colleagues (2022) found that those engaging in DSH were more likely to be victims of peer violence both offline and online, suggesting that the experience of bullying may be a significant predictor of DSH. These authors also noted negative correlations between digital forms of self-harm and self-esteem [3]. These findings support the idea that DSH may have a compensatory function in the face of social disapproval and chronic interpersonal stress. This points to the need to consider environmental, identity and psychopathological factors in the risk assessment and prevention of this type of behaviour.

2.3 Physical self-harm and its relation to the phenomenon of digital self-harm

Non-suicidal self-injury (NSSI), is an intentional, self-inflicted action leading to immediate damage to the body surface, with no direct suicidal intention [18]. This type of behaviour can take a variety of forms, such as cutting the skin, burning, severely scratching, rubbing or hitting specific parts of the body [19]. It is estimated that between 14% and 18% of adolescents and young adults in general populations report having committed an act of self-harm at least once in their lifetime [20]. The current state of scientific knowledge clearly indicates that the primary function of NSSI is to regulate affect - this motivation is indicated by more than 90% of those who engage in this type of behaviour [21]. It is equally well documented that at least half of self-harmers identify motivations related to self-punishment or the expression of self-directed

anger [22]. Self-harmers indicated that during and after the act of self-harm they felt a marked attenuation of negative emotional states such as anger, depression, feelings of loneliness or frustration, while relief, guilt or shame increased after the act of self-harm [23]. In addition, a number of other functions of the NSSI have been identified, indicating the reduction of suicidal thoughts, regaining a sense of reality by experiencing severe physical pain, matching the behaviour of peers, communicating emotional distress or seeking intense sensations [24,25]. Although digital self-harm (DSH) is sometimes compared to NSSI, the psychological mechanisms and consequences of DSH can differ significantly due to the digital environment, lack of visible physical injury and high levels of anonymity [1,6]. Patchin's research has shown that individuals with prior experience of non-suicidal self-harm are more likely to engage in digital self-harm. Countering this are data from Wang and colleagues (2024) indicating that there is limited overlap between these phenomena, with only 1.59% of the entire research sample engaging in both NSSI and DSH, suggesting that DSH should be treated as an independent category rather than simply a digital version of NSSI. There is a need for further comparative research between digital self-harm and non-suicidal self-injury , as both phenomena may have different mechanisms, although they share common features such as emotional and interpersonal functions. The current state of knowledge does not make it clear whether DSH is a digital variant of NSSI or a distinct phenomenon requiring a different diagnostic and therapeutic approach. A better understanding of the similarities and differences will enable the development of more precise intervention and prevention strategies.

2.4 Suicidal thoughts and behaviors beyond digital self-harm

The phenomenon of suicide, defined as the act of deliberately ending one's own life [26], is a significant and complex public health problem of global dimensions. According to a WHO report, among young people between 15 and 29 years of age, suicide is the second most common cause of death, and the median incidence of any reported suicide attempt among adolescents in the European population over a lifetime was 10.5% [27,28]. The causes of suicidal thoughts and behaviour are thought to be due to a complex interaction of many factors - genetic susceptibility, biological, psychiatric, psychological, family, social and cultural factors. Within an interdisciplinary approach, experts emphasise that biological susceptibilities (e.g. serotonin deficiency), specific personality traits (e.g. anankastic personality), and cognitive deficits (e.g. difficulty in solving interpersonal problems) reinforced by difficult life experiences - both from childhood and the recent past - can significantly increase the likelihood

of suicidal tendencies [29]. Among the childhood events that increase this risk are physical violence, sexual abuse, neglect, maltreatment, domestic violence, parental separation or divorce, and placement in institutional or social care [27]. Among suicidal tendencies, a distinction is made between suicidal thoughts, suicide plans, suicide attempts and suicide death, which can form a kind of suicide continuum [30]. As the phenomenon of DSH is a relatively new field of interest in the scientific literature, the available number of empirical studies analysing its association with suicidal tendencies remains limited. The first study describing the association between DSH and suicidal tendencies was published in 2022 by Patchin and colleagues, showing that engagement in digital self-harm was associated with a five- to sevenfold increase in the likelihood of reporting suicidal thoughts and a nine- to 15-fold increase in the likelihood of a suicide attempt. Regarding suicide risk, no significant differences were found by gender and race - similar findings to a 2017 study by the same researchers [1,2]. Further advancing the literature, a study by Wang and colleagues was published that showed that adolescents engaging in DSH and NSSI simultaneously had a significantly higher likelihood of suicidal thoughts and plans compared to those engaging only in NSSI behaviours. With regard to the function of DSH, the use of this form of behaviour as a form of self-punishment was associated with the presence of suicidal thoughts and plans, whereas the use of DSH for sensation seeking was associated with suicidal plans and suicide attempts [6]. DSH can be seen as a potential marker of severe affective disorders, providing a warning sign that may indicate the presence of depression or increased risk of suicidal behaviour [7,31]. Due to the limited number of empirical studies on the specific correlations between DSH and suicidal behaviour, further research in this area is needed. The lack of a full understanding of these correlations is a barrier to the development of effective prevention and intervention programmes.

3. Digital Self-Harm: Approaches to Identification and Intervention

3.1 The professional community of physicians and mental health specialists

In caring for patients with digital self-harm (DSH), clinicians and mental health professionals face significant difficulties due to the small amount of research and the lack of uniform guidelines on effective methods for preventing and treating this behaviour. The World Health Organisation has created general guidelines for dealing with self-harm and suicide that may be applicable to DSH [27]. Professionals in their practice should screen for digital self-harm, taking into account environmental, identity and psychopathological aspects. [2]. It is advisable

to examine in detail the patient's relationship with his or her family, his or her possible membership of minority groups (such as the LGBT+ community), and to take into account the fact that people with diagnosed psychiatric disorders - for example, depression or eating disorders - may be more likely to engage in digital self-harm behaviour. There is a lack of research in the available scientific literature on pharmacotherapeutic and psychotherapeutic options for treating digital self-harm (DSH). In the context of non-suicidal self-injury (NSSI), dialectical behavioural therapy (DBT) has been shown to be effective, while there is limited empirical evidence supporting the effectiveness of cognitive behavioural therapy (CBT) and mindfulness-focused therapy (MBT) [32]. Despite some overlap between NSSI and DSH, further empirical research is needed to determine whether the indicated therapeutic approaches may also be relevant and effective in the treatment of digital self-harm. It is important to emphasise that, in view of the increasing prevalence of cyberbullying, including digital self-harm (DSH), it becomes imperative to ensure greater access to quality psychiatric and psychological care for children and adolescents. This is particularly relevant in the context of low- and middle-income countries, where the infrastructure of the mental health system often remains underdeveloped and the needs are increasingly acute.

3.2 The domain of digital technologies

Social media is a key part of adolescents' daily communication, and of the available platforms, Facebook has the largest reach with nearly three billion users worldwide [33]. In the current technological reality, it is practically impossible to completely separate adolescents from digital devices, which act as a primary channel of contact with the world expanding the possibilities for social interaction. Digital tools can serve an important function in detecting digital self-harm (DSH) behaviour. In this context, artificial intelligence (AI)-based technologies are already being used by technology companies to identify and automatically remove content from online spaces that indicate a risk of imminent self-harm or suicidal behaviour [34,35]. A study by Patchin and colleagues suggested that AI's detection of a match between hardware identifiers (e.g. phone IMEI number, laptop) assigned to an ‘aggressor’ and ‘target’ could potentially detect instances of digital self-harm [2]. Enforcing media compliance with WHO guidelines on suicide reporting, as well as implementing strict regulation of media content, can play an important role in countering digital self-harm [27]. These actions can contribute to both reducing exposure to self-harm information and promoting mental health and prevention activities in the area of suicide prevention [36,37].

4. Conclusions

The phenomenon of digital self-harm (DSH) is a relatively new area of research that reveals complex interactions between adolescent mental health and digital functioning. Previous research unequivocally links DSH to symptoms of depression, anxiety, suicidal thoughts and other affective disorders, as well as the important role of emotional dysregulation and the need for social validation in its genesis [24,25]. The use of the anonymity of the internet is becoming a key tool for expressing inner suffering, often non-verbalised in offline relationships. Particularly worrying are the data showing a multiple increase in the risk of suicidal thoughts and attempts for those engaging in this type of behaviour [2]. The literature shows that digital self-harm (DSH) may have functions similar to non-suicidal self-injury (NSSI), but there are still no clear findings on its diagnostic and clinical identity. There are many indications that DSH may represent a distinct phenomenon, requiring separate tools for identification, prevention and treatment. At the same time, research on DSH remains methodologically and geographically limited, with analyses conducted in Western countries predominating. There is a lack of analyses that take into account European cultural and social perspectives. Specific risk factors such as membership of minority groups (e.g. people with disabilities or LGBTQ+ communities) and previous experience of peer violence both offline and online are also insufficiently described [1,7]. In light of these findings, a multifaceted approach to addressing digital self-harm is needed - involving both the development of primary research and the building of support and prevention systems. Educating teachers, parents and mental health professionals on how to recognise and respond to DSH behaviour should become an integral part of public health policy. In addition, the implementation of appropriate regulations regarding the content of information published on social media can significantly reduce young people's exposure to harmful stimuli and be part of a prevention strategy. Fully understanding and effectively addressing DSH requires the integration of knowledge from the fields of psychology, sociology, education and law, as well as the collaboration of academia, clinical settings and policy makers.

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