Nonsuicidal self-injury on Instagram: Examining hashtag trends

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Abstract:

We sought to investigate how individuals who upload nonsuicidal self-injury (NSSI) content on Instagram conceptualize self-injury by examining associated hashtags. Additionally, we explored NSSI hashtag usage trends over time. Using a web-based crawler and data analysis system, we downloaded 1,217,208 Instagram posts containing one of five popular NSSI hashtags (#cutting, #selfharm, #selfharmmm, #hatemyself, and #selfharmawareness) and categorized them based on psychological constructs (suicide, depression, anxiety/panic, eating disorders, addiction, general mental distress, other specific mental illnesses, and self-injury). Results show that NSSI hashtags were most associated with suicide, depression, general mental distress, anxiety/panic, and eating disorders, and, to a lesser extent, other specific mental illnesses, borderline personality disorder, and addiction. We determined that three of the five hashtags demonstrated an increase in usage over time, one remained relatively stable, and one decreased in usage. We discuss implications for mental health professionals regarding how to discuss social media use with clients who self-injure and consider clients' technology use in treatment plans.

Keywords: Instagram | nonsuicidal self-injury | self-harm | social networking sites | hashtags | suicide | depression

Article:

Introduction

The Diagnostic and Statistical Manual of Mental Disorders (DSM-5) includes nonsuicidal self-injury (NSSI) disorder in the research appendix as a condition in need of further study (American Psychiatric Association [APA], 2013). According to the DSM-5, NSSI refers to the intentional infliction of harm to one's body without the intent to die (APA, 2013). Common forms of NSSI include cutting the skin (typically on wrists, forearms, or thighs), burning, excessive rubbing, scratching, skin pricking with needles, and banging the head or body parts on hard objects (APA, 2013; Favazza, 2011; Wester & Trepal, 2017). NSSI often begins in adolescence (O'Loughlin et al., 2020; Zhu et al., 2016) and NSSI related content has become prevalent on social media platforms (Miguel et al., 2017; Nesi et al., 2021; Pritchard et al., 2021), which are

popular among adolescents (Anderson & Jiang, 2018; Watson et al., 2020). Several researchers have investigated trends and patterns of NSSI online content including severity of images and public responses to images (Lewis & Michal, 2016; Memon et al., 2018; Nesi et al., 2021; Pritchard et al., 2021), particularly on Instagram (Arendt et al., 2019; Brown et al., 2018), yet it is necessary to examine associated hashtags of NSSI-related content to understand how social media users conceptualize NSSI. This information can help prepare clinicians to discuss social media use with clients who self-injure as well as broach associated psychological symptoms and disorders.

Motives and Prevalence of NSSI

NSSI is a complex phenomenon with multiple functions. Motives for engaging in NSSI include emotion regulation, self-punishment, anti-dissociation, and the desire to communicate with others (APA, 2013; Doyle et al., 2017; Silverman et al., 2018; Whitlock et al., 2014). Indeed, Whitlock et al. (2014) assessed university students and found that among those with histories of NSSI, 50.8% identified their motive for self-injury as a way to cope with distress. Additionally, among an adult sample, Andover (2014) found that 26% of the sample engaged in NSSI to trigger a positive feeling. In the same vein as mood modification, some individuals engage in NSSI to end dissociative states (i.e., self-injure to feel something, to reconnect; Franzke et al., 2015; Kostic et al., 2019). Dissociation is particularly relevant among individuals who have experienced severe trauma (APA, 2013; Lang & Sharma-Patel, 2011). Although dissociation was a survival mechanism during the traumatic event, symptoms may persist long after the traumatic event has ended (APA, 2013). The pain inflicted by NSSI can jolt a dissociating individual back into the present moment (Favazza, 2011; Kostic et al., 2019). In the study of inpatient clients, Frankze et al. (2015) found that dissociative symptoms had a direct effect on NSSI.

The prevalence of NSSI is difficult to ascertain given that there is no universally accepted set of criteria for the disorder. Additionally, various subsets of the population demonstrate different frequency rates (Bresin & Schoenleber, 2015; Turner et al., 2019; Whitlock et al., 2014). For example, Wester et al. (2018) found that 19.4% of the 2015 incoming cohort of college freshmen currently engaged in NSSI (which was a substantial increase from 2.6% in 2008), with approximately half of freshman respondents identifying having engaged in NSSI at some point in their lives. Among U.S. adolescents from 11 states, 17.59% engaged in NSSI in the previous year (Monto et al., 2018). Additionally, among Taiwanese adolescents, 19.9% reported engaging in NSSI in the past year (Lin et al., 2018). Indeed, adolescents have demonstrated heightened risk for NSSI (Nesi et al., 2021); the typical age of NSSI onset is 12.26 years and age of first exposure is is 10.85 years old (Zhu et al., 2016).

NSSI and Suicide

Although suicidal behaviors and NSSI are distinct, there is a relationship between the two (Wester & Trepal, 2017; O'Loughlin et al., 2020; Walsh, 2012). In a review of literature on NSSI and suicidal behavior, Hamza et al. (2012) noted that NSSI behaviors are a strong predictor of suicidal attempts. The authors also stated that individuals engaging in inpatient care who reported histories of NSSI have increased risk of dying by suicide following or during the duration of treatment (Hamza et al., 2012). Additionally, risk factors such as depression,

hopelessness, impulsivity, negative self-evaluations, and diagnosed mental disorders are common among individuals who engage in suicidal behavior as well as NSSI (Curtis, 2017; Hamza et al., 2012; Kapur et al., 2013; Nesi et al., 2021). Given that NSSI is a means of emotion regulation, it is not surprising that individuals who engage in self-injury have risk factors associated with suicide (Wester & Trepal, 2017).

NSSI and Co-Occurring Disorders

As individuals commonly utilize NSSI as a means of coping with distressing events and dysphoric mood states, the co-occurrence of mental health disorders is common (Turner et al., 2015). Personality disorders, mood disorders, anxiety disorders, eating disorders, substance use disorders, and behavioral disorders are among the diagnoses frequently co-occurring with NSSI behaviors (Wester et al., 2018; Benjet et al., 2017; Bentley et al., 2015; Black et al., 2019; Gonzales & Bergstrom, 2013; Muehlenkamp et al., 2019). Borderline personality disorder (BPD) is highly associated with NSSI (Hessels et al., 2018) given that self-mutilating behavior is a criterion for BPD (APA, 2013). It is important to note, however, that NSSI also can exist independently of BPD (Favazza, 2011; Muehlenkamp, 2005; Turner et al., 2015).

Individuals diagnosed with depressive disorders (Forbes et al., 2019; Lin et al., 2018) and PTSD (Cunningham et al., 2019) make up a growing subset of the individuals with mental health diagnoses engaging in NSSI. Among Taiwanese adolescents, researchers found that depression mediated the relationship between distress tolerance and NSSI (Lin et al., 2018). NSSI also is prevalent among individuals presenting with eating disorders (Claes et al., 2015). Specifically, among women with eating disorders, lifetime prevalence of NSSI ranged from 17% (among individuals with the anorexia nervosa restrictive type) to 43.2% (among individuals with bulimia nervosa; Claes et al., 2015). Another prevalent co-occurring disorder among individuals who self-injure is substance use disorder (Monto et al., 2018). Among adolescents in the United States, researchers found tobacco and hard drug use associated with greater probability of NSSI (Monto et al., 2018). Additionally, NSSI is significantly associated with substance use disorders among adolescents living in the Swiss youth welfare system (Ludtke et al., 2018). Thus, NSSI can coexist with many mental health concerns.

NSSI on Social Media

The rise of social media has created additional risk factors for NSSI (Brown et al., 2018). Specifically, it has become commonplace for individuals to post and share pictures of NSSI wounds, scars, or paraphernalia on social media platforms (Arendt et al., 2019). Miguel et al. (2017) studied NSSI content on social media sites and classified 59.5% as graphic (i.e., containing blood or injuries). Additionally, Pritchard et al. (2021) studied NSSI posts on the social networking site, TalkLife, and found the comments most commonly associated with NSSI posts were related to suicide, hopelessness, and NSSI urges. Furthermore, Arendt et al. (2019) surveyed young adults (aged 18–29) and found that 43% were exposed to self-harm on Instagram; 32.5% of that group reported engaging in the same or very similar behaviors thereafter. Brown et al. (2018) found 2,826 pictures on Instagram over a four-week period that depicted wounds or scars (39.6% mild, 47.8% moderate, and 12.6% severe). Finally, Giordano et

al. (2020) surveyed 94 licensed clinicians and found that 30.9% of the sample reported that at least some of their clients who self-injured utilized the internet to share NSSI images.

The examination of NSSI-related content on social media sites can reveal how users understand and conceptualize NSSI. Specifically, social media sites that use hashtags (e.g., Twitter, Instagram) allow researchers to examine the associations that users make between NSSI and other psychological constructs, thus, ultimately, uncovering what individuals associate with or connect to their NSSI behavior. Although significant correlations exist between NSSI and a variety of psychological conditions (Cunningham et al., 2019; Lin et al., 2018; Ludtke et al., 2018; O'Loughlin et al., 2020), it is important to investigate the associations between NSSI and psychological constructs made by social media users themselves.

The Present Study

The purpose of the current study was to investigate psychologically-relevant hashtags that Instagram users chose to associate with NSSI hashtags. Thus, the study allows for the identification of psychological constructs that Instagram users themselves consider relevant to NSSI. Specifically, we investigated the frequency with which Instagram users associated five commonly used NSSI hashtags (#cutting, #selfharm, #selfharmmm, #hatemyself, and #selfharmawareness) with hashtags with psychological relevance (e.g., #depressed, #wanttodie, #socialanxiety, #anorexia, #borderline) predetermined by a review of NSSI literature. We investigated hashtag frequencies and usage trends over time. We sought to answer the following research questions: (a) To what extent do Instagram users associate NSSI hashtags with psychologically-relevant hashtags?; and (b) What are the usage trends of NSSI related hashtags over a 12-month period?

Materials and Methods

To answer our research questions, we utilized a descriptive research design. More specifically, we attempted to describe the frequency of Instagram users' hashtag usage related to NSSI and predetermined psychological constructs (e.g., depression, suicide, eating disorders). By categorizing psychologically-relevant hashtags associated with five popular NSSI hashtags (#cutting, #selfharm, #selfharmmm, #hatemyself, and #selfharmawareness) and noting the frequency of their use, we are able to better understand constructs commonly associated with NSSI among Instagram users. We selected Instagram as our social media platform given its popularity among young people (37.1% of Instagram users are under the age of 25; Statista, 2021), the ability to search by hashtags, the use of images, video, and text to depict NSSI related content, and the increasing exploration of Instagram in NSSI literature (Arendt et al., 2019; Brown et al., 2018; Moreno et al., 2016). Our inclusion criteria for Instagram posts required use of the English language and one or more of the five identified NSSI hashtags. Given that English is spoken in many countries, it is probable that the Instagram accounts were from both the United States and international countries, although this is speculative. We did not access Instagram user data as it cannot be verified for accuracy, therefore we do not have information related to the Instagram users themselves (e.g., age, race, gender, geographic location). Instead, we focused on the associations between hashtags to better understand how Instagram users conceptualize NSSI.

Procedure

To collect NSSI-related posts on Instagram, we first developed a web-based crawling and data analysis system using algorithms and machine learning. We developed this system using Instagram's hashtag search Application Programming Interface (API), which allows computer programs to search and download Instagram posts containing specific hashtags. The system found user posts on Instagram with five commonly used NSSI hashtags: #cutting, #selfharm, #selfharmmm, #hatemyself, and #selfharmawareness. We selected these hashtags by consulting NSSI literature (e.g., Brown et al., 2018; Moreno et al., 2015) to determine the first two (#cutting, #selfharm) and, after searching Instagram posts with the first two keywords, we added three more hashtags that we found to be most frequently used with a sample of NSSI-related content (#selfharmmm, #hatemyself, #selfharmawareness). The computer system performed a variety of analyses of user posts including identifying and collecting associated hashtags and analyzing hashtag relationships. Figure 1 illustrates the architecture and workflow of the NSSI content crawling and analysis system. This system was composed of five components: (a) NSSI search agent, (b) cloud storage, (c) content analyzer, (d) NSSI database, and (e) content visualizer.

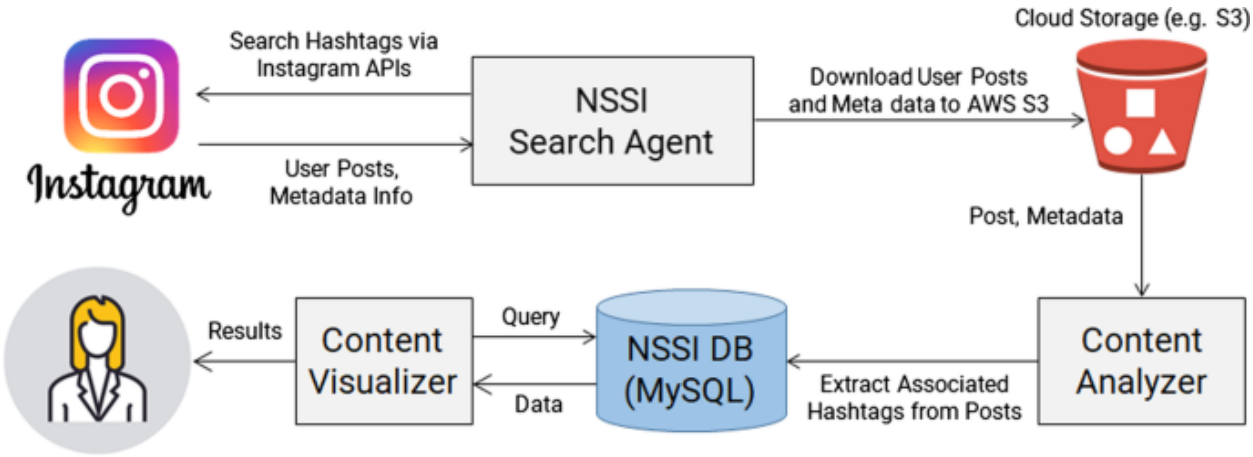

Fig. 1. Architecture and Workflow of Web-based Content Crawler and Analyzer for NSSI posts on Instagram

The search agent found NSSI-related posts on Instagram. We used the five common hashtags as seed keywords for the search operation and the agent found NSSI-related hashtags via Instagram's Hashtag Search API (Instagram, 2019). The search results typically contain user posts, metadata, and multimedia files (e.g., user generated images and videos). For this study, we utilized Instagram users' posts and metadata. The users' posts included captions written by the Instagram user, which typically contained additional hashtags. The metadata was a form of JavaScript Object Notation (JSON) file and included information associated with each users' post, such as time of upload, user information, comment counts and context, and like counts. We downloaded the users' posts and metadata found by the NSSI search agent to cloud storage. Specifically, we utilized Amazon Web Services S3 (AWS, 2019) to store and manage the posts and metadata. The content analyzer parsed both the captions from users' posts and metadata, extracted primary information (e.g., associated hashtags), and stored them in the NSSI database.

For the NSSI database, we used MySQL version 5.7.18 installed on Ubuntu 18.04 LTS Linux OS. We then applied the NSSI visualizer, which generated hashtag trend graphs and hashtag connections and relationships by analyzing data in the NSSI database.

Categorizing Associated Hashtags

Using the crawling and data analysis system, we downloaded Instagram posts related to the five NSSI hashtags uploaded between January 2018 and March 2019. Specifically, we downloaded a total of 1,217,208 posts: 655,030 posts using #cutting (uploaded by 141,463 unique users), 366,813 posts using #selfharm (uploaded by 43,871 unique users), 97,077 posts using #selfharmmm (uploaded by 8,320 unique users), 74,376 posts using #hatemyself (uploaded by 12,234 unique users), and 23,912 posts using #selfharmawareness (uploaded by 4,653 unique users).

Each NSSI hashtag was associated with multiple additional hashtags, some of which represented psychological constructs. As a result of an extensive review of NSSI literature (Wester & Trepal, 2017; Wester et al., 2018; Claes et al., 2015; Forbes et al., 2019; Hessels et al., 2018; Miguel et al., 2017; Monto et al., 2018; O'Loughlin et al., 2020; Turner et al., 2015), three researchers with advanced experience and training in counseling and NSSI developed the following six categories for associated psychologically-relevant hashtags including: suicide (e.g., #suicidalthoughts, #killmyself, #wanttodie), depression (e.g., #depressed, #depressedgirl, #depressedteen), eating disorders (e.g., #anorexia, #bulimia, #ed), anxiety/panic (e.g., #socialanxiety, #panicattacks, #anxietydisorder), borderline personality disorder (e.g., #bpdproblems, #borderline, #bpd), and addiction (e.g., #relapse, #weed, #drugs). After reviewing the hashtags associated with two out of five of our NSSI hashtags (i.e., #cutting and #selfharm), we identified additional psychologically-relevant associated hashtags that did not fit into our predetermined categories. Therefore, we added two more categories: general mental distress and illness (#mentalillness, #mentaldisorder, #mentallyill) and other specific mental illnesses (e.g., #ptsd, #ocd, #schizophrenia). Additionally, Instagram posts typically included more than one hashtag to represent self-injury (e.g., #secretsociety123, #selfinjury, #selfharmscars), thus, we identified a ninth category for associated hashtags representing self-injury. The process of creating predetermined categories and adding additional categories from the data collection is similar to the procedures used by Pritchard et al. (2021).

Once we collected the Instagram posts associated with five commonly-used NSSI hashtags (which took approximately one week), two members of the research team independently reviewed all associated hashtags and assigned those with psychological relevance to one of the nine pre-determined categories (i.e., suicide, depression, eating disorders, anxiety/panic, borderline personality disorder, addiction, general mental distress, other specific mental illnesses, and self-injury). These two research team members were a counselor educator and an advanced doctoral student in a counselor education and supervision program. Both team members had educational, research, and clinical experience in NSSI and were familiar with related constructs. The percentage of agreement between the two reviewers' independent categorizations of the five NSSI hashtags were: 88.9% for #cutting, 93.2% for #selfharm, 95% for #selfharmmm, 94.6% for #hatemyself, and 100% for #selfharmawareness. The researchers reviewed their findings and discussed any discrepancies in their assignments until they reached consensus for categorization.

Analytic Plan

By analyzing both metadata and users' posts, we identified hashtags used in both captions and comments of NSSI Instagram posts, as well as the time the post was uploaded to Instagram. To answer our first research question, we assessed the frequencies of associations between five commonly used NSSI hashtags on Instagram (#cutting, #selfharm, #selfharmmm, #hatemyself, and #selfharmawareness) with nine categories of psychological hashtags (suicide, depression, eating disorders, anxiety/panic, borderline personality disorder, addiction, general mental distress, other specific mental illnesses, and self-injury). Each psychological category was comprised of numerous hashtags related to that particular construct. After obtaining frequency counts, we determined the percentage of hashtags represented within the nine psychological categories for each of the five NSSI hashtags. It is worth noting that captions in users' posts often contained multiple associated hashtags. For example, if a post associated with the hashtag #selfharmmm had a caption containing the hashtags #iwanttodie and #depressedgirl, the post was counted within both the suicide and depression psychological categories.

To answer the second research question, we quantified the trends of Instagram users' posts with the five NSSI hashtags over a 12-month period. Specifically, we analyzed the extent to which each hashtag was used by assessing frequency counts. Using metadata for the posts, we calculated the frequency of the five hashtags posted on Instagram within each month of 2018 and assessed increases or decreases in usage.

Results

We used a frequency assessment to answer the first research question examining the extent to which Instagram users associate NSSI hashtags with psychologically-relevant hashtags. The results of our frequency assessment are found in Table 1. Overall, #cutting was most associated with hashtags related to suicide (29.4%), followed by depression (27.1%), self-injury (16.3%), and eating disorders (8.7%). The hashtag #selfharm was most associated with suicide (25.4%), then depression (25.2%), self-injury (13.1%), and general mental distress (9.5%). The hashtag #selfharmmm was most associated with depression (24.8%), followed by suicide (23.4%), self-injury (18.6%), and eating disorders (12.2%). The hashtag #hatemyself was most associated with suicide (32.1%), then depression (31.6%), self-injury (19.9%), and anxiety/panic (6.7%). Finally, the hashtag #selfharmawarness was most associated with general mental distress (31.6%), depression (18.2%), suicide (13.6%), and anxiety/panic (10.5%). The results indicated that Instagram users conceptualize associations between NSSI and psychological factors including suicide, depression, general mental distress, anxiety/panic, and eating disorders. To a lesser extent, Instagram users associate NSSI with other specific mental illnesses, borderline personality disorder, and addiction.

Table 1. Frequency and Percentages of Associated Psychological Hashtag Categories

NSSI Hashtag	Suic. n(%)	Dep	ED	Anx/Pan	BPD	GMD	OMI	Addic	S-Inj
#cutting	416,732 (29.4%)	383,954 (27.1%)	123,004 (8.7%)	117,547 (8.3%)	16,583 (1.2%)	64,789 (4.6%)	34,071 (2.4%)	28,809 (2.0%)	231,253 (16.3%)
#selfharm	704,470 (25.4%)	699,675 (25.2%)	200,472 (7.2%)	250,975 (9.0%)	74,671 (2.7%)	262,747 (9.5%)	122,135 (4.4%)	96, 028 (3.5%)	364,956 (13.1%)
#selfharmmm	203,691 (23.4%)	216,170 (24.8%)	106,057 (12.2%)	66,750 (7.7%)	11,390 (1.3%)	47,276 (5.4%)	38,521 (4.4%)	18,512 (2.1%)	161,685 (18.6%)
#hatemyself	112,025 (32.1%)	110,122 (31.6%)	16,525 (4.7%)	23,232 (6.7%)	3,692 (1.1%)	8,878 (2.5%)	3,527 (1.0%)	1,159 (.3%)	69,551 (19.9%)
#selfharmawarness	22,426 (13.6%)	29,923 (18.2%)	3,595 (2.2%)	17,341 (10.5%)	4,303 (2.6%)	52,037 (31.6%)	11,028 (6.7%)	7,017 (4.3%)	16,865 (10.3%)

Note. Frequency counts and percentages of associated hashtags; numbers are larger than collected posts given that each post contained multiple hashtags
Suic: Suicide; *Dep*: Depression; *ED*: Eating Disorders; *Anx/Pan*: Anxiety/Panic; *BPD*: Borderline Personality Disorder; *GMD*: General Mental Distress; *OMD*: Other Mental Illnesses; *Addic*: Addiction; *S-Inj*: Self-Injury

Trends in Hashtag Use Over Time

We calculated the monthly use of each of the five NSSI hashtags over the 12 months of 2018. Figure 2 illustrates the trend of Instagram user posts from January to December 2018. Three out of five hashtags (#selfharm, #hatemyself, and #selfharmawareness) demonstrated increasing patterns in their post frequency, suggesting that these three hashtags are becoming more popular among Instagram users. We identified the largest number of posts with the #cutting hashtag, which was relatively stable over time. Only the #selfharmmm hashtag demonstrated a decreasing pattern beginning in June 2018, indicating that this particular hashtag may be declining in its use on Instagram.

Figure 3 depicts the posting trend of an amalgamation of the five hashtags. The graph clearly shows an increasing trend over time. We found between 58,000 to 68,000 NSSI posts in January and February of 2018, but the number of posts increased to 112,000 in December 2018. This trend implies that NSSI-related posts are becoming more popular on Instagram. Moreover, the increasing trend shown in Fig. 3 may indicate a seasonal pattern; therefore, researchers should consider conducting longitudinal studies with multiple years to investigate repeating patterns with NSSI hashtags keywords.

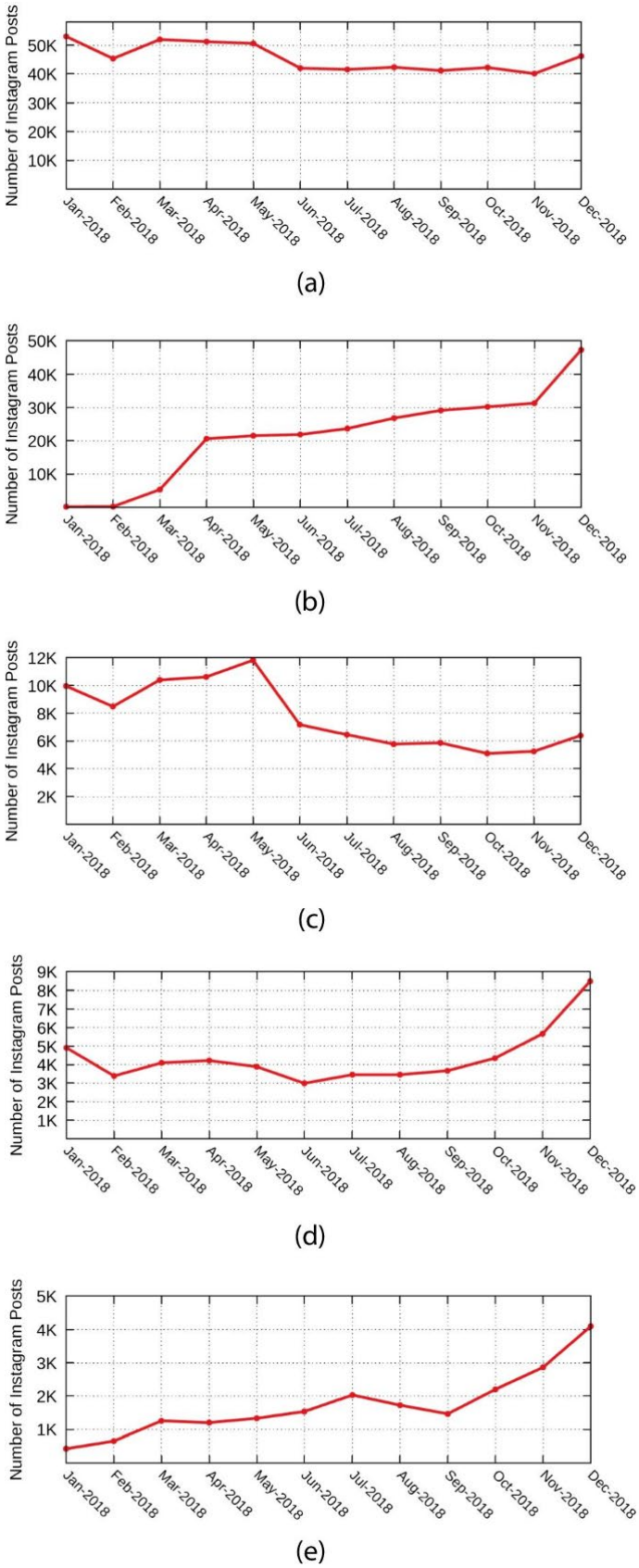

Fig. 2. The trend of User Posts on Instagram Regarding Five NSSI Hashtags

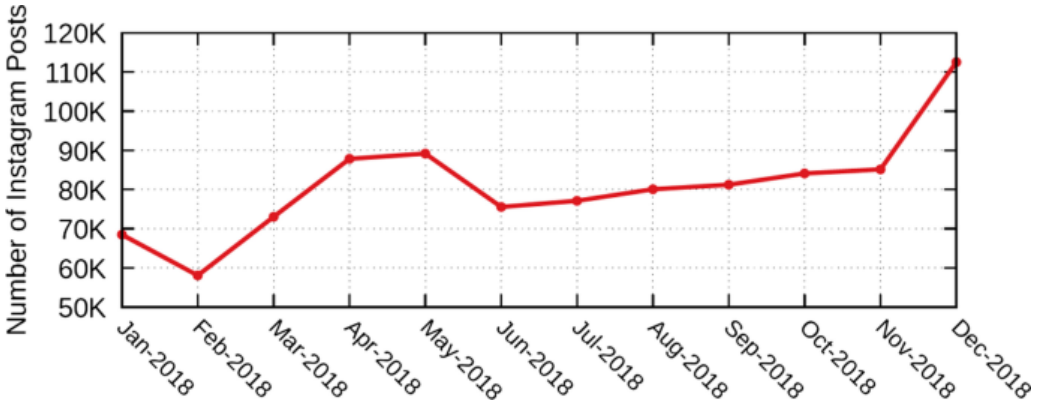

Fig. 3. The trend of all NSSI hashtags in Instagram user posts

Discussion

Our study findings revealed that the use of NSSI hashtags on Instagram is increasing, which suggests more potential exposure to NSSI content by social media users. This finding is congruent with the results of Nesi et al. (2021), who found that among youth who engaged in self-injury activities online, 74.8% used social networking sites. The potential exposure to NSSI content online has relevance for counselors, particularly clinicians who work with youth and/or clients who self-injure. For example, non-NSSI engaging youth may be exposed to NSSI content on social media and develop curiosity therein. Indeed, in their review of the literature, Memon et al. (2018) suggested that exposure to self-harm online may lead to the normalization and emulation of the behavior. In fact, among those who were exposed to self-injury on Instagram, 32% disclosed engaging in the same NSSI behavior (Arendt et al., 2019). Additionally, among individuals with histories of NSSI, social media exposure to NSSI-related content may prove to be triggering and lead to cravings to self-injure. Lewis and Michal (2016) found that among individuals who stopped participating in NSSI e-communities, one reason for the cessation was the triggering, graphic nature of NSSI content.

While the overall usage of NSSI hashtags is important to observe, the stable use of #cutting makes sense given that cutting is consistently one of the most frequently used methods of self-harm across many studies and various populations (Wester & Trepal, 2017; Franzke et al., 2015; Scherr et al., 2020). Additionally, the increase throughout the calendar year of #hatemyself speaks to Instagram users' self-perceptions, which is valuable information for clinicians who work with clients with NSSI. Assessing clients' self-worth and core beliefs related to the self may be useful strategies in counseling practice.

The associations between NSSI hashtags in the current study and psychological constructs also confirms previous research. In the analysis of posts related to NSSI on TalkLife, Pritchard et al. (2021) determined the most common codes for posts were suicidal ideation or behavior (one code), followed by hopelessness or difficult emotions (one code). The findings of the current study are congruent with these results given that the two most commonly associated hashtags were related to suicide and depression. In light of the relationship between NSSI and suicide (Wester et al., 2018; Hamza et al., 2012) and NSSI and depression (Line et al., 2018), the results of the current study are not surprising. What is interesting, however, is that these associations

were made by the Instagram users themselves, rather than discovered through empirical investigations in which researchers present the constructs to participants. By investigating the Instagram users' own hashtags, we were able to identify how these users make associations between NSSI and other psychological constructs. In the same way, our findings support previous empirical links between NSSI and anxiety (Wester et al., 2018), general distress (Whitlock et al., 2014), and eating disorders (Claes et al., 2015), yet these associations were made by the Instagram users themselves, suggesting that the users are aware of and agree with these associations.

Implications for Counselors

NSSI is a prevalent concern among clients seeking counseling services (Giordano et al., 2020). As such, counselors should be prepared to address NSSI effectively, and one aspect of counseling may include discussing the clients' use of social media to view, share, or comment on NSSI-related content (importantly, this should be a discussion in session rather than communicating with clients via social media; see the American Counseling Association *Code of Ethics*, [2014, H.6.c]). For example, clients may share their own photos of self-injury for a variety of reasons, such as seeking support, attempting to find belonging with others who self-harm, or eliciting reasons to stop. Clients may choose to view others' NSSI images on social media out of curiosity, identifying with others who self-injure, or to learn from others who engage in NSSI. Determining the function of engaging with NSSI content on social media can help counselors determine the purpose or goal of the behavior, which, from an Adlerian theoretical lens (i.e., teleology), can assist counselors in identifying the clients' private logic, goal of superiority, and life-style (Ansbacher & Ansbacher, 1956; Sweeney, 2019).

Exposure to NSSI content on social media may normalize or trigger urges for the behavior, thereby eliciting more self-injury among individuals who view the posts and images. By inquiring about social media usage as it relates to NSSI content, counselors can work with clients to adjust or discontinue certain social networking behaviors (e.g., temporarily discontinue social media use, blocking particular sites). Indeed, many forms of clinical treatment for NSSI (e.g., dialectical behavior therapy [Choate, 2012; Linehan, 1993], treatment for self-injurious behavior [T-SIB; Andover et al., 2015]) include an exploration of triggers and reinforcement of NSSI. Online NSSI-content may trigger individuals' engagement in NSSI and the acquisition of likes and comments on social media may serve as reinforcement. However, the connections between NSSI and social media use are relatively new and counselors may not be aware of how clients can use social media to view and share NSSI content. Indeed, 35.1% of licensed counselors reported never asking their clients who engage in NSSI about their internet and social media usage (Giordano et al., 2020). To neglect the discussion of online NSSI activity with clients may lead to incomplete treatment plans or ineffective interventions, thus it is important to assess with all clients who self-injure.

Suggestions for Future Research

The findings of the current study reveal that Instagram users frequently associate NSSI hashtags with psychological constructs such as suicide, depression, anxiety/panic, eating disorders, and general mental distress. Future researchers can focus on the type of NSSI content posted with the

NSSI hashtag in relation to specific psychological constructs. For example, researchers could identify correlations between the content of the Instagram post (e.g., a picture of a wound, a sad drawing, a meme, or an object that could be used for NSSI) and various psychological constructs (e.g., depression, eating disorders, suicide). Assessing the severity of the NSSI content (mild, moderate, or severe) could help lead to the identification of Instagram users who may benefit from messages from the platform servers with information for mental health resources and hotlines. Additionally, although Instagram is popular among youth, several additional social media platforms exist and future researchers can explore the prevalence of NSSI and associated psychological hashtags on SnapChat, TikTok, and other social networking sites. Finally, a qualitative study of adolescents who self-injure to explore the function and effects of NSSI online activity can help clinicians stay informed about the purpose of viewing and sharing NSSI content online.

Limitations

While our findings align with existing research (Wester et al., 2018; Nesi et al., 2021; Pritchard et al., 2021; Whitlock et al., 2014), the limitations of this study need to be noted. First, while we obtained data from 1,217,208 posts, they came from only one social media platform (Instagram) across one point in time. Thus, additional information or alternative hashtags may be found on other social media platforms. Additionally, only hashtags were examined in the current study, not the content of the pictures, videos, or text provided by individuals. We did not assess whether the content of the post was a depiction of a wound or scar, an object used to self-injure, or something completely different. However, exploring hashtags is important given the ease of searching for NSSI posts that hashtags can provide within social media. Moreover, we did not collect data on the demographics of the Instagram users themselves, thus we are unable to link the findings to particular ages, genders, races, ethnicities, or geographic regions. Finally, caution should be taken in light of the self-reported nature of hashtags. Historically, individuals who self-injure have not been able to accurately connect or report on the process that influences their behavior (Wilson, 2009). The use of an NSSI hashtag does not equate to NSSI behavior.

Conclusion

By downloading and examining 1,217,208 posts on Instagram associated with one of five popular NSSI hashtags (#cutting, #selfharm, #selfharmmm, #hatemyself, and #selfharmawareness), we were able to identify the most commonly associated psychological constructs. Specifically, Instagram users with posts including an NSSI hashtag most frequently used associated hashtags related to suicide, depression, general mental distress, anxiety/panic, and eating disorders. To a lesser extent, users with NSSI hashtag posts associated hashtags related to other specific mental illnesses, borderline personality disorder, and addiction. Thus, Instagram users themselves often associate NSSI with psychological constructs such as suicide and depression. Additionally, we found hashtag usage increased over a 12-month period, suggesting that of the risk of NSSI exposure may be increasing among social media users. Counselors should be prepared to assess clients' NSSI online activity as part of clinical treatment to identify potential triggers and reinforcements. Moreover, when working with clients who self-injure, counselors can assess frequently associated constructs such as suicide, depression, eating disorders, and anxiety.

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