Sensitive Self-disclosures, Responses, and Social Support on Instagram: The Case of #Depression

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ABSTRACT

People can benefit from disclosing negative emotions or stigmatized facets of their identities, and psychologists have noted that imagery can be an effective medium for expressing difficult emotions. Social network sites like Instagram offer unprecedented opportunity for image-based sharing. In this paper, we investigate sensitive self-disclosures on Instagram and the responses they attract. We use visual and textual qualitative content analysis and statistical methods to analyze self-disclosures, associated comments, and relationships between them. We find that people use Instagram to engage in social exchange and story-telling about difficult experiences. We find considerable evidence of social support, a sense of community, and little aggression or support for harmful or pro-disease behaviors. Finally, we report on factors that influence engagement and the type of comments these disclosures attract. Personal narratives, food and beverage, references to illness, and self-appearance concerns are more likely to attract positive social support. Posts seeking support attract significantly more comments. CAUTION: This paper includes some detailed examples of content about eating disorders and self-injury illnesses.

Author Keywords

Self-disclosure; emotions; depression; mental illness; eating disorder; self-harm; suicide; stigma; content analysis; mixed methods; photo sharing; social media; Instagram

ACM Classification Keywords

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous

INTRODUCTION

The photo shows a long shot of a woman's legs. She is naked, sitting in a bath. Her face and torso are outside of the frame,

but her legs give the impression of youth, not age. The legs are covered with cuts—self-inflicted lacerations that look swollen and painful. The next image portrays a woman's frighteningly emaciated frame and is adorned with a comment thread full of complements. Next is a mirror selfie of an anorexic teenager in the very privacy of her bedroom, with text stating how ugly and unlovable she thinks she is. A young person looks down from the top of a tall building, suggesting suicidal thoughts. These are descriptions of some Instagram posts that may reflect experiences that are often not easy to disclose.

All humans experience negative emotions and difficult or stigmatized experiences. From relationship breakups and interpersonal strife, to illnesses, sexism, racism, loss of employment, and traumas like sexual assault and bereavement, people encounter distress throughout their lives. Expressing both the experience of such events and the associated negative emotions can be beneficial due to factors such as the social support or potential relief associated with getting something off of one's chest that may follow [59]; however, they can also be socially risky.

Sharing negative emotions is not a common phenomenon in most social networking sites (SNSs). "Positivity bias" refers to the notion that SNSs often favor positive expressions over negative ones [62]. For example, research suggests that Facebook is viewed as a place to share positive news and information more than a place to disclose negative emotions or experiences [81]. Facebook users with low self-esteem are particularly prone to low positivity and high negativity disclosures, which often garners undesirable responses from their networks [27]. This phenomenon exists offline as well [9]; it is not uncommon for people who disclose a history of abortion [49], sexual assault [80], or who express pain as they grieve for a deceased person [10] to report social rejection. The social risks associated with negative disclosures are real, and if people expose themselves to such risk at particularly vulnerable moments, they likely expect some important benefits from doing so. Finding social support is critical, and by sharing negative experiences and emotions, people signal this need to others.

We are particularly interested in understanding the role that imagery plays in online sharing of negative emotions, stigmatized experiences, or those that make people feel vulnerable. In this paper we call these "sensitive disclosures." Psychologists suggest that people can use visual imagery to express feelings and experiences that they may struggle to express verbally, and some use photos in treating patients [77]. Recently, image-based SNSs (e.g., Pinterest, Instagram) have been among the fastest-growing [47], and as of 2013, over half of U.S. adults posted images online [23]. Many sites that are not primarily image-based also allow posting images alongside other media.

In this study, we investigate how image sharing on Instagram facilitates disclosing negative emotions, psychological vulnerabilities, or stigmatized experiences, and the potential for such sharing to precipitate supportive interactions. We chose Instagram as our platform for this study primarily because it is image-based, and allows an almost instant sharing experience. It is also the fastest growing SNS at the time of the study, and is heavily used [47]. Instagram is a mobile application that allows users to upload photos, tagging themselves or other users in photos, add captions and keyword tags, like posts (i.e., combination of photos and captions), and insert comments. Features such as private messaging were added later, but are not of interest in this study. Prior research [74] suggests that people use Instagram for surveillance, documentation, coolness, and creativity. What other ways might people be using the site? To the best of our knowledge, our study is the first to analyze images and text together to investigate sensitive self-disclosures, interactions around them, and nuances of social support on Instagram, which contributes to understandings of self-disclosure and social support more broadly.

In this paper, we ask: **What kinds of sensitive disclosures do people make on Instagram and how do others respond?** We take an artifact-centric approach and use visual and textual qualitative content analysis and statistical tests to understand how people use Instagram to make sensitive disclosures and the kinds of responses these disclosures attract.

RELATED WORK
Self-disclosure
Literature on self-disclosure is rife with competing definitions. Some define any communication such as laughing at a joke or fashion choices as self-disclosure, even if information is given off involuntarily [35]. Others such as Jourard and Joinson suggest that self-disclosure is intentional [35], and is a method to regulate interactions, rather than just the outcome of an interaction [37]. We adopt Jourard and Joinson's views on self-disclosure as intentional and ongoing.

Social psychology and communication scholars have proposed models that explain how or why people choose to disclose things about themselves (e.g., [15,34,55]). Omarzu's model is one of the most notable; she identifies

three interpersonal disclosure goals (social approval, intimacy, social control) and two intrinsic goals (identity clarification and distress relief). Omarzu also suggests two interpersonal risks (social rejection and hurt feelings) and two impression management-based risks (reduction of integrity and loss of control for self-disclosure) [55]. Using interview data from graduate students about their disclosure practices on Facebook, Vitak and Kim [81] built on Omarzu's model, adding a new disclosure goal of "personal record." The new goal focuses on intrinsic rewards and is concerned with the desire to keep an online diary of events in one's life and thus carries significant emotional load to some. Bazarova and Choi demonstrated that on Facebook, social validation goals were more prominent in public posts compared to private messaging and directed wall posts [7].

Valence of self-disclosures has been studied on social media as well. For example, Facebook users' ratio of positive to negative disclosures has been found to be higher on Facebook than offline [61] and language in Facebook status updates is more positive than negative [41]. Positive emotions are expressed both in public and private spaces on Facebook, while negative emotions and events are mostly shared through private channels on the site [8]. Bazarova et al. [8] suggest that intimate public updates (versus private) are perceived as inappropriate and lead to less liking of the poster. Bragh et al. [5] suggest that lack of a shared social network online might allow people to safely reveal negative aspects of the self.

Health, Self-disclosure and Social Media
In this study, we are interested in disclosures about vulnerable, stigmatized, and negative experiences. Online social platforms are widely used for health-related discussions [28] and can be useful resources for those seeking help and support with mental health concerns (e.g., [57]). Research suggests that online health support group members benefit from information and support exchange [26,30,71]. In the context of SNSs, social support can be a motivator for use [43,67] as well as an outcome [33]. Still, some scholars and mental health professionals have expressed concern that online pro-anorexic or self-harm forums can undermine recovery, encouraging harmful behaviors by validating pro-disease views and identities through online disclosures and exchanges of support [36].

A growing body of work applies computational techniques to infer mental health conditions from social media data. For example, De Choudhury et al. [18,20] used Twitter and Facebook data to detect and predict postpartum depression, using online behavioral signals (e.g., affect, social capital, linguistic style, and measures of social interactions) and identified women at risk. Research suggests that decrease in social activity, heightened social and medicinal concerns, increased negative affect, clustered ego-networks, and greater expression of religious involvement are social media signals that may characterize the onset of depression [19]. Specific to disclosure, Balani and De Choudhury [4]

developed a classifier that characterizes a mental health-related post on reddit to be of high, low, or no self-disclosure level.

Others have used content analysis to understand the type of content shared in online support groups [17,25,60], for example by identifying messages as empathic, non-empathic, questions, answers, and disclosures [51,69]. A content analysis of Sharp-talk, an online forum for young people who engage in self-harm, found that people tend to offer advice that was not asked for [75]. Seko [73] discussed self-harm photographs on Flickr as a kind of identity performance, where the self-harmed body becomes a site of intersecting discourses. Discourse features of messages posted to discussion forums about depression have been found to be problem messages, advice messages and thanks messages [53]. Others have analyzed social media content and responses. For example, Kirvan-Swaine et al. [39] analyzed lonely tweets and responses to them and found that these tweets were about the temporal bounding of loneliness (enduring vs. transient), the inclusion of context (social, physical, romantic, and/or somatic), and explicit interactivity (e.g., requesting engagement).

Social Sharing of Emotions

Bernard Rimé's framework *social sharing of emotion as meaning creation* casts online disclosures as a process of meaning making. By communicating significant emotional experiences or triggering events to others using a socially shared language [64,65], people can make sense of these experiences [66]. Rimé asserts that negative emotional states have three qualities with respect to disclosure: they need cognitive work, stimulate social exchange, and activate the attachment system [64] as described below:

Cognitive work: After a negative emotional experience, people engage in information seeking [79].

Social Exchange – Social Comparison: People are motivated to assess their thoughts, and to do that, they sometimes compare them with those around them [24].

Social Exchange – Social Contact: Emotional experiences make people want to seek social contact, search for emotional support, and turn to their attachment figures to reduce distress, garner emotional support, legitimization and validation, and advice [70].

Social Exchange – Narration: Negative emotional experiences stimulate the production of narratives and stories [64]. The Disclosure Processes Model considers depth, breadth and emotional content as dimensions of the disclosure content [15]. Disclosures with high breadth and depth may occur through story-telling [3].

Social Exchange – Conversation: Theory of Social Representations [54] suggests that social thinking changes unfamiliar objects or events into social representations through conversations. Rimé [64] suggests that the theory of social representations implies that emotions stimulate conversation in social life.

Attachment System: People seek contact with others at times of uncertainty and distress [76].

The above literature on social sharing of emotions leads us to ask whether Instagram is being used as a space for sensitive psychological self-disclosures, and if so, what those disclosures are about. To identify posts that contain such disclosures, we used the tag #depression. *Depression* is a common term that is used both colloquially and clinically. Clinical depression is a common experience and a major cause of disability [38] and often accompanies negative feelings and other health conditions (e.g., eating disorders, self-harm) [12,40]. Our goal was not to identify a population experiencing clinical depression, but to identify posts likely to include expressions of negative, stigmatized, or vulnerable experiences or feelings. We detail data collection methods and rationale in the methods section.

Our first question was designed in part to assess the validity of the term #depression as a proxy for sensitive disclosures:

RQ1. What information do people disclose about themselves through depression-tagged Instagram posts?

Because we were interested in understanding how and if people use images and captions to communicate about different topics, our second question was designed to explore relationships between text and visual elements of posts.

RQ2. How do individual captions and images relate to each other in terms of their topics?

Self-disclosure – Responses and Outcomes

Once disclosures are made, what happens next? Audience response to disclosures and the impacts of those responses are critical to understand. Goffman states that people need "*sympathetic others*": those sharing the same social stigma, and having had similar experiences, "share with him the feeling that he is human and 'essentially' normal in spite of appearances and in spite of his own self doubt" [29:31].

Magsamen-Conrad reviewed multiple self-disclosure frameworks and suggested that potential disclosers may anticipate a *response* and an *outcome*. Anticipated response is what people think might happen during the disclosure, for example, emotional reactions, support, or avoidance. Anticipated outcome is what people think might happen following the initial response as a result of disclosure, such as catharsis, revenge, or a changed relationship between the discloser and recipient of the disclosure [48].

In terms of *responses*, reciprocity is one of the most consistent findings in laboratory self-disclosure studies—people respond to disclosures with more disclosures [45]. Two perspectives could explain the reciprocity phenomena: From a social exchange perspective, when someone discloses something about themselves, an imbalance is created that needs to be rectified, so listeners disclose something to reciprocate. Alternately, reciprocity could be a function of modeling [68]: in situations where people are not

clear about the norms, they look to each other for cues about expected response. Perceived partner responsiveness has been found to mediate the effect of self-disclosure and reciprocity on intimacy [45]. The conditions under which reciprocities take place in online spaces in response to self-disclosures is an area that remains understudied.

One potential and important *outcome* of disclosure is social support. The Social Support Behavioral Code (SSBC) developed by Cutrona [16] is a classic and the most nuanced categorization schema on social support and we employ it in this paper. SSBC evaluates the frequency of occurrence of 23 communication behaviors intended to be supportive in five categories: "*informational support* (providing information about the stress event itself or how to cope), *instrumental* or *tangible support* (providing or offering goods or services needed in the stressful situation), *emotional support* (communicating love or caring), *network support* (communicating belonging to a group with similar concerns), and *esteem support* (communicating respect and confidence in abilities)" [20: 159]. The inclusion of network support in this schema makes it particularly suitable to explore if there is a perceived group identity or sense of community among people whose posts we analyze. Esteem support is also particularly relevant to include because of the potential need for validation and self-esteem that people in vulnerable situations may have.

Benefits of social support include psychological adjustment, improved efficacy, better coping with distressing events, resistance and recovery from illness, and reduced mortality [50]. These benefits lead us to ask:

RQ3. What types of responses do depression-tagged Instagram posts attract?

RQ4. In what ways do different types of depression-tagged Instagram posts attract more supportive/unsupportive responses than others?

In particular, we ask the following sub-questions:

RQ 4.1 What types of posts attract more comments and likes?

RQ 4.2 What types of posts attract positive social support in their comment space? Do different types of posts attract different types of positive social support?

RQ 4.3 What types of posts attract comments supportive of harmful behavior?

RQ 4.4 What types of posts attract comments unsupportive of harmful behavior?

DATA, METHODS, AND STUDY DESIGN

To answer our research questions, we conducted a three-phase study: Phase I establishes the content of depression-tagged posts on Instagram; Phase II investigates the kinds of responses these posts attract; and Phase III examines relationships between the kinds of posts and the kinds of responses they attract.

Data Collection

Post collection. All three phases of research use 95,046 depression-tagged photos posted by 24,920 unique users over one month (July 2014), collected using Instagram's API. Each photo's URL was stored together with a unique ID, number of likes and comments, date/time of creation, and tags. The images were separated into 24 bins representing activity by hour of the day. The average number of images per hour was 3,960. Because it is impossible to qualitatively analyze 95,046 posts, we sampled ~20% of an average hour of traffic (=800 posts) by randomly choosing posts from each hour-bin in proportion to the total number of posts in that hour-bin. This ensured that our sample included proportionately more posts from hours with more activity. The sample that we analyzed included 788 images and captions after removing 12 foreign language and spam posts.

Post collection rationale. We used #depression as a proxy for sensitive disclosures – those that make people feel vulnerable such as negative or stigmatized experiences. This approach is validated in previous literature. Recent work [22] suggests that the use of the word "depression" increases one's chance of posting about suicide in the future. 90% of the posts we collected were tagged with other terms mostly related to mental health, negative feelings, and other sensitive or stigmatized contexts in addition to depression. As shown in Figure 1, these other tags are often times about negative feelings, disclosures of which are stigmatized: self-harm, suicidal tendencies, eating disorders, etc. The 100 most frequent tags co-occurring with #depression are shown in Figure 1, with #demons appearing 20 times (minimum frequency) and #depressed appearing 422 times (maximum frequency). The mean number of tags per image in the larger dataset was 21 (minimum = 1, maximum = 59). In our sample, the mean number of tags was 15 (minimum = 1, maximum = 30). Finally, prior work suggests that if someone is using a tag such as #depression [14] to express the types of disclosures we aim to investigate, they are likely to also use other related tags (e.g., #suicide, #anxiety, #broken) or lexical variants (e.g., #depressed) as is the case in our data.
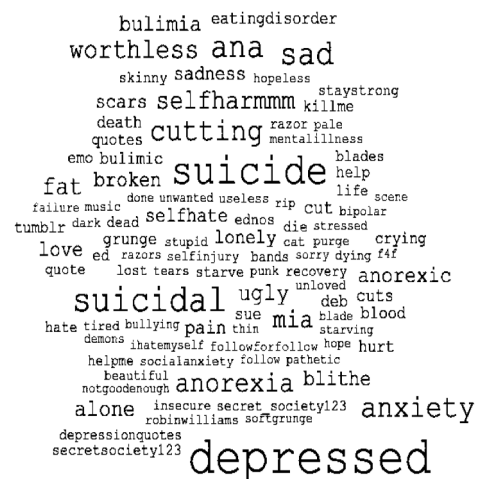

Figure 1. Top 100 hashtags co-occurring with #depression.

Figure 2. Examples of images in the data.

As illustrated later by our analysis, the content associated with these posts also reflected similar topics.

Post content verification. Similar to other researchers (e.g., [22]), we also consulted a practicing clinical psychiatrist to further confirm that the data obtained through #depression is indeed related to expressions that make people vulnerable, are stigmatized, or are difficult to disclose. We asked her to examine a random sample of 100 Instagram posts (images and captions) tagged with #depression and tell us what she saw. She identified themes related to depressive states, negative feelings, suicide ideation, seeking hope, disintegrating and mental suffering, seeking help, mood disorders, eating disorders, seeking relief by self-harm, and ongoing transient states of self-hate in borderline personality traits. Note that the results of this expert consultation do not mean that people who share these posts are clinically depressed. This additional step provided us with more qualitative grounding that our data collection strategy is suitable for this study in the sense that the posts analyzed are about things that people find difficult to disclose, make them psychologically vulnerable, or are stigmatized.

Comment collection. In order to investigate interactions surrounding the posts in our sample, we then coded comments attached to these posts. Due to the time lapse between collecting the posts and coding their comments, 102 posts out of the sample were unavailable (made private or deleted) and 242 posts had no comments. Our final sample for comment analysis included 1,949 comments associated with 444 posts. As we coded, we came across 24 redundant (same comment by the same commenter under the same post), 177 foreign language, and 7 spam comments. Excluding these, we had 1,741 comments. Because comments on the 102 posts that were unavailable may have differed systematically from those on posts that remained accessible (for example, people may delete posts because of negative comments or may make their accounts private), we collected an additional 800 posts to examine responses to such posts, as described in detail in the Phase II section of the Findings.

Analysis

Images. How does one analyze an image? Barthes suggests that photos can be interpreted in many ways, and they always require text to fix meaning [6]. Gunter Kress and Theo Van
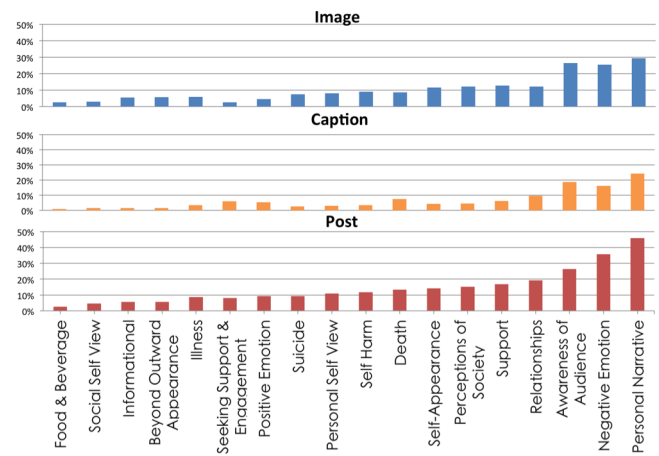

Figure 3. Percentage of individual codes by mode type. A post (red) is of a certain type if the image (blue) or the caption (orange) or both are of that type.

Leeuwen take a social semiotics perspective and argue that photos have "an independently organized and structured message, connected with the verbal text, but in no way dependent on it—and similarly the other way around" [40:18]. Our approach to analyzing images and their textual captions is inspired by the social semiotics position that people communicate using multiple modes and that choosing a particular mode has cultural and social meaning. Therefore, it is important to examine both visual and textual content, instead of studying either in isolation. We used visual content analysis methods to code images and thematic textual content analysis methods to code accompanying captions.

To develop our codebook for images we conducted iterative open coding. Two of the authors independently coded a sample of 100 images, and then discussed each image and code. Next, they coded another 100 images and similarly discussed each afterwards. To test the similarity of their interpretations, they coded a batch of 50 images for which the average Cohen's Kappa coefficient was very good at 0.83. Finally, each of the coders coded a new separate batch of 400 images. For images, codes were developed related to the content, the form of presentation, and visual techniques; here we only report on codes related to content. We applied one or more codes to each image.

Captions. To develop our codebook for captions, we followed a similar iterative open coding procedure as for images. We developed caption codes on the same data we used to develop the image codebook. Two authors developed the codebook in two phases for captions associated with the images they had utilized to develop the image codebook. They first coded captions for 100 images and discussed each afterwards; then they coded another 100 captions followed by detailed discussions of each caption and code. They finally established inter-rater reliability by coding a final batch of 50 captions for which the average Cohen's Kappa coefficient was very good at 0.83. Finally each author coded captions associated with the 400 images they had coded. We

coded captions both for content and how they related to the image. We applied one or more codes to each caption.

We developed codes for images and captions separately and based on the same data, in order to empirically investigate how and if these communication modes are used differently, as we will discuss later in detail. These codes are reported in Figure 3. Although we were open to new themes when coding captions, we did not come across any. However, the prevalence of each theme in captions and images were different as shown in Figure 3.

Comments. To develop a codebook for the comments, we followed an iterative, semi-open coding procedure. We looked for some concepts from the literature such as different forms of support (e.g., positive social support) [16]. In addition, we performed open coding and identified other themes that emerged repeatedly. Two of the authors independently coded a test sample of 100 randomly selected comments, and then discussed each comment together with assigned codes to establish a shared vocabulary. Next, we coded another 100 test comments and similarly discussed them. Using the resulting codebook, we coded a final set of 100 comments to test inter-rater reliability, which yielded an average Cohen's Kappa coefficient at a very good level of 0.84. Next, each coder independently coded comments for half of the images in the sample. We applied one or more codes to each comment.

The inter-rater reliability measure reported for images, captions, and comments is an average over codes for each.

Limitations
We collected posts that Instagrammers tagged with #depression in order to analyze self-disclosures about negative emotions and stigmatized experiences; however, we do not claim that these posters are suffering from depression. We emphasize that our data is not representative of a distinct population like people suffering from depression and that we only analyzed public posts. Still, we believe our approach is sufficiently robust to provide a foundation for understanding the use of imagery in negative self-disclosures and others' engagement with such disclosures. We could gain important insight from talking to the people who post this type of content; however, our attempts to recruit participants for an interview study failed because nearly all respondents were minors (under 18) and some stipulated secrecy from their families. We are unconvinced at this time that we have a strong enough reason to create a consent/assent protocol for interviewing minors who share such posts without parental permission. Finally, our work is limited to English language posts. Future work could compare these disclosures and interactions around them across different languages.

Ethical Considerations and Reflections
We acknowledge that when investigating data from a vulnerable group to which the researchers might not belong, it is possible to misrepresent the population's experience. It is common practice in HCI research to analyze publicly available data without the posters' awareness or consent. However, we are aware that if our analysis misrepresents the experiences of Instagrammers, we cannot clarify that with our current methods because we have not engaged with them. We hope to engage study populations in a more collaborative approach in future work.

Due to the sensitive nature of the data we analyzed, and in an attempt to reduce the chances of participants' data being resurfaced in the future, we paraphrased quotes. Our data included images of bodies, selfies, and places as well as artworks. Having immersed ourselves in this data, seemingly many refer to their accounts as "secret." We made the conscious choice to not include images in our paper, because 1) we did not have permission to include images from people who posted them, and 2) even though the data is publicly available, we did not want to bring visibility to people who might not want to be visible. Thus, we recreated two images that include some of the elements we observed in our data to illustrate the types of photos we came across (Figure 2). We hope other researchers of vulnerable populations might adopt this approach in addition to methods such as blurring images.

Finally, in the HCI and CSCW community, it is not yet common to consider and discuss that researchers could be vulnerable as a result of the type of work they do [52][2]. Researchers who coded this data tried to constantly reflect on their feelings as they engaged with this extremely emotionally challenging data, and shared their experiences with each other. We encourage sharing stories among researchers in sensitive settings to raise awareness and build a support network into our daily lives and research settings.

FINDINGS
Phase I: Analysis of Posts
Our dataset included photos of everything from selfies to images of self-harmed bodies and suicide threats. In Figure 2, we illustrate some of the images observed in our data, but because of the sensitive nature of this data, we do not identify individual posts. We created examples by combining features of images we analyzed. In this section we respond to our first and second research questions.

RQ1. What information do people disclose about themselves through depression-tagged Instagram posts?
In response to RQ1, Figure 3 shows the most prevalent topics (codes) in captions-only, images-only, and whole posts (caption and image). We found that #depression was often used in connection with disclosures that were about negative feelings, stigmatized topics, or things that make people feel vulnerable. This finding confirmed that the tag we used to collect data was in fact a valid proxy to get at these disclosures. With respect to differences between captions and images, images were more expressive, and only a few types of messages seemed to depend heavily on textual captions. Importantly, the two caption-heavy categories included opportunities for potential coping mechanisms:

Category	Quotes and Image Descriptions
I. Social Exchange - Seeking Social Contact: asking questions, apologizing, tagging specific IDs, directly talking to the audience or addressing them as "*you*" (awareness of audience)	*"I will show my face after 1000 followers," "I am looking for an Ana buddy," "2 hours of fasting for each like."* Note: "Ana buddy" refers to the person helping another person with anorexia in non-eating dietary practices.
II. Attachment System Activation: seeking support, help, engagement, or feedback	An image with text: "*Tell me how I should let go all the things that do not matter. Cause this really fucks me up inside and makes me think all these lousy thoughts.*"
III. Social Exchange - Narration: personal narratives and story-telling about what they have been or are going through, what they think, and how they feel capturing deep and detailed disclosures	"*I can't do this anymore. I am different… not normal. Ugly, stupid, fat, retarded. Swirling around in my head over and over. I can't silence these demons. They are getting to me. They are taunting me. Telling me to break my 24 days clean. That nobody cares and nobody wants someone like me. A suicidal bitch. Always sad, depressed. I'm not wanted anywhere. I can't pretend to be happy anymore. I can't. It's impossible to think that I will ever be better. I don't think I can do it anymore.*"
IV. Social Exchange - Social Comparison: seeing themselves or their feelings in relation to the wider societal context and other people.	
1. Personal self-view: self-blame, low self-esteem	1. An image depicting thighs of a person with a text on the image that reads "*I wish my weight was as low as my self-esteem.*"
2. Social self-view: a sense of group identity	2. "*Just another depressed girl,*" "*We are not cutting for your attention, so go away.*"
3. Beyond outward appearance: there is more to what others see on the surface	3. A photo of a handwritten note reading "*I say that I don't want to talk about it. Actually, I do, but I am terrified of your response. I am afraid that you will never see me as equal again. I am afraid of the pity in your eyes when you see how screwed up I am*".
4. Perceptions of society: unfavorable views towards others or society as a whole, stigma	4. A person sitting on a chair with their back being hurt by a lot of sharp objects, and the text on the image read: "*I cannot blame myself for my trust issues*".
V. Emotional expression: positive (e.g., hopeful, happiness, confidence) and negative (e.g., lost, hopelessness, fear).	An image showing railroad tracks with the word "lost" on it.
VI. Contributing Support and Information:	
1. Providing informational and emotional support	1. A drawing depicting a bottle of pills with text: "*Please allow me to be your antidepressant*"; image-text reading: "*Boys get eating disorders. Boys self harm. Boys get depressed. Boys get suicidal. Boys commit suicide. It's not just girls. So, to all the boys, stay strong!*"
2. Purely informational not framed as supportive	2. A photo of a scholarly article about depression.
VII. Contextual expression:	
1. Relationships: romance, family, friends	1. Image of two people holding hands, text says one is diagnosed with cancer.
2. Self-appearance: concerns about looks	2. A selfie with text: "*I am so ugly.*"
3. Food and beverages (often used in the context of eating disorders)	3. Image depicting someone's lower body showing their thighs and holding a cigarette, with text: "*Diet cokes and cigarette smokes, that is what skinny girls are made of.*"
4. Illness	4. Image depicting a body, holding a cup of tea identifying as having anorexia and depression via text.
5. Self-harm	5. Image of a self-harmed body with text: "*A suicide note: If you have not noticed, the scars on my hips, or the fake smile on my lips, or my forced laugh, then don't you dare stand at my grave and cry. How can you cry for someone you do not even know?*"
6. Suicide	6. Image depicting pills with text: "*I have become suicidal and this should scare me, but I am not cause I am far too gone.*"
7. General activities: e.g., school, popular fiction, music, and sleep	7. Screen shots of TV series with depression-related quotes

Table 1. Post categories with examples. Categories are not mutually exclusive.

seeking support and interaction, as well as expressing positive emotions.

After all the data was coded, the first author grouped these codes into larger conceptual categories using Rimé's framework and the Disclosure Processes Model as conceptual lenses (Table 1). Because we conducted open coding, we did not actively look for dimensions of these frameworks prior to or during coding. Rather, we applied these frameworks to organize our analysis, which provides a way of understanding our findings and connects them to prior work.

The first four categories in Table 1 reflect some dimensions of Rimé's *social sharing of emotion as meaning creation* framework we described in the Related Work Section. People engage in social exchange and seeking social contact by expressing awareness of their audience, asking questions, or tagging specific people. They also engage in social exchange and social comparison by expressing how they view themselves in relation to others or how their experiences are stigmatized. Social exchange through personal narratives is another major theme capturing the detailed and deep experiences of posters. Lastly, people seek

support and engagement by activating their attachment system – importantly in this case this support seeking is directed towards one's imagined audience on Instagram. In addition, we introduce three *context-specific* categories for posts:

- *Emotional expression* – sharing emotional state as part of the disclosure. We draw on the Disclosure Processes Model [15], which considers emotional content as a dimension of the disclosure message along with depth and breadth of disclosure – captured in our social exchange-narration category. We observed both positive and negative emotions, although not surprisingly, negative emotions were more prevalent.

- *Contributing support and information* – providing information and other types of support (e.g., emotional), perhaps to be helpful to or supportive of their audience, who may share their experience.

- *Contextual expression* – providing information that orients audiences to the specific circumstances of the poster. For example, images including food and

beverages in our data were often shared in the context of eating disorders.

RQ2. How do individual captions and images relate to each other in terms of their topics?

When we examined the relationship between the image and its caption codes – excluding the 35% that only had tags – we found that 13% of captions were purely descriptive of the image where image and caption codes were exactly the same, 35% provided contextual information that caused coders to understand the image in a new way, 32% provided additional but similar information, and 20% appeared to be unrelated. We found that there are nuances to using captions along with images. Some of this variation may be due to social engineering in an attempt to post content while circumventing content moderation rules on the platform [58], as Instagram heavily moderates sensitive content. Our observations underscore the importance of taking a social semiotic perspective: people use both visual and textual means to communicate, and it is important to investigate both simultaneously as we do in this work.

Category	Codes	Example	% of all comments in Sub-category	% of posts with comment in Sub-category
I. Positive social support	1. Emotional support	1. "*I know how you feel.*"	12%	28%
	2. Esteem support	2. "*You are strong.*"	8%	15%
	3. Network support	3. "*Other people feel the same way.*"	5%	12%
	4. Instrumental support	4. "*DM me if you want to talk.*"	4%	11%
	5. Informational support	5. "*Based on my experience, sometimes medicine helps.*"	3%	7%
II. Supportive of harmful behavior	Supportive of harmful behavior	"*Ana tip: do not eat after 6 pm, never!* "	2%	6%
III. Unsupportive of harmful behavior	Unsupportive of harmful behavior	"*Hurting yourself is not the answer to the problems you are going through*"	4%	10%
IV. Emotions	1. Positive	1. "*So glad ☺*"	11%	24%
	2. Negative	2. "*I feel lost, don't know what to say.*"	4%	10%
V. Acknowledgment	1. Commenter self-disclosure	1. "*I also put on fake smiles*"	13%	26%
	2. Poster-acknowledgment	2. "*So sad for a parent to lose a child.*"	3%	9%
	3. Commenter-acknowledgment	3. "*It makes sense that I have been feeling like I want to die now.*"	2%	6%
VI. Engagement	1. Engagement request	1. "*Follow for follow," "See my pics!*"	9%	24%
	2. Other communication channels	2. "*My Kik ID is: …*"	3%	9%
	3. Appreciation	3. "*Thank you, @commenter*"	5%	12%
	4. Small talks	4. "*Yeah, that's a good song*"	7%	14%
	5. Questions	5. "*What's citrus?!*"	5%	14%
	6. Compliment	6. "*Love this post!*"	8%	19%
	7. Criticism	7. "*Why do you do this?*"	1%	3%
VII. Instagram use and role	Instagram use and role	"*Haha thanks for the support. IDK I'm just not feeling it. I've always used Instagram as a way to let it out but meh. It's sorta losing its spark and IDK I'm just not fit to deal with some people at times… I think if I don't delete it its because I've met people like you here and I actually quite prefer them to ones at school.*" "*I really don't want Ana to take over again or go back to my life prior to Instagram*."	3%	9%

Table 2. Comment categories, codes, percentage of appearance, and examples. Codes or categories are not mutually exclusive.

Phase II. Analysis of Comments

In this section, we discuss the categories that emerged from analyzing our comment data and answer:

RQ3. What types of responses do depression-tagged Instagram posts attract?

Table 2 shows comment categories and codes in detail with representative examples.

We observed acknowledgments and social support in our data, similar to Swaine et al.'s [39] study of responses to lonely tweets. In our dataset, 32% of all comments included some sort of positive *social support* and 41% of posts elicited such comments. Some comments included explicit *acknowledgments* of feelings, thoughts, or experiences of the commenter, poster or both. This suggests that people use comments as a vehicle to validate their own and others' feelings and to engage in reciprocal self-disclosure. Additionally, we found *context* and *platform-specific* categories. These included comments *supportive of harmful behavior*, comments *unsupportive of harmful behavior*, comments implying interest in *engagement*, and comments about *Instagram use and role*. *Emotional* valence was also coded and positive emotions were more prevalent than negative. In total, we saw more comments supportive of recovery than comments supportive of harmful behavior.

Deleted Data

Our data did not contain many negative comments. Due to the way Instagram's API works and the time lapse between when we collected posts and the time we collected their comments, 102 posts in our dataset of 800 had been either removed by the poster or made private, and comments on these posts were unavailable. We hypothesized that negative responses may have been systematically excluded from our analysis if they led to deletion or suppression. Mischaracterizing the kinds of disclosures and responses people make on Instagram would not only make this work less valuable but could be harmful to the people we seek to better understand and support through this line of work. Because of this risk, we decided to collect a new set of public posts comparable to our original dataset and programmatically observe which ones were made private or deleted. We acknowledge that analysis of deleted posts is a contested topic. In fact, the research community is still in the early stages of opening a discussion and developing best practices about this topic, and has not reached a consensus [11]. However, similar to [13] we believe that the potential damage of ignoring deleted posts when studying sensitive disclosures was serious enough to warrant this analysis. We think there exists an ethical obligation to take reasonable measures to report on the practices we studied as accurately as possible. The risks associated with the study were low, no identifiable information or images were collected or reported, and the data were public at the time of collection and deleted afterward.

First, we collected a new dataset of 800 public depression-tagged posts. Each post's URL was stored together with its user ID, comments posted, number of likes and date/time of creation. Every 2 hours, we queried Instagram API to check whether any had been deleted and to gather the latest comments under each post. Once we reached 102 deleted posts (190 hours after initial data collection), we analyzed these posts and comments associated with them using our existing codebooks while also searching for new categories. The post topics were similar to our larger sample on which we reported in the first phase, and had 348 comments. With the exception of one comment thread, the posts in the deleted batch included comments that were described by the existing codebook. The one exception was a hostile comment. The hostile tone was initiated by the poster in response to a follow request: "*sure, if you kill yourself,*" and other hostile responses followed. The account was deleted 8 days after the image was posted. We did not identify any other negative social comments or new comment types in the deleted posts. We conclude that making posts private or deleting them is primarily motivated by factors other than comments and that the original analysis on comments was not compromised by the exclusion of deleted posts.

Although we found that the unavailability of posts after a while was not due to negative comments under that post, negative interactions about one's Instagram posts may have occurred through other communication channels or under another post that we did not observe. Our current data does not allow for further illumination on this front, and exploring reasons as to why these Instagrammers made their account private or deleted their posts are areas for future research. We speculate that one possible explanation for deletion may be that some of these accounts were "temporary technical identities" [46]: temporary accounts separate from users' primary accounts, used to post sensitive content and subsequently deleted.

Phase III: Post – Comment Relationships

In this section, we provide statistical findings in response to our final research question:

RQ4. In what ways do different types of depression-tagged Instagram posts attract more supportive/unsupportive responses than others?

As we discovered in Phase I, the content shared with #depression on Instagram includes potentially sensitive disclosures, such as sharing about eating disorders, self-appearance, self-injury, negative emotions, and personal stories, as well as seeking support. Responding to potentially socially stigmatized disclosures is a complex phenomenon both in face-to-face and computer-mediated contexts. Potential supporters might be reluctant to engage with such content because they perceive it as a burden, because they do not feel close enough to the discloser, or because they are concerned about observers' judgments.

To answer our final research question, we developed Poisson regression models using SPSS to identify the optimal models explaining our data, which we report in Table 3. Poisson regression is appropriate when the dependent variable is

count data, as is the case in our models (e.g., number of total comments, number of comments demonstrating emotional support, etc.). Our independent variables are binary as posts are either identified by a code (e.g., illness) or are not. Poisson regression models the log of the expected count as a factor of the independent variables. We report the Poisson regression results using the incident-rate ratio (IRR) which is calculated as exp(the Poisson regression coefficient). For one unit increase in any of the independent variables, the dependent variable would be expected to change by the IRR, while holding other variables in the model constant. In other words, in each model, posts coded as belonging to one of the independent categories (e.g., self-appearance) will have an incidence rate for the dependent variable equal to IRR times that of those that are not in that category.

To build the models, we included the codes listed in Figure 3 as independent variables and the number of comments (in total or of a particular type) or likes as the outcome variable. Our final models include only the variables found to have a significant association with each outcome variable, along with control variables. We controlled for the number of tags, airtime (the difference between data collection time and post time), and the poster's number of followers and followees.

We show significant predictors in bold type for easier readability.

RQ 4.1 What types of posts attract more comments and likes?

Model (1) suggests that posts containing food and beverages, self-appearance, relationship, or seeking support and engagement attract significantly more *comments*. For example, a post in which the poster seeks support and engagement will have 1.55 times (55%) more comments than a post that does not contain support seeking, if we keep other variables constant. Model (2) suggests that posts with content about relationships, self-appearance, and food and beverage attract significantly more *likes*. We do not know how Instagrammers whose posts we analyzed perceive likes. On Facebook, individuals with low self-esteem tend to value likes more, and many consider likes as support and validation [72]. In our data, food and beverage pictures were mostly used to communicate about eating disorders and negative body image. Eating disorders and concerns about appearance have been linked to low self-esteem [82]. It seems that those who value feedback, engage in support seeking, or disclose sensitive concerns, do receive significantly more feedback.

	Total Comments (1)	Total Likes (2)	Comments with Positive Social Support (3)	Comments Supportive of Harmful Behavior (4)	Comments Unsupportive of Harmful Behavior (5)	Comments with Emotional Support (6)	Comments with Esteem Support (7)	Comments with Informational Support (8)	Comments with Instrumental Support (9)	Comments with Network Support (10)
Variable	Incidence-Rate Ratio (IRR) (Standard error)									
Tags	1.32 (0.00)	1.00*** (0.00)	0.99 (0.00)	0.98 (0.01)	0.96* (0.01)	0.98 (0.00)	0.98 † (0.01)	0.96† (0.01)	1.04 (0.01)	1.00 (0.01)
Airtime	1.00 (0.00)	1.00*** (0.00)	1.00 (0.00)	1.00 (0.00)	1.00 (0.00)	0.99 (0.00)	1.00 (0.00)	1.00 (0.00)	1.00 (0.00)	0.99 (0.00)
Followers	1.00*** (0.00)	1.00*** (0.00)	1.00*** (0.00)	1.00 (0.00)	1.00 (0.00)	1.00*** (0.00)	1.00** (0.00)	1.00 (0.00)	1.00 (0.00)	1.00*** (0.00)
Followees	1.00 (0.00)	1.00 *** (0.00)	1.00* (0.00)	1.00 (0.00)	0.99 (0.00)	1.00 (0.00)	1.00 (0.00)	1.00 (0.00)	1.00 (0.00)	1.00 (0.00)
Personal Self-View	-	-	-	**3.68** (0.41)**	-	-	-	**4.08*** (0.38)**	-	-
Self Harm	-	-	-	**6.75*** (0.43)**	**2.39* (0.01)**	-	-	-	**4.68*** (0.32)**	-
Illness	-	-	**2.13*** (0.13)**	**3.11** (0.43)**	-	-	**1.95*** (0.24)**	1.97† (0.42)	-	-
Self-appearance	**1.38*** (0.07)**	**1.12*** (0.01)**	**1.97*** (0.12)**	**6.25*** (0.45)**	-	-	**4.84*** (0.22)**	**3.09** (0.39)**	-	-
Food & Beverage	**2.06*** (0.13)**	**1.42*** (0.03)**	**2.66*** (0.18)**	-	**13.59*** (0.34)**	**3.50*** (0.27)**	**3.60*** (0.32)**	**9.71*** (0.44)**	-	-
Relationships	**1.33*** (0.06)**	**1.19*** (0.01)**	-	-	-	-	-	-	0.42† (0.44)	-
Seeking Support & Engagement	**1.55*** (0.09)**	1.01 (0.02)	-	-	-	-	-	-	**2.76** (0.40)**	-
Personal Narrative	-	-	**1.82*** (0.10)**	-	-	**1.78*** (0.16)**	-	-	**2.65** (0.33)**	**3.22*** (0.30)**
Intercept	1.32† (0.10)	19.55*** (0.03)	0.46** (0.38)	0.00*** (0.76)	0.30 (1.30)	1.50 (1.18)	0.07*** (0.41)	0.06** (1.15)	0.03* (1.76)	0.49 (2.21)

†p<0.10; * p < .05; ** p < .01; *** p < .001

Table 3. Poisson regression models linking post topics with prevalence and types of engagement. Significant factors are in bold.

The outcome variables in these two models were the number of comments and likes respectively.

RQ 4.2 What types of posts attract positive social support in their comment space? Do different types of posts attract different types of positive social support?
In Models 3-10, the outcome variables were the number of comments received of specific types (e.g. network support).

Model (3) indicates that posts about illness, self-appearance, food and beverage, or containing personal narrative, attract significantly more *positive social support*. For example, a post in which the poster discloses about an illness will have 2.13 times more supportive comments than a post that does not include that content. Physical or mental health and body image concerns are stigmatized, rarely disclosed, and frequently elicit negative responses when shared with others [27]. We found that these disclosures in addition to deep and detailed stories of one's difficult experiences attract positive social support on Instagram.

Models (6-10) delve deeper into the specific positive social support types and when they are most likely to occur:

Model (6) suggests that posts about food and beverage or containing personal narrative, attract significantly more *emotional support*, in which commenters express empathy to the poster.

Model (7) indicates that posts about illness, self-appearance, or food and beverage attract significantly more *esteem support*, where comments included messages to boost the self-esteem of the poster.

Model (8) suggests that posts about personal self-view, self-appearance, or food and beverage attract significantly more *informational support*, in which people provide advice or supportive information.

Model (9) suggests that posts about self-harm, seeking support and engagement, or with a personal narrative attract significantly more *instrumental support*, where commenters suggest ways of coping or getting help.

Model (10) indicates that posts containing personal narratives, attract significantly more *network support*, where commenters indicate that the poster is not alone and there are many other people who feel similarly.

RQ 4.3 What types of posts attract comments supportive of harmful behavior?
Model (4) suggests that a post about personal self-view, self-harm, illness, or self-appearance attracts significantly more comments *supportive of harmful behavior*.

RQ 4.4 What types of posts attract comments unsupportive of harmful behavior?
Model (5) indicates that a post containing self-harm or food and beverage content receives significantly more comments *unsupportive of harmful behavior*.

Self-harm is a way of coping with extreme negative feelings and gaining control that many keep as a secret, and find isolating. It is possible that finding others who engage or used to engage in the same behavior may be comforting. Posts about self-harm attract comments both unsupportive and supportive of harmful behavior (Models 4, 5). In order to further investigate this, we conducted a t-test and found that for posts about self-harm, there was not a significant difference in the number of comments unsupportive of self-harm and the number of comments supportive of self-harm ($t = -1.29, p = 0.20$).

Images including food and beverages, which in our data were used in the context of eating disorders, often receive comments unsupportive of harmful behavior (Model 5) or positively supportive (Model 3), and did not attract many comments supportive of harmful behavior. This complicates the concerns that such online disclosures might encourage harmful behaviors such as fasting or purging [36]; statistically speaking, our findings suggest that when people share content about eating disorders, they do not receive many comments supportive of pro-disease behavior.

Is Instagram used as a pro-eating disorder or a pro-self-harm community? We do not know yet. Our findings detail the nuances of interactions around these sensitive disclosures, as a necessary first step to understanding the impact of these interactions on Instagrammers. How posters perceive these comments, and how these comments and interactions influence their well-being and behavior is an important area for future research. Understanding how responses are perceived and influence posters' behavior and well-being would also help inform policies around allowing or censoring content about topics such as eating disorders or self-harm on social media platforms.

DISCUSSION AND CONCLUSION
We make the following four novel contributions to the social computing and HCI community:

1. We provide a categorization of the types of disclosures people make in the context of depression-tagged posts (images and captions) on Instagram; in doing so we found support for Rimé's *social sharing of emotion as meaning creation* framework in a computer-mediated communication context, and introduce additional *context-specific* concepts that characterize sensitive disclosures.
2. We categorize responses these posts attract using the *social support behavioral code*, and introduce additional *context-* and *platform-specific* categories.
3. We investigate the relationships between post topic and engagement level, as well as engagement content (i.e., positive social support, support for harmful behavior, and those not supportive of harmful behavior).
4. We provide empirical evidence that images and captions associated with them represent the same topic only sometimes, that they are different communication modes, and should both be considered and investigated to get the bigger picture and the context in which

disclosures take place. Other researchers may find employing our methods helpful.

Through our analysis of emotional valence in posts and comments, we found that while posts are a place to express negative feelings and experiences, commenters often respond with positive feedback and support. We observed more positive emotions than negative in comments, whereas occurrences of negative emotion outnumbered positive emotions in posts. The Broaden and Build Theory of Positive Emotions [29] suggests that positive emotions help people place their life events in broader context, decrease the resonance of negative emotions, and enhance emotional well-being. Considering the considerable positive support we observed, this literature suggests that engaging in disclosures on Instagram has potential to improve emotional wellness. Outcomes for Instagrammers who disclose about sensitive emotions and experiences is an area deserving of further research.

We observed evidence of a sense of shared identity among Instagrammers who share potentially risky and sensitive content. First, #depression and related hashtags are being used not only as semantic markers, but also to denote a kind of belonging. Although hashtags can be thought of as a way of categorizing content [1] to make it more findable and analogously more public, we suspect that the existence of in-group/out-group language (See Figure 1. e.g., selfharmmm, secretsociety123, etc.) as also evidenced by other researchers [14] demarcate a hazy affinity group boundary within which sharing about depression or vulnerabilities should be a safe activity. Second, positive social support and references to Instagram use and role in comments stating for example that they find "similar others" suggest that a sense of community may exist. Third, the existence of posts about social contact, social comparison, and seeking as well as providing support yield more support for the notion that Instagram serves as an adhoc platform for emergent support groups. A big feature of support groups is the "helper therapy principle" [63] where by helping others people also help themselves. We speculate that this may also be the case on Instagram. Future work could investigate this and how comments, likes, and other interactions are perceived.

Emotional, network, and esteem support were more frequent than informational and instrumental support in comments. This suggests that Instagrammers who interact around depression-tagged posts may view the site as a place for legitimizing experiences rather than finding more pragmatic help. It could also be that providing emotional support may be easier than providing instrumental or informational support. The fact that there is little informational and instrumental support and more emotional, network, and esteem support is a double-edged sword. On the one hand, it may help people feel that others care and get them, and try to "cheer them up." On the other hand, consistently posting content such as depressive feelings could become one's "brand" and may be inadvertently reinforced by continually

getting positive feedback (e.g., emotional support) for expressing it.

Furthermore, the emotional support of trying to cheer someone up and provide support in the post or comment space could be viewed as a type of cognitive intervention (i.e., trying to help the person overcome negative thinking by developing positive thinking), but how effective is it? One possible ultimate proof of the helpfulness of emotional support via Instagram for such experiences would be that people eventually stop posting negative content or maybe start posting positive content. But does that happen? This is an area for future research.

Our analysis of posts drawing on Rimé's framework supports the idea that Instagrammers represented in our data might be trying to make sense of what is going on in their lives by sharing their personal narratives and story-telling – *creating meaning through social sharing*. In fact, posts including personal narratives received significantly more positive social support, suggesting that sharing stories in breadth and depth elicits positive social support. We suggest this might be a case of "empowered exhibitionism" as Oostveen [56] puts it, whereby people benefit from voluntarily disclosing vulnerabilities on Instagram more than a case of "careless relinquishment of privacy." Research on online depression-related forums has similarly suggested that in order to solidify their identity as "depressed", participants set up narratives about what they are going through and construct their stories [44]. Those in distress or with stigmatized identities, often need to express themselves and tell their stories, not only to potentially receive support or find similar others, but also to feel they are expressing themselves candidly, to make sense of their experiences, and to solidify their identities.

Importantly, we found that posts seeking support attracted significantly more comments and instrumental support. Prior work suggests that online spaces are not particularly suitable for instrumental support [78]. Moreover, in Goffman's terms, seeking support is risky because people may lose "face" (i.e., the positive self-image that people present in their interactions, wish to maintain, and feel unhappy without) [31], for example by not receiving comments or help when they ask for it. On Instagram, when people seek support, they indeed receive a type of support where the audience specifically offers to do something for them (e.g., by offering to talk via another channel that affords private conversation), highlighting the platform's appropriation as a space where people seek and provide support in sensitive settings.

Posts that relate personal narratives and daily experiences with things such as illness or food and drink could contain sensitive information for some people. Vitak and Kim [81] suggest that people self-disclose on Facebook as a way to leave a "personal record." Although we do not have interview data that addresses goals or motivations, Instagram may provide people who post sensitive content with a

personal record of meaningful challenges and life events. Diary-like features might be a useful design exploration for supporting disclosure of vulnerable, negative, or stigmatized experiences and emotions, enabling recording the trajectory of one's experience.

By observing the very intense and humane nature of disclosures and interactions happening on Instagram, we challenge the binary notion of "online versus real/offline" identity. We argue that online and offline worlds were never truly separate and have become increasingly inter-connected as more interactions move online and ubiquitous mobile devices support always-on mediated social connections. In particular, for example, we suggest that there are opportunities for mental health professionals to better understand the context of their patients' lives. Clinical researchers could explore the effectiveness of discussing social media posts as a part of clinical practice.

Finally, our findings demonstrate that, despite literature that suggests it is less acceptable to share negative emotions and experiences in mainstream SNSs such as Facebook, some people have adopted Instagram as a place to do just that: to seek support, find similar others, and disclose stigmatized experiences. Importantly, in response they often receive positive support. Although social support exists in online mental health communities such as subreddits [21] or other health support groups, those are dedicated spaces rather than emergent groups coalescing around use of one or most often more public hashtags. Anonymity and lack of nonverbal cues are the most frequent explanations for the observed behavior on online forums by activating higher levels of private self awareness and reducing concerns about one's public image [37]. Considering the social stigma associated with sensitive topics such as those we have identified in this paper, the fact that Instagram does not impose a "real name" policy could give it a perceived semi-anonymous atmosphere that might contribute to more disinhibition and potentially stigmatized and sensitive disclosures [3] in both posts and comments. The ways in which various socio-technical affordances encourage or discourage self-disclosure, support seeking and support providing in stigmatized contexts is an important area for future research. By studying nuances of self-disclosure, support seeking, and support providing on Instagram we have begun to tackle this space.

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