

Understanding Moderation in Online Mental Health Communities

Koustuv Saha, Sindhu Kiranmai Ernala, Sarmistha Dutta, Eva Sharma, and
Munmun De Choudhury

Georgia Institute of Technology, Atlanta, United States
(koustuv.saha, sernala3, sdutta65, evasharma, munmund)@gatech.edu

Abstract. Online Mental Health Communities (OMHCs) enable individuals to seek and provide support, and serve as a safe haven to disclose and share stigmatizing and sensitive experiences. Like other online communities, OMHCs are not immune to bad behavior and antisocial activities such as trolling, spamming, and harassment. Therefore, these communities are oftentimes guided by strict norms against such behavior, and moderated to ensure the quality and credibility of the content being shared. However, moderation within these communities is not only limited to ensuring content quality. It is far more complex — providing supportive spaces for disclosure, ensuring individuals’ privacy, etc. — because of the sensitive population that they cater to. By interviewing 19 moderators across 12 such OMHCs on Reddit, this paper studies the practices and structure of moderation in these communities to better understand their functioning and effectiveness. Our research questions primarily revolve around three major themes — moderation, support, and self-disclosure. We find practices of moderation hierarchy, and several distinctions in motivations and responsibilities of the moderators individually and as a group. We also notice that these communities predominantly encourage emotional support, and provide supportive spaces that encourage self-disclosure on stigmatized concerns. Our findings highlight the necessity of awareness corresponding to (currently lacking) privacy concerns, and raises the importance of the presence of mental health experts (counselors and psychiatrists) in these communities. On the basis of the insights drawn from this work, we discuss the implications and considerations for designing OMHCs.

Keywords: online mental health communities · subreddit · Reddit · moderation · support · self-disclosure

1 Introduction

Online mental health communities (OMHCs) provide dedicated online spaces for individuals to discuss, seek, and share information, advice, and support related to mental health challenges faced by themselves or their near and dear ones [21,22,61]. The enduring success of these communities has essentially established the potential of computer-mediated communication to enable sensitive and personal discussions. Given the socio-economic dimensions and prevailing

social stigma associated with mental health, OMHCs are particularly benefiting because of a variety of affordances, such as facilitating anonymity, peer connections, candid self-disclosures, and asynchronous participation [1,2,7,18,54].

However, like other online communities, OMHCs are not immune to internet-related bad and antisocial behaviors, such as trolling, harassment, and spamming [13,16,17,39]. By lifting the moral constraints and social etiquette that regulate our behavior in physical world situations, online communities may espouse abrasive reactions. Such antisocial behaviors can not only spark arguments in online communities but can also damage members' self-esteem, confidence, and mental health, such as exacerbate their psychological stress [17,67]. In fact, these consequences are compounded because OMHCs cater to sensitive population of individuals (ones possibly struggling with mental health challenges). For instance, diagnosing, suggesting, and adopting drugs and alternative treatments without clinical corroboration can adversely affect individuals [14,45,67]. Further, since OMHCs are largely peer-driven platforms, it is essential to ensure the quality, credibility, and supportiveness of content being shared, so that these communities facilitate positive health and behavior change [12].

Reddit, one of the most popular social media sites [60], consists of several online communities (called as subreddits) where people share and discuss on specific topics of interests, and among these, there are subreddits dedicated to mental health (such as depression, anxiety, stress, suicidal ideation, schizophrenia, etc.). Typically, these subreddits serve as supportive space for mental health, and the discussions in these subreddits are around thoughts, intents, and apprehensions of individuals struggling with mental health concerns [2,21,22,70,72].

Amidst the heavily polarized, hate speech landscape on the internet, these Reddit OMHCs have thus been acknowledged to serve as a "safe haven" for people who are struggling with mental health conditions [21,23]. In particular, to maintain the civility, and to ensure that their sensitive and plausibly vulnerable populations are not adversely served, these OMHCs set norms and guidelines of member behaviors, and regulate the same through moderation [12,44]. However, there is no clear knowledge on what works and what does not work with respect to moderation practices in these OMHCs. Such an understanding would not only benefit both existing and new OMHCs, but would also potentially help to recommend guidelines and to design interventions and customized changes for online mental health communities. In order to contribute towards the broad research interest of what makes an OMHC effective in terms of transparency in moderation practices [38,44], this article presents the first study of moderation and functioning of these communities, via the following research questions:

- RQ1** How are the moderators enrolled, and what factors motivate a moderator?
How do individual moderators function together as a group?
- RQ2** What kind of support is sought and received in OMHCs? How do the moderators deem themselves fit to provide support in sensitive discussions?
- RQ3** How do OMHCs facilitate the members to open up about their self-experiences?
What aspects contribute towards sensitive disclosures? At the same time are there any privacy concerns, and how are they addressed?

We interview 19 OMHC moderators spanning across 11 subreddits, and examine the data using a qualitative inductive coding approach. Our findings reveal three major themes cutting across the research questions: moderation, support, and self-disclosure. Along these three themes, we discuss the factors that help these communities thrive and the challenges faced by both these communities and their moderators. Finally, we conclude with design implications and recommendations to help improve the functioning and efficacy of OMHCs.

2 Background and Related Work

2.1 Online Mental Health Communities

Online support groups have been around since 1982, they offer social contact and information to people coping with stress, diseases, and disabilities [48,54]. Several studies have found that participating in online support groups fosters personal empowerment due to the psychological impact of writing, expressing emotions, sharing information, interpersonal relationships, and being helped in decision-making and taking action [7,11,47,59,81]. Besides, a considerable fraction of online users seek mental health-related information on the Internet [62].

In recent years, there has been a growing focus on understanding the characteristics and dynamics of OMHCs. Online communities enable self-disclosure around mental health challenges, which are otherwise socially stigmatizing [4,21,57,82]. Several platform affordances such as anonymity and asynchronous participation, have been found to support candid and disinhibiting discourse [2,30,48,54,73]. By participating in these communities, individuals with difficult and sensitive experiences can build rapport, trust, and intimacy, fulfilling those needs that may be unmet otherwise in offline settings [6,33,55,63].

2.2 Social Support in Online Communities

Kaplan defines social support as “*degree to which an individual’s needs for affection, approval, belonging, and security are met by significant others*” [46]. Erving Goffman notes that individuals in distress particularly benefit from interactions with and support from “sympathetic others” who share the same social stigma and have had similar experiences [32]. Essentially, social support provides a range of benefits, such as developing coping strategies from distressful events, psychological adjustment, illness recovery, and reduced mortality [19,53].

OMHCs facilitate individuals to seek and gather peer-to-peer psychosocial support [72]. OMHC members receive emotional support either directly via messages of caring and concern, or indirectly via comparisons with others who have had similar experiences [2,5,26]. For instance, Andalibi et al. [2] studied how survivors of sexual abuse seek support in Reddit online communities. Community members also seek informational support by exchanging information and advice around their experiences, identifying possible explanations, and building social capital [10,36]. Other research has studied the efficacy of these two forms of support in concert: Wang and colleagues explored how emotional and informational support received in an online breast cancer community impacted group

members’ participation and satisfaction [79,78]. De Choudhury et al. quantified the effectiveness of various support seeking behaviors in decreasing depression and increasing self-efficacy and quality of life [22].

2.3 Self-Disclosure in Online Communities

Self-disclosure as an act of revealing personal information to others, is an integral part of social interaction. It provides an opportunity to express one’s thoughts and feelings, develop trust, and build intimacy in personal relationships [43]. However, self-disclosure is a much more complex and critical process for those with a concealable, stigmatized identity such as mental illness [64]. The stigma around these conditions may risk unfavorable outcomes such as social rejection and discrimination, and might be detrimental to wellbeing. Experimental manipulation studies found that participants do not experience the benefits of disclosure when confidant reactions are neutral or negative [65]. However, positive outcomes of disclosure due to opening up, include a wide range of therapeutic benefits leading to both physical and mental wellbeing, such as lowered psychological distress [28,58]. For instance, studying post-traumatic stress experiences of rape and sexual assault victims, Ullman and Filipas found that disclosures lead to more positive social reactions [75]. This complex nature of both possibilities are nested within an ongoing process of “*stigma management*”—coping with the psychological and social consequences of their identity [32].

A rich body of work in the Computer Mediated Communication (CMC) literature has studied self-disclosures and the socio-cognitive processes centered around them. Through several experimental and anecdotal evidence, internet-based behaviors have been characterized to exhibit high levels of self-disclosure [41]. Self-disclosure in CMC contexts is also argued to be beneficial, having been linked to trust and group identity [40,42], as well as playing an important role in social interactions by reducing uncertainty [20,27].

An emergent line of research has investigated the nature of self-disclosures on social media and online communities. Several quantitative studies have focused on modeling and characterizing differences in multimodal (textual, visual) forms of self disclosure on social media [21,24,27,28,51,69,78]. Similarly, from a qualitative perspective, prior work has studied how individuals undergoing gender transition use Facebook to engage in sensitive disclosures of their experiences [35]. In another study, Andalibi et al. found that individuals struggling with negative emotions, such as that related to depression or self-harm, use Instagram to self-disclose and engage in social exchange and storytelling about their stigmatized experiences [4]. Existing literature has also investigated unique design affordances of social media like anonymity, “throwaway” accounts, and selective audiences enhance self-disclosure [2,3,77].

2.4 Reddit as a Platform for Online Mental Health Communities

Reddit is a widely used online forum where registered users share content in the form of text, links and images. Users can create a new post or comment

on existing posts. These posts are organized by topic of discussion into many sub-communities called “subreddits”, such as politics, programming, science etc.

Reddit is also known to support and facilitate mental health discourse [21] through a variety of subreddits (or communities) related to specific challenges, such as depression (*r/depression*), anxiety (*r/anxiety*), psychosis (*r/psychosis*), stress (*r/stress*) and suicidal ideation (*r/SuicideWatch*) [70,72]. These and other similar communities have also been observed to provide support, such as emotional and informational [4] to individuals coping with mental illnesses (e.g., *r/helpmecope*, *r/rapecounseling*, *r/MMFB* (Make Me Feel better)).

Generally, OMHCs on Reddit range from small subreddits with as low as 100 users to large ones with more than 1000 users. These subreddits function as any other subreddits, facilitating individuals to post and comment, upvote or downvote content, share links, pictures and videos, etc. However, the dynamics between the members are seemingly different from other subreddits. Posts in these communities can be seen as a *means to ask for help, share problems, and struggles* by individuals approaching these subreddits. On the other hand, comments provide a means to other members to respond, advice, show kindness and love, share their experiences, and emphasize with the author of the post.

As noted earlier, support and self-disclosure are the two integral elements of making support communities work better [25]. Reddit is no exception: as a platform it provides both of these dimensions through its design and features, such as the community-based structure it holds, and the pseudonymity it offers to its members. The semi-anonymous nature of Reddit is known to enable candid self-disclosure around stigmatized topics like mental health [21]. Moreover, Reddit communities are moderated, and follow certain norms, which help in keeping the discussions in relevance, and minimizes spamming and offensive content [16,34].

However, prior work has also demonstrated that anonymity is often associated with the prevalence of a multitude of antisocial behaviors, including trolling, offensive and hateful speech, and online harassment to name a few [39,41], which is also observed on Reddit [8,15,76]. Such activities can have severe consequences to the psychological wellbeing of the community members [9,67]. Saha et al. found that the exposure to such hateful content can lead to an increase in stress of the community members [67]. Moreover, in the case of mental health communities, which serve vulnerable populations, the risks can be far more devastating [31]. Furthermore, privacy challenges in the space of online social media is well-known [49]. Fabian et al. noted that users are not often aware of the possibilities to indirectly gather a lot of information about them by analyzing their contributions and behavior online [29].

Together, we envision the need to better understand the dynamics of OMHCs in general, and on Reddit as a case example. We present a multi-community case study of OMHCs, and with our research questions centered around moderation, support, disclosure, and privacy, we examine what makes these communities thrive, and what are the challenges that remain to be addressed.

3 Overview of Reddit OMHCs

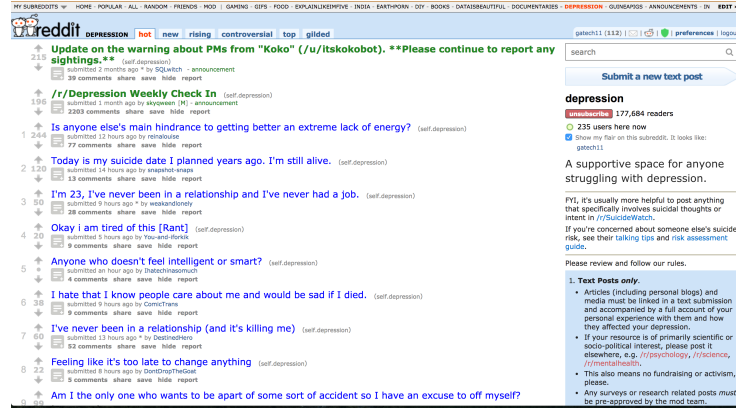


Fig. 1: An example OMHC page.

This study considers a variety of online mental health communities (OMHCs) on Reddit with varied sizes of both number of members and number of moderators (see Figure 1). To identify a set of subreddits, we adopted a snowball sampling approach starting with a few known subreddits already studied in prior work [2,21,70,72], and then using Reddit’s subreddit search feature looking for keywords such as “mental health”, “support”, “counseling”, “depression”, “anxiety”, etc. We iterated on these mental health related keywords, and subsequently augmented them based on frequently occurring keywords that co-appeared in subreddit descriptions, including keywords such as “trauma”, “abuse”, “suicide”, “therapy”, “coping”, etc. We identified 26 such subreddits that are related to mental health. These include *r/depression*, *r/anxiety*, *r/mentalhealth*, *r/depressed*, *r/Bipolar2*, *r/KindVoice*, *r/dysthymia*, *r/schizophrenia*, etc. These subreddits widely vary in the number of members and the number of moderators, and some of them also have “auto-moderators” [37]. Auto-moderators are bots that are programmed to automatically filter and remove unwanted activities, such as spam, troll posts, and posts that do not adhere to community norms.

Norms and Guidelines. Norms and guidelines of these communities are listed on the landing pages of these communities (see Figure 2 for example). These guidelines describe the kind of posts that are welcomed in the community and that posts should not harm other members in any way.

For example *r/anxiety* norms say, “*All posts must be related to anxiety or anxiety disorders [...] Please do not post anything that would be anxiety-inducing*

Rules & Guidelines	
Supportive Community <ul style="list-style-type: none"> Racist, sexist, homophobic, transphobic, ableist or generally offensive messages will be removed. Be mindful of triggers (by putting trigger warnings in the title of posts) and mark NSFW/L content. 	
Relevance <ul style="list-style-type: none"> All posts must be related to anxiety or anxiety disorders if you're unsure please message the mods. Please do not post anything that would be anxiety-inducing to members of the community. 	
Attribution <ul style="list-style-type: none"> All art, poetry, etc should be attributed to it's original author. If you are original author please see our rules on self promotion. No memes or image macros - all such post will be re-directed to our image megathread. 	
Advertising/Self Promotion <ul style="list-style-type: none"> Do not advertise products or services Do not promote quick fix products or ideas Blog/Vlogs & Self Promotion click here Messaging users without consent will get you banned 	
Research Studies/Surveys <ul style="list-style-type: none"> While study participation requests are not forbidden, you must message the mods for approval. 	
It is highly recommended that you read full list of here rules/guidelines here	
/r/mentalhealth	/r/CBT
/r/OCD	/r/distractit
/r/PanicParty	/r/socialanxiety
/r/dbtselfhelp	/r/depressionregimens
/r/Agoraphobia	/r/coloringtherapy
Full List Located Here	

Fig. 2: An example norms page.

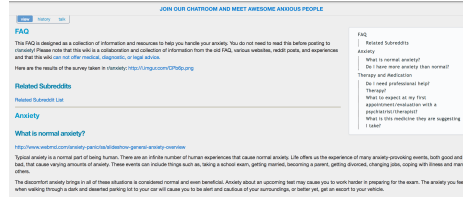


Fig. 3: An example page defining the FAQs of a community.

to members of the community.”. For supportive responses, the community members are generally reminded to write meaningful and helpful comments. For example community guidelines in *r/depression* say, “Encouragement is not helpful unless it integrates real, personal understanding of the OP’s feelings and situation”. Communities also discourage hurtful and racist comments, and may also discourage research survey, advertisements, and other propaganda on the community without approval of the moderators.

Wikis and FAQs. Many OMHCs contain Wikis and FAQs (Frequently Asked Questions) sections where moderators share useful resources for the mental health issues relevant for their community. They also share information about other related communities that could be useful for individuals looking for help.

Sister Communities. Many OMHCs identify sister communities. These are Internet Relay Chats, discord chatrooms, or private related communities. We observed that these communities serve specific purposes such as synchronous support, or detailed and privacy-preserving social exchanges.

4 Methods

4.1 Choosing Interviewees

We note that over the years, social computing researchers have studied data unobtrusively gathered from Reddit communities for various problems [23,52,74,68,69]. Regarding their perspective towards research, we observed that while some communities explicitly encourage researchers about studying their community, others warn researchers about not doing so. However most of these communities generally prefer approval from moderation teams [71]. For instance, the *r/anxiety* community says, “*While study participation requests are not forbidden, you must message the mods for approval.*” Therefore, we were cautious in not posting about our research publicly in the community, and we contacted the moderators in getting approval for conducting research on their community.

4.2 Recruitment Process

Following approval from our institution’s Institutional Review Board (IRB), we used interviewing as our qualitative research method to study moderation in OMHCs. All the interviewers are familiar with research in social media and

Community	# Members	# Moderators	Community Age	# Interviews
r/Depression	177,682	11	7 years	2
r/Anxiety	112,415	11	5 years	3
r/adhd	71,890	16	5 years	1
r/BipolarReddit	16,376	7	7 years	1
r/KindVoice	8,939	7	3 years	1
r/schizophrenia	6,959	5	4 years	1
r/MaladaptiveDreaming	4,229	8	3 years	5
r/depressionRegimen	4,161	7	2 years	1
r/AvPD	2,758	2	4 years	1
r/DID	1,830	8	6 years	1
r/dysthymia	643	1	5 years	1
r/mentalhealth	27,996	2	5 years	1

Table 1: Summary statistics of the Reddit OMHCs studied in this paper.

mental health. Three coauthors already owned a Reddit handle and one of them created a new handle for this study. The interviewers began by actively observing the chosen 26 Reddit communities (ref: previous section) for two weeks before embarking on recruiting interviewees. We did not actively participate in these communities because of their sensitive nature and posting norms. As posting just for participation would seem disingenuous, we refrained from commenting or posting, and only made field observations.

For contacting the moderators of the chosen communities, we drafted a single message introducing ourselves, the purpose of our research study, our reddit user handles and urls to our personal/academic webpages. This was to establish trust with the moderators and enhance our credibility. Relatedly, one of the moderators later informed during the interview – *“We get spam mails asking for interviewing members. However, yours had college name and website and you did not ask to interview the members, so we were okay with it.”*.

We faced obstacles while contacting the moderators. Initially, our recruitment strategy consisted of contacting each moderator separately using the direct message feature on Reddit. However, some of the moderators responded back with the feedback that the best way to contact moderators is by using the “modmail” feature. Modmail is essentially a common mail feature which when used, forwards messages to all the moderators in the subreddit. We used this modmail feature to contact the moderators thereafter. Out of a total of 106 moderators (across 26 OMHCs) who were contacted, 34 moderators responded, 10 of whom rejected participating in our study outright. To the remaining 24 moderators who expressed interest, we sent a consent form to participate. Based on the 21 signed consent forms that we received, we conducted three skype interviews, two email interviews, two phone interviews, 13 Reddit chat interviews, and one face-to-face interview conducted on the authors’ college campus, with a participant who happened to live in the same city. Two participants abruptly dropped out in the middle of their interviews (one each on chat and email), and our rest of the study concerns the remaining 19 completed interviews. All the interviews lasted

between 30 to 90 minutes. These interviews were conducted in Spring 2017, and Table 1 gives an overview of the OMHCs (as of Spring 2017) whose moderators were interviewed for the purposes of the study.

5 Findings

5.1 RQ1: What it takes to be a moderator

We describe the basic moderation methodology followed in our chosen OMHCs. For this, we centered our interviews around enrollment policy, motivation, roles, and responsibilities of moderators. This section presents our observations on these high level constructs.

Moderator Enrollment Policy OMHCs administer community-specific policies to enroll moderators. While some communities have subjective and selective appointment of moderators, other communities follow a more formal application process that includes documentation and background verification. The themes of enrollment can be broadly grouped under – 1) Members approached existing moderation team; 2) Moderators approached members; and 3) Founded the community.

Members approached moderators. Out of the 16 moderators interviewed, 7 participants responded that they volunteered in becoming a moderator. The participants’ interest in applying for the role of a moderator had varied purposes, such as improving the community in terms of activity, engagement, and new features. This category involves active members who were self-motivated for moderating in the community.

Moderators approached members. For 7 out of the 16 participants, they were approached by the existing subreddit moderation team to moderate in the community. Like in the above case, the members were active members of the communities, which drew the attention of the moderators.

Founded the Community. The remaining three participants created their respective communities. These moderators felt the need of having a designated community for their corresponding purpose. One of the moderators said, “*I created this subreddit. There was a subreddit in depression, but I didn’t find any subreddit on specific condition*¹, so I created this for focused discussions.

Motivation of the Moderators Next, we discuss the motivation of the members in becoming a moderator of the mental health community. The responses were mostly grouped under the following categories:

Altruism. Altruism is one of the most dominating factors of collaboration in online communities [80]. Our findings suggest similar observation as most of our participants agreed to moderate solely on altruistic reasons. They answered that

¹ The mental health condition/community name has been obfuscated to safeguard the identity of the community.

it does feel good in helping fellow members undergoing mental health challenges. One participant attributed moderation as a form of “community service”, and an excerpt of interview response demonstrating altruistic reasons, goes like, *“I have gone through depression myself. Knowing what depression can do to someone, I aspire to offer support where I can because nobody deserves to feel so low. Being able to support others also greatly improves my self-confidence and overall makes me feel better about myself. This motivates me to support more people.”*.

Leadership Opportunity. Moderating a subreddit provides an opportunity to showcase one’s leadership and management skills. This is what motivated two participants in accepting the role of a moderator. The participants felt they feel a sense of ownership in moderating a community as one’s own, similar to what has been observed in prior work [50].

Improving the Community. Another notable pattern in motivation we observed among our participants, was their desire to improve the community in some regard. This included the cases when, they felt that the community lacked an active moderator, or they felt they could contribute new ideas, thoughts or design changes. One of the moderators, who was enthusiastic about bringing in design and customization changes in the subreddit, commented, *“The subreddit is important to me, and I wanted to improve it. I emailed the mods. I wanted to include a list of symptoms on the sidebar and also have an announcement that talked about a ‘treatment’ of specific condition. The moderators invited me to be a mod so I could make the changes I talked about.”*

Awareness about Treatment. While the community norms of many OMHCs discourage alternative medicine, treatment, and diagnosis related discussion in their forum, many moderators were motivated to spread a awareness, for example, *“I felt I could help some people being a moderator by spreading information about available therapy or training such as mindfulness or the use of supplements like omega-3, for example, that could be beneficial for people dealing with some mental health issues.”*.

Roles, Responsibilities of Moderators Moderators of OMHCs take up several roles and responsibilities. One of the most prevalent roles (among our participants) included cleaning up spam and troll posts. In particular, we asked the moderators how they defined spam, for which they responded – 1) posts which are offensive and derogatory to community members; 2) posts which violate community norms by any means (e.g., diagnosis-related posts in some communities); and 3) posts relating to commercials and irrelevant content. Besides removing such content, moderators also ban or warn members posting such content. Other roles included implementing Reddit features such as triggers and design changes for their community.

One theme we found was the way moderators deal with posts on self-harm and suicidal thoughts. Interestingly, such posts are a “strict no” for most communities because of the consequences they may have on fellow members. However, certain OMHCs employ strategies to specially handle such cases. For example, one common tactic was that although such posts are removed, the moderators personally follow up with the member over private chat to help counsel. At times,

it may be difficult for the moderators to find resolution, such as one moderator expressed, *“I do remove them, and I try to message them but I haven’t found a way to PM them in a tactful and sensitive way.”*

Notably, a particular OMHC has a methodological follow-up questionnaire, for every suicide-related posts, with questions centered around *“Plan”*, *“Means”*, *“Time set”*, and *“Intention”*. This OMHC further provides and recommends suicide hotline number. Some OMHCs employ certain design mechanisms, such as *suicide chatlines*, where any suicide related posts are diverted, such as a moderator mentioned, *“about suicide chat - suicide textline, we were wondering if we can put it on the side bar or like as a permanent thing”*, and *triggers*, which label any self-harm related posts with relevant markers about the content, like one of the participants commented, *“We have a trigger system - You put trigger in the title - suicide warning”*. Finally, moderators also cater to *redirecting* posts to more specific suicide related support communities like, *r/Suicide Watch*.

Moderation Group Structure OMHCs have varying hierarchical structure among moderators. By hierarchy, we do not mean explicitly assigned moderator designations but rather the implicit power balance amongst them. We observe four kinds of hierarchical equations— 1) distinct head moderator, 2) flat hierarchy, 3) single moderator, and 4) demarcated roles.

Distinct Head Moderator. Some communities have a distinct head moderator who functions as the final decision-maker. This person is typically the most active moderator or the creator the community. As one moderator says, *“I feel like there is a hierarchy but it is never really discussed. For example one moderator is the founding member and he has an upper say”*. As is evident from the interview excerpt, we found that although head moderators existed in some cases, it was very implicit and oftentimes not apparent at all.

Flat Hierarchy. Most OMHCs in our study maintain a flat hierarchy, like one moderator narrated *“if I and other person are disagreeing then other opinions are sought and decisions are taken on majority vote”*.

Single Moderator. Small communities may prevail with a single moderator. These are typically communities in their early stage and are relatively simplistic models of moderating.

Demarcated Roles. One OMHC assigned every moderator with different duties and demarcated roles: *“Every one of the moderators have full permissions so there isn’t any difference. However, I recruited mod1 because she is the most active user on the sub. She makes sure content is on topic and is flaired properly. I recruited mod2 for doing research and building a Wiki page.”*

5.2 RQ2: Social Support

Our next research question is centered around support sought and received in OMHCs, need of medical experts.

Regulating Support Sought and Received Our interviews suggest that OMHCs play an integral role in helping individuals who often lack social contact in their physical world lives. We find that individuals who approach OMHCs usually look for others who are experiencing or have experienced similar problems. People not only seek emotional support, but also seek advice on alternative ways to handle pain, stress, side effects of their treatment, etc. Some of the communities explained that comments giving drug suggestions are taken down, but they encourage people to share information about what worked for them.

One moderator who started the community said, *“I created it is as I wanted people to analyze and contribute to solutions to their everyday situations [...] it turned on its own into a support group. People started posting about their issues and received warm responses from others who offered empathy more than anything else.”*. This shows the ways in which a support community caters to the varying needs of its members.

Need of Medical Experts Since these communities relate to extending support on mental health conditions, we also asked the moderators if they feel the need of having medical experts. One OMHC had an expert who was pursuing her doctorate in psychotherapy. As described by a moderator of this community, this expert was active only once in four months and thus was not actively involved in moderation. Nevertheless, her presence was important as she helped individuals to understand specifics of their conditions and treatment.

Another community frequently hosts AMAs (which stands for “Ask Me Anything”), where medical experts are invited to answer community members’ questions regarding their diagnosis, treatment, medication etc. One of the moderators of this community explained the helpfulness of these open sessions, *“Before I became a mod, there was an AMA where a psychologist fielded questions by members. I believe it was a success. Something like that could be very useful again in the future.”*

Except these two instances, no other community has any moderators who were medical experts. Moreover, some of these communities did not feel the need of having medical experts. They argued that their communities only provide a supportive space whose purpose was not to provide any medical advice. For example, one moderator commented, *“It is a support community because it consists of people who have experiences with the same problem (mental health disorder) in this case [...] The community is there to offer advice and share experiences, and not to diagnose.”*, and another noted, *“We don’t allow actual medical advice as deciding what kind of treatment needs can’t be done through an internet forum [...] treatment cannot and should not be decided through internet forums, that’s not the most major concern we have.”*

However, some interviews showed inclination towards having experts, especially when more authority is required to help an individual, and one of the moderators expressed the need of experts when their community grows bigger, *“Maybe, I want in the future, when there are more members”*. This moderator described that trained professional is necessary to identify individuals needing immediate attention or to provide tailored help.

5.3 RQ3: Disclosure and Privacy

For our final research question, we describe moderators' perspective on self-disclosure and privacy in OMHCs.

Moderator Perspectives on Mental Health Disclosures We begin by investigating what features of the community enable and encourage self-disclosures regarding mental health concerns. First, aligning with prior research [4], we find that the pseudonymous nature on Reddit appears to be helping people candidly disclose their experiences around mental health challenges. The second design feature that enables candid disclosures is “throwaway accounts”. Throwaways are temporary accounts that users create to dissociate from their primary identity. Most throwaway accounts are used exactly once; thus their use disallows user behavior to be tracked historically, or through postings made from primary Reddit accounts [57].

Alongside the aforementioned design features, responses from moderators revealed motivations for community members' disclosures. One motivation is that disclosing or opening up leads to a “sense of belonging”. The social isolation that one encounters in the offline world is reduced by participating in such online communities where there is a notion of group membership. Next, according to the moderators, other motivations involved gaining a notion of personal empowerment. One interviewee mentioned that opening up about their mental health concerns provides them the strength to fight the challenge in the offline world. Being able to articulate their experiences also allows them to gain clarity which further enables in dealing with the challenges. This relates to how self-disclosure is allowing individuals to gain perspective and enabling them to fight the mental health challenges they face [58].

Finally, we found moderators to be optimistic regarding more people freely opening up on their communities. One moderator attributed this optimism to the progress made by the community over the years. Specifically, with an increasing number of members, the community was becoming more active. By seeing others opening up and finding positive outcomes, more members are inclined to open up. The same moderator also observed a decrease in the usage of throwaway accounts over time, *“I don't have any statistics off the top of my head, but just from my observations, it seems like more people are posting with their original accounts instead of making one-time-only accounts.”*

Privacy Concerns Interestingly, a striking majority of moderators whom we interviewed did not note any privacy concerns within their respective communities. Some attributed the lack of privacy concerns to the pseudonymous nature of Reddit, and others appeared to be incognizant of privacy violations within their community. Moderators, in general, seemed very respectful of the privacy concerns of community members. We also obtained responses that related this to a change in the mindset of people in general about mental health challenges. One moderator commented on the growing awareness around mental health issues and how it enables individuals to easily open up on online communities,

and another expressed that the privacy provided by anonymous online communities empowers people to conduct sensitive discussions, *“I think more people in general are being open about their struggles, whether it is online or in person. I’m seeing more things like celebrities all over the world opening up about having mental illness(es) and/or being diagnosed.”*

However, moderators noted isolated incidents of privacy violations. For instance, a thread asked members to share their location, so they could find and connect with each other in the physical world. Another incident involved a member being stalked on Reddit by another user, who upon investigation was also a moderator of the mental health community. The interviewed moderator faced difficulty in resolving the issue between a member and another moderator. Such contrasting experiences, despite a lack of privacy concerns reveals limited perceptions of risk that one encounters when privacy is compromised.

6 Discussion and Conclusion

6.1 Overview of Findings

By interviewing moderators of online mental health communities (OMHCs), we examined the moderation practices and perspectives on the functioning of Reddit OMHCs. Our findings primarily revolve around three major themes — moderation, support, and self-disclosure in Reddit OMHCs. First, we presented insights on the various motivations, roles, and responsibilities of OMHC moderators. We note several distinctions— these include altruistic motivations of moderators and unique responsibilities such as moderating sensitive posts on self-harm and suicidal ideation. Next, we draw insights on how support is sought and provided. We observe that alongside emotional support, these communities provide a space for individuals undergoing mental health challenges to seek and provide advice on experiences and coping mechanisms. Finally, we note how these communities provide online spaces for self-disclosure on stigmatized concerns.

6.2 Challenges of Moderation

Based on our interviews with moderators of OMHCs, we identify three major challenges faced by these communities that seek to provide a safe haven of information seeking and support to individuals in need.

Privacy. With sensitive and stigmatized mental health concerns being shared in these communities, it is important to balance that against privacy-related concerns. We note a striking discord in the notion of privacy as revealed by the moderators. While a majority of them did not acknowledge any serious privacy concerns present in the communities they moderate, some moderators expressed the importance of privacy concerns and expected the community members to be cautious about what they reveal. While certain design features may enhance the sense of belonging and can lead to positive outcomes, it is important to weigh the benefits against concerns regarding an individual’s privacy and potential negative consequences. Intentional or inadvertent release of personally

identifiable information may be exploited by bad actors or targeted advertisers. Because there is a perceived safety on the grounds of pseudonymity on Reddit, rather than a cautionary approach, most responses elicited an incognizant view towards privacy. This calls into questioning the efficacy of the various community affordances in supporting moderation and intervention.

Along similar lines, there is a constant negotiation between the goals of self-disclosure and privacy. Our work suggests the necessity to educate and raise awareness about privacy-related concerns and subsequent consequences to community members in a better fashion — this could be driven both at social computing platform level (Reddit), and at community-specific level by the moderators. While it is important that individuals feel comfortable to open up about their experiences on these communities, it is also crucial that they do so in an informed manner with regards to potential consequences associated with the reveal of sensitive and personally identifiable information.

Moderating Content. Our work contributes to understanding transparency of moderation practices broadly in online communities [38,44], and particularly in OMHCs. OMHCs have unique moderation goals. In terms of mitigating trolling behavior, spam, harassment, or even unhelpful content, these communities need to be extra cautious given the sensitive nature of discussions. These bad behaviors may become additional triggers to such a sensitive vulnerable population [67]. These communities also see a range on posts on self-harm and suicidal ideation which could negatively affect other members. Therefore, in contrast to regular online communities, moderation in OMHCs comes with an increased sense of liability, responsibility, and opportunity to have significant impact.

Wellbeing of Moderators and Volunteers. The wellbeing of OMHC moderators is an important aspect that is often ignored. They read through several posts daily, many of which are psychologically triggering. These moderators have struggled with some form of mental illness at some point of time, or in the present. In fact, our participant pool included moderators who acknowledged that they felt suicidal in the past. One moderator claimed that they were aware of their own mental health condition, and reckoned that they intentionally should not go through too much of negative content at a single go, and they limited the duration of moderation activities per day. To curb negative outcomes such as moderators being distressed by reading enormous volumes of negative content, our work implies the need of appropriate measures within OMHC moderation paradigm to ensure their wellbeing.

6.3 Design Implications

Building on our findings and insights into the challenges faced by OMHCs on Reddit, we propose the following two design directions.

Improved Triaging of Posts. As discussed before, triaging posts is an extremely important task on these communities. Beyond tackling trolling, harassment, and spam, members who post about sensitive expect back a response from the community. Especially, in cases when one posts a critically urgent concern, they need to be responded back as immediately as possible with peer-support and

coping strategies. Further, it is crucial that the response is positively affirming and helpful [56]. However, it is a difficult task for a limited number of moderators to address the concerns in every post throughout the day. The ever-growing nature of these communities corresponds to further aggravation of the problem. Some communities have existing features like an auto-mod to ensure that posts with urgency are flagged and that every post gets an automated response. To extend these efforts, automated mechanisms could be recommended to provide scalability and personalized support through efficient triaging of posts. These communities can additionally collaborate with crisis helpline organizations to implement strategies of triaging and effective interventions.

Early Detection of Mental Health Concerns. In addition to the above, automated approaches can facilitate early detections of the adversity of mental health using longitudinal data of the individuals [28,66]. While automated approaches may lack clinical accuracy and relevance, they can assist in instrumenting tailored and timely support efforts by recommending consultation with clinicians and counselors. Similarly, some of the seasoned peer-supporters can be made aware in advance regarding the concerns of those members struggling with severity in their mental health conditions.

AMAs with experts. Ask me anything (AMAs) are popular interaction medium on Reddit where experts answer questions raised by community members. For OHMCs, our findings from RQ2 suggest that AMAs with clinical experts might help members of these communities to get access to informational resources and raise awareness. However, this recommendation does not apply for specific medical questions related to diagnosis or prescriptions.

Designing for support provisioning. Presently, OMHCs rely on the structure and design of post-comment discussion threads for provisioning and reaching out for support. The same discussion thread structure is used for asking questions, raising awareness, sharing experiences and discussing community-related topics. By designing different interaction mechanisms for reaching out and provisioning social support, we believe the community can better manage support matching. For instance, someone who is seeking emotional support can request a listener who is comfortable with the others' disclosure. Similarly, someone with a comorbid condition might be looking for similar others to understand their experiences. Such a design can help in delegating responsibilities that are currently taken up by moderators to other members.

7 Acknowledgements

This project was approved by the Institutional Review Board (IRB) at Georgia Tech. We thank Eric Gilbert and Michaelanne Dye for their valuable feedback.

References

1. Nazanin Andalibi. Social media for sensitive disclosures and social support: the case of miscarriage. In *Proc. GROUP*. ACM, 2016.

2. Nazanin Andalibi, Oliver L Haimson, Munmun De Choudhury, and Andrea Forte. Understanding social media disclosures of sexual abuse through the lenses of support seeking and anonymity. In *Proc. CHI*, 2016.
3. Nazanin Andalibi, Margaret E. Morris, and Andrea Forte. Testing Waters, Sending Clues: Indirect Disclosures of Socially Stigmatized Experiences on Social Media. *PACM HCI*, 2(CSCW), November 2018.
4. Nazanin Andalibi, Pinar Ozturk, and Andrea Forte. Sensitive self-disclosures, responses, and social support on instagram: the case of# depression. In *CSCW*, 2017.
5. Antonina Bambina. *Online social support: the interplay of social networks and computer-mediated communication*. Cambria press, 2007.
6. Azy Barak, Meyran Boniel-Nissim, and John Suler. Fostering empowerment in online support groups. *Computers in Human Behavior*, 24(5):1867–1883, 2008.
7. Christopher E Beaudoin and Chen-Chao Tao. Benefiting from social capital in online support groups: An empirical study of cancer patients. *CyberPsychology & Behavior*, 10(4):587–590, 2007.
8. Kelly Bergstrom. “don’t feed the troll”: Shutting down debate about community expectations on reddit. com. *First Monday*, 16(8), 2011.
9. Jonathan Bishop. *Examining the concepts, issues, and implications of internet trolling*. IGI Global, 2013.
10. Brant R Burleson, Erina L MacGeorge, ML Knapp, and JA Daly. Supportive communication. *Handbook of interpersonal communication*, 3:374–424, 2002.
11. Scott E Caplan and Jacob S Turner. Bringing theory to research on computer-mediated comforting communication. *Comput. Hum. Behav*, 2007.
12. Stevie Chancellor, Andrea Hu, and Munmun De Choudhury. Norms matter: contrasting social support around behavior change in online weight loss communities. In *Proc. CHI*, 2018.
13. Stevie Chancellor, Zhiyuan Jerry Lin, and Munmun De Choudhury. This post will just get taken down: characterizing removed pro-eating disorder social media content. In *Proc. CHI*, 2016.
14. Stevie Chancellor, George Nitzburg, Andrea Hu, Francisco Zampieri, and Munmun De Choudhury. Discovering alternative treatments for opioid use recovery using social media. In *Proc. CHI*, 2019.
15. Eshwar Chandrasekharan, Umashanthi Pavalanathan, Anirudh Srinivasan, Adam Glynn, Jacob Eisenstein, and Eric Gilbert. You can’t stay here: The efficacy of reddit’s 2015 ban examined through hate speech. *PACM HCI (CSCW)*, 2017.
16. Eshwar Chandrasekharan, Mattia Samory, Shagun Jhaver, Hunter Charvat, Amy Bruckman, Cliff Lampe, Jacob Eisenstein, and Eric Gilbert. The internet’s hidden rules: An empirical study of reddit norm violations at micro, meso, and macro scales. *PACM HCI*, (CSCW), 2018.
17. Justin Cheng, Michael Bernstein, Cristian Danescu-Niculescu-Mizil, and Jure Leskovec. Anyone can become a troll: Causes of trolling behavior in online discussions. In *Proc. CSCW*, 2017.
18. Jae Eun Chung. Social interaction in online support groups: Preference for online social interaction over offline social interaction. *Computers in Human Behavior*, 2013.
19. Sheldon Cohen and Thomas A Wills. Stress, social support, and the buffering hypothesis. *Psychological bulletin*, 98(2):310, 1985.
20. Paul C Cozby. Self-disclosure: a literature review. *Psychological bulletin*, 79(2):73, 1973.
21. Munmun De Choudhury and Sushovan De. Mental health discourse on reddit: Self-disclosure, social support, and anonymity. In *ICWSM*, 2014.

22. Munmun De Choudhury and Emre Kiciman. The language of social support in social media and its effect on suicidal ideation risk. In *ICWSM*, 2017.
23. Munmun De Choudhury, Emre Kiciman, Mark Dredze, Glen Coppersmith, and Mrinal Kumar. Discovering shifts to suicidal ideation from mental health content in social media. In *Proc. CHI*, 2016.
24. Munmun De Choudhury, Sanket Sharma, Tomaz Logar, Wouter Eekhout, and René Nielsen. Quantifying and understanding gender and cross-cultural differences in mental health expression via social media. In *CSCW*, 2017.
25. Judith S Donath. We need online alter egos now more than ever. *Wired Magazine*, 2014.
26. Christine Dunkel-Schetter. Social support and cancer: Findings based on patient interviews and their implications. *Journal of Social issues*, 40(4):77–98, 1984.
27. Sindhu Kiranmai Ernala, Tristan Labetoulle, Fred Bane, Michael L Birnbaum, Asra F Rizvi, John M Kane, and Munmun De Choudhury. Characterizing audience engagement and assessing its impact on social media disclosures of mental illnesses. In *Twelfth International AAAI Conference on Web and Social Media*, 2018.
28. Sindhu Kiranmai Ernala, Asra F. Rizvi, Michael L. Birnbaum, John M. Kane, and Munmun De Choudhury. Linguistic markers indicating therapeutic outcomes of social media disclosures of schizophrenia. *Proc. ACM Hum.-Comput. Interact.*, 1(CSCW):43:1–43:27, December 2017.
29. Benjamin Fabian, Annika Baumann, and Marian Keil. Privacy on reddit? towards large-scale user classification. In *ECIS*, 2015.
30. Andrea Forte, Nazanin Andalibi, and Rachel Greenstadt. Privacy, anonymity, and perceived risk in open collaboration: A study of tor users and wikipedians. In *Proceedings of the 2017 ACM Conference on Computer Supported Cooperative Work and Social Computing*, pages 1800–1811, 2017.
31. Deborah Goebert, Iwalani Else, Courtenay Matsu, Jane Chung-Do, and Janice Y Chang. The impact of cyberbullying on substance use and mental health in a multiethnic sample. *Maternal and child health journal*, 15(8):1282–1286, 2011.
32. Erving Goffman. *Stigma: Notes on the management of spoiled identity*. Simon and Schuster, 2009.
33. Jeremy A Greene, Niteesh K Choudhry, Elaine Kilabuk, and William H Shrank. Online social networking by patients with diabetes: a qualitative evaluation of communication with facebook. *Journal of general internal medicine*, 2011.
34. James Grimmelmann. The virtues of moderation. *Yale JL & Tech.*, 17:42, 2015.
35. Oliver L Haimson, Jed R Brubaker, Lynn Dombrowski, and Gillian R Hayes. Disclosure, stress, and support during gender transition on facebook. In *CSCW*, pages 1176–1190. ACM, 2015.
36. Vicki S Helgeson, Sheldon Cohen, Richard Schulz, and Joyce Yasko. Long-term effects of educational and peer discussion group interventions on adjustment to breast cancer. *Health Psychology*, 20(5):387, 2001.
37. Shagun Jhaver, Iris Birman, Eric Gilbert, and Amy Bruckman. Human-machine collaboration for content regulation: The case of reddit automoderator. *ACM TOCHI*, 2019.
38. Shagun Jhaver, Amy Bruckman, and Eric Gilbert. Does transparency in moderation really matter? user behavior after content removal explanations on reddit. *Proceedings of the ACM on Human-Computer Interaction*, 3(CSCW):1–27, 2019.
39. Shagun Jhaver, Larry Chan, and Amy Bruckman. The view from the other side: The border between controversial speech and harassment on kotaku in action. *First Monday*, 23(2), 2018.
40. Adam Joinson. Causes and implications of disinhibited behavior on the internet. 1998.

41. Adam N Joinson. Self-disclosure in computer-mediated communication: The role of self-awareness and visual anonymity. *Eur. J. Soc. Psychol.*, 2001.
42. Adam N Joinson and Carina B Paine. Self-disclosure, privacy and the internet. *The Oxford handbook of Internet psychology*, page 2374252, 2007.
43. Sidney M Jourard. Self-disclosure: An experimental analysis of the transparent self. 1971.
44. Prerna Juneja, Deepika Rama Subramanian, and Tanushree Mitra. Through the looking glass: Study of transparency in reddit’s moderation practices. *Proceedings of the ACM on Human-Computer Interaction*, 4(GROUP):1–35, 2020.
45. Ruogu Kang, Laura Dabbish, and Katherine Sutton. Strangers on your phone: Why people use anonymous communication applications. In *Proc. CSCW*, 2016.
46. Berton H Kaplan, John C Cassel, and Susan Gore. Social support and health. *Medical care*, 15(5):47–58, 1977.
47. Kitty Klein and Adriel Boals. Expressive writing can increase working memory capacity. *Journal of experimental psychology: General*, 130(3):520, 2001.
48. Aideen Lawlor and Jurek Kirakowski. Online support groups for mental health: A space for challenging self-stigma or a means of social avoidance? *Computers in Human Behavior*, 32:152–161, 2014.
49. Yong Liu, Denzil Ferreira, Jorge Goncalves, Simo Hosio, Pratyush Pandab, and Vassilis Kostakos. Donating context data to science: The effects of social signals and perceptions on action-taking. *Interacting with Computers*, 2016.
50. Kurt Luther and Amy Bruckman. Leadership in online creative collaboration. In *Proc. CSCW*, 2008.
51. Lydia Manikonda and Munmun De Choudhury. Modeling and understanding visual attributes of mental health disclosures in social media. 2017.
52. J Nathan Matias. Going dark: Social factors in collective action against platform operators in the reddit blackout. In *Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems*, pages 1138–1151. ACM, 2016.
53. Marifran Mattson and Jennifer Gibb Hall. *Health as communication nexus: A service-learning approach*. 2011.
54. JA Naslund, KA Aschbrenner, LA Marsch, and SJ Bartels. The future of mental health care: peer-to-peer support and social media. *Epidemiology and psychiatric sciences*, 25(02):113–122, 2016.
55. Mark W Newman, Debra Lauterbach, Sean A Munson, Paul Resnick, and Margaret E Morris. It’s not that i don’t have problems, i’m just not putting them on facebook: challenges and opportunities in using online social networks for health. In *Proceedings of the ACM 2011 conference on Computer supported cooperative work*, pages 341–350. ACM, 2011.
56. John C Norcross and Michael J Lambert. Psychotherapy relationships that work iii. *Psychotherapy*, 55(4):303, 2018.
57. Umashanthi Pavalanathan and Munmun De Choudhury. Identity management and mental health discourse in social media. In *Proc. WWW Companion*, 2015.
58. James W Pennebaker. Writing about emotional experiences as a therapeutic process. *Psychological science*, 8(3):162–166, 1997.
59. James W Pennebaker and Cindy K Chung. Expressive writing, emotional upheavals, and health. *Foundations of health psychology*, pages 263–284, 2007.
60. Pew. [pewinternet.org/fact-sheet/social-media](https://www.pewinternet.org/fact-sheet/social-media), 2018. Accessed: 2018-04-18.
61. Henry WW Potts. Online support groups: an overlooked resource for patients. *He@lth Information on the Internet*, 44(1):6–8, 2005.
62. John Powell and Aileen Clarke. Internet information-seeking in mental health. *The British Journal of Psychiatry*, 189(3):273–277, 2006.

63. Yada Pruksachatkun, Sachin R Pendse, and Amit Sharma. Moments of change: Analyzing peer-based cognitive support in online mental health forums. In *Proc. CHI*, 2019.
64. Diane M Quinn and Stephenie R Chaudoir. Living with a concealable stigmatized identity: the impact of anticipated stigma, centrality, salience, and cultural stigma on psychological distress and health. *J. Pers. Soc. Psychol.*, 2009.
65. Robert R Rodriguez and Anita E Kelly. Health effects of disclosing secrets to imagined accepting versus nonaccepting confidants. *J. Soc. Clin. Psychol.*, 2006.
66. Koustuv Saha, Larry Chan, Kaya De Barbaro, Gregory D Abowd, and Munmun De Choudhury. Inferring mood instability on social media by leveraging ecological momentary assessments. *Proc. ACM IMWUT*, 2017.
67. Koustuv Saha, Eshwar Chandrasekharan, and Munmun De Choudhury. Prevalence and psychological effects of hateful speech in online college communities. In *WebSci*, 2019.
68. Koustuv Saha and Munmun De Choudhury. Modeling stress with social media around incidents of gun violence on college campuses. *Proc. HCI, (CSCW)*, 2017.
69. Koustuv Saha, Sang Chan Kim, Manikanta D Reddy, Albert J Carter, Eva Sharma, Oliver L Haimson, and Munmun De Choudhury. The language of lgbtq+ minority stress experiences on social media. *PACM HCI, (CSCW)*, 2019.
70. Koustuv Saha, Benjamin Sugar, John Torous, Bruno Abrahao, Emre Kiciman, and Munmun De Choudhury. A social media study on the effects of psychiatric medication use. In *ICWSM*, 2019.
71. Irving Seidman. *Interviewing as qualitative research: A guide for researchers in education and the social sciences*. Teachers college press, 2013.
72. Eva Sharma and Munmun De Choudhury. Mental health support and its relationship to linguistic accommodation in online communities. In *Proc. CHI*, 2018.
73. Eva Sharma, Koustuv Saha, Sindhu Kiranmai Ernala, Sucheta Ghoshal, and Munmun De Choudhury. Analyzing ideological discourse on social media: A case study of the abortion debate. In *Proc. CSS. ACM*, 2017.
74. Martin Shelton, Katherine Lo, and Bonnie Nardi. Online media forums as separate social lives: A qualitative study of disclosure within and beyond reddit. *iConference 2015 Proceedings*, 2015.
75. Sarah E Ullman and Henrietta H Filipas. Predictors of ptsd symptom severity and social reactions in sexual assault victims. *Journal of traumatic stress*, 2001.
76. Emily van der Nagel and Jordan Frith. Anonymity, pseudonymity, and the agency of online identity: Examining the social practices of r/gonewild. *First Monday*, 2015.
77. Jessica Vitak. The Impact of Context Collapse and Privacy on Social Network Site Disclosures. *Journal of Broadcasting & Electronic Media*, 56, 2012.
78. Yi-Chia Wang, Moira Burke, and Robert Kraut. Modeling self-disclosure in social networking sites. In *CSCW*, pages 74–85. ACM, 2016.
79. Yi-Chia Wang, Robert Kraut, and John M Levine. To stay or leave?: the relationship of emotional and informational support to commitment in online health support groups. In *CSCW*, pages 833–842. ACM, 2012.
80. M McLure Wasko and Samer Faraj. “it is what one does”: why people participate and help others in electronic communities of practice. *The Journal of Strategic Information Systems*, 9(2):155–173, 2000.
81. Diyi Yang, Robert Kraut, and John M Levine. Commitment of newcomers and old-timers to online health support communities. In *Proc. CHI*, 2017.
82. Diyi Yang, Zheng Yao, and Robert Kraut. Self-disclosure and channel difference in online health support groups. In *ICWSM*, 2017.