

Video-Mediated Peer Support in an Online Community for Recovery from Substance Use Disorders

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ABSTRACT

People in recovery from substance use disorders seek peer support through online health communities like InTheRooms.com (ITR). This community provides the unique opportunity to study video-mediated health peer support online, as it hosts over 100 weekly video meetings for fellowships like Alcoholics Anonymous (AA). We describe two synergistic investigations of participants' use, perceptions, and tensions around video meetings on ITR: an online questionnaire, and in-depth interviews with active site members. We discuss four themes that may be important to other peer-support health communities: opportunities for video-mediated support, synergy with face-to-face contact, challenge of transparency of norms, and the importance of constructive moderation.

Author Keywords

Online health community; peer support; recovery; twelve-step fellowship; video-mediated communication.

ACM CLASSIFICATION KEYWORDS

H.5.2. [Information Interfaces and Presentation]: User Interfaces: User-Centered Design

INTRODUCTION

People rely on online health communities to exchange information, receive and provide support, and find a social network of others with the same condition. According to a 2014 Pew Internet report, 40% of U.S. adult Internet users have sought or given advice about a chronic health condition online [10]. Peer support received in online health communities has been shown to provide benefits for people facing health conditions [13]. Users of these groups can communicate with each other via available communication tools like forum posts, emails, chats, etc. whenever they need support or information regarding their specific health condition. CSCW researchers have been interested in exploring chal-

lenges and opportunities for design in these online peer support groups for people with physical or mental health conditions, like cancer, autism, smoking, overeating, alcohol or other drug addictions, etc. (e.g., [21,32,41,55,57]). We contribute to this body of work, expanding our understanding of the role of online peer support in recovery from substance use disorders and exploring new channels for support in this domain.

Substance use disorders are characterized by the condition of clinically significant impairment caused by extensive use of alcohol or other drugs. According to a study by Substance Abuse and Mental Health Services Administration (SAMHSA), more than 23.5 million Americans abused drug and alcohol in 2009, which is more than nine percent of the population over the age of 12 [1]. These disorders are a medical condition which is estimated to cost the United States \$223.5 billion per year [1]. Substance use disorders are prevalent, high-impact health conditions, but there is always hope for recovery. Common treatments to support initial abstinence and prevent subsequent relapses are detox and hospital/treatment center intervention with professional-led after-care programs. However, after this initial treatment (generally, 1-6 months) patients typically rely on one or more maintenance programs such as replacement therapy, cognitive behavioral therapy (CBT), SMART recovery, or a 12-step program for long-term recovery [27]. Twelve-step fellowships (such as Alcoholics Anonymous and Narcotics Anonymous) have been shown to be equally effective as other maintenance approaches [48], but have the benefit of being free of cost and widely available anywhere in the world. AA and NA focus on providing face-to-face (f2f) meetings where people share and provide support. However, it is only recently that this approach has been expanded to online communities. Online 12-step fellowships use a number of unique peer-support practices to reach and help each other. Understanding how technology is used by these groups can inform other peer support health communities as well.

One example of innovation in online communities for recovery from substance use disorders is the use of video-mediated meetings for peer-led synchronous social support. In this paper we investigate these meetings through two synergistic investigations:

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CSCW '17, February 25-March 01, 2017, Portland, OR, USA
© 2017 ACM. ISBN 978-1-4503-4335-0/17/03...\$15.00
DOI: <http://dx.doi.org/10.1145/2998181.2998246>

- **Questionnaire** distributed to members of this online community to understand how video-mediated meetings fit into their support ecosystem.
- **In-depth interviews** with active members of this online community to understand their lived experience with online meetings and how they manage inherent tensions involved in this style of recovery.

Previous CSCW health support community investigations have focused on text-based support (e.g., [33,57,68]). Clinical communities have examined video-based support in the past, but only as part of professionally-delivered clinical interventions (e.g., [35–38,43]). However online recovery communities are unique in that they provide us with the opportunity to investigate synchronous video-mediated peer support in a naturalistic context. We aim to understand the role of this video-mediated peer support and identify underlying tensions in this type of communication to inform design of other peer support health communities.

We begin by situating our work in the context of previous research on online health communities, peer support for substance use disorders, and video-mediated synchronous communication. Next, we describe the specific online community that is the setting for our investigations, as well as outline the situating quantitative characteristics of this community. Then, we discuss the methods and results of two synergistic investigations, including five vital tensions inherent in synchronous communication in this community. We conclude with a discussion connecting this work to key CSCW themes and by providing implications for other online peer-support communities.

RELATED WORK

In this research, we build on the significant body of work regarding how people find peer support in online health communities. We discuss this body of work and the new perspectives that our study offers by focusing specifically on remote synchronous video-mediated peer-support for recovery from substance use disorders.

Online Peer-Support Health Communities

Dedicated online peer-support health communities are important because people may not be comfortable discussing health conditions on general-purpose social networking sites [45]. There have been many investigations of online peer-support health communities focused on issues as diverse as weight loss [41], cancer [14], and infertility [61]. Such communities may provide participants with information and trustworthy advice (e.g., [56]), as well as social support, friendship, and encouragement (e.g., [17,33]). However, there are also a number of common challenges as some of these communities struggle to maintain active engagement [40], find a good balance between those who provide support and those who receive it [50], negotiate divergent viewpoints and models of the condition in question [34], and maintain members' privacy [51]. One limitation of this corpus is that

the majority of this diverse body of work has focused on text-based forums, chat rooms, or discussion boards. We build on this diverse body of work by considering many of the same underlying threads of anonymity, self-disclosure, identity, and mutual support in the unique context of online recovery from substance use disorders. Additionally, this work focuses on synchronous video-based peer support groups—a technology that has not been explored yet in other online peer-support health community in a naturalistic context.

Peer Support in Recovery for Substance Use Disorders

Substance use disorders are viewed as a chronic condition and a continued maintenance program is recommended for sustained recovery [53]. Unlike other chronic health conditions, peer support is not just a meta-activity for people in recovery from substance use but is rather viewed a first-order activity in continued recovery [24,62]. The most common long-term maintenance programs in the United States are twelve-step based peer-support programs such as Alcoholics Anonymous (AA) and Narcotics Anonymous (NA) [19,48]. Synchronous peer support received in 12-step meetings and through one-on-one communication with one's recovery sponsor are key activities for sustained recovery [58]. Historically, these activities have been conducted face-to-face, however recent work point to the potential for technology to augment and expand access to this form of support.

For example, several investigations have examined how online forums can provide a venue for discussion and support individual abstinence from nicotine [68], opioids [32], and alcohol [9,57]. Most of these investigations have focused on predicting continued participation and self-reported abstinence based on specific linguistic features of the participants' posts in the community. In clinical domains, several computer-based interventions have been considered for providing information, targeted feedback, or access to counseling to supplement traditional interventions (e.g., [5,11,20]). These investigations typically focus on clinician-led programs and examine efficacy outcomes. None of these investigations address why people turn to computer-based interventions and online forums, or how they view online recovery.

Only three studies have looked at recovering people's perceptions of the role of technology in how they recover and connect with their support networks. In the first study, Campbell and Kelley showed that members of AA value mobile phones as a way of connecting with each other outside of meetings [7]. In a second study, participants who used SoberDiary—a mobile sensing system to track relapse—found that technology could provide an objective way of legitimizing their initial efforts to remain sober [60,67]. However, this study did not consider the role of technology in long-term abstinence and recovery. The third study showed that 12-step group members use a variety of technologies including phone, video-chat, and messaging technologies to augment face-to-face meeting attendance [65]. All three of these studies point to the continued importance of the 12-step *meeting*

as a primary venue of recovery, but none investigated perceptions or role of synchronous online 12-step meetings in individual recovery. While remote synchronous meetings using a telephone conference system have been available to members of 12-step programs for decades (e.g., [69]) and via video-chat more recently, there has been no scholarly work examining member participation in synchronous online meetings.

Remote Synchronous Communication

The field of CSCW has explored synchronous computer-mediated communication tools throughout its history. Much of this work has focused on the use of video-chat and novel synchronous communication technologies in the workplace (e.g., [6,59]) and home (e.g. [3,26,66]). In the health and wellness domain, CSCW explorations of synchronous remote communication tools have mostly focused on collaborations between medical professionals (e.g., [42]) and patient-doctor telemedicine consultations (e.g., [30]). Similarly, related fields outside of CSCW have generally focused on telemedicine and remote professional counseling interactions when considering the role of remote synchronous communication in health and wellness (e.g. [2,8]). Though the role of remote synchronous peer support has remained largely unexamined in CSCW, implications from these other contexts sensitized us to potential challenges for video-mediated peer support, for example: people are less trusting over video-chat [4]; people are more likely to give riskier advice [30]; joint attention is difficult [47]; and misbehavior is common in anonymous video-chat [64].

Outside of CSCW, two sets of investigations have considered the potential efficacy of video-based support interventions. One set of video-based investigations delivered the Healthy Relationships behavioral intervention to a group of women living with HIV [35–37]. Another video-based intervention examined the deployment of a 10-session manual-guided psychosocial support group for caregivers of older adults with neurodegenerative disease [38,43]. Both of these investigations found clinical benefits of such social support interventions deployed over video-chat. Our investigation contributes to this body of work but differs in three important ways. First of all, we are able to examine video-based social support in a naturalistic long-term context rather than as a short-term controlled intervention. Second, both of these investigations involved interventions that were delivered by a trained professional, whereas this investigation is able to provide insight on entirely peer-led support (thus, highlighting a different set of social support issues). Third, 12-step programs are an exceptional cultural context [63], worthy of investigation in their own right. This context can provide unique insight, for example, our participants are able to explicitly compare in-person and video-chat meetings (the ma-

majority having tried both). These differences allow us to consider the novel perspectives that video-based 12-step meetings can offer regarding video-based peer support.

INTHEROOMS.COM

InTheRooms.com¹ (ITR) is the largest online community for recovering addicts, and their friends and families, hosting over 398 thousand members. This is a free public social networking site focused on connecting people in recovery and others affected by substance use disorders with peer support. Like other online communities, the ITR platform provides many features for social communication like profiles, wall posts, status updates, private messaging, instant messaging, blogs, discussion boards, and more. However, it also provides a unique mechanism for hosting and attending video-mediated peer support groups and meetings. ITR hosts more than 100 video meeting groups at regularly scheduled weekly times. These meetings span 18 recovery fellowships (e.g., AA, NA, Al-Anon, etc.). Each meeting is led by a chairperson (a volunteer peer) who selects the topic and readings for each (typically) 60-minute meeting and guides others in sharing their stories. Figure 1 shows the interface of an in-progress 12-step video meeting.

In order to learn more about this website and its users, we created a timed web crawling framework to scrape data from ITR throughout a period of three months (February 2016 to April 2016). While the full discussion of this process and findings is outside of the scope of this paper, some parts of this process are important to situate our work. We collected a list of online users (as pseudonyms) every hour, a list of meeting attendees and chairpersons for every online video meeting, and users' profile information. During the three-month data collection period, 16,452 different users accessed the website. These users' profiles revealed that these participants were more likely to be women, with 57% of those who revealed their gender reporting being female (overall statistics: 39% female, 29% male, 32% unspecified). They were likely to be middle-aged ($M=46$, $SD=13.6$). Participants self-reported an average of 7.4 years ($SD=9.3$) in continuous recovery. We were able to gather meeting attendance data for 1,142 total meetings in the three-month period. Of the 16,452 users who accessed ITR during the study, 5,508 (33%) attended in at least one video meeting. On average, each meeting had 99 audience participants ($SD=39$). For each person who attended at least one meeting, the average number of meetings attended in the three-month period was 8 ($SD=19.33$). This situating quantitative process provided us with the context to conduct our mixed-methods and qualitative investigations of online video meetings.

There are two reasons why this is a community of interest to CSCW researchers. First, this community is a source of sensitized participants who are able to discuss and articulate

¹ <http://www.intherooms.com>

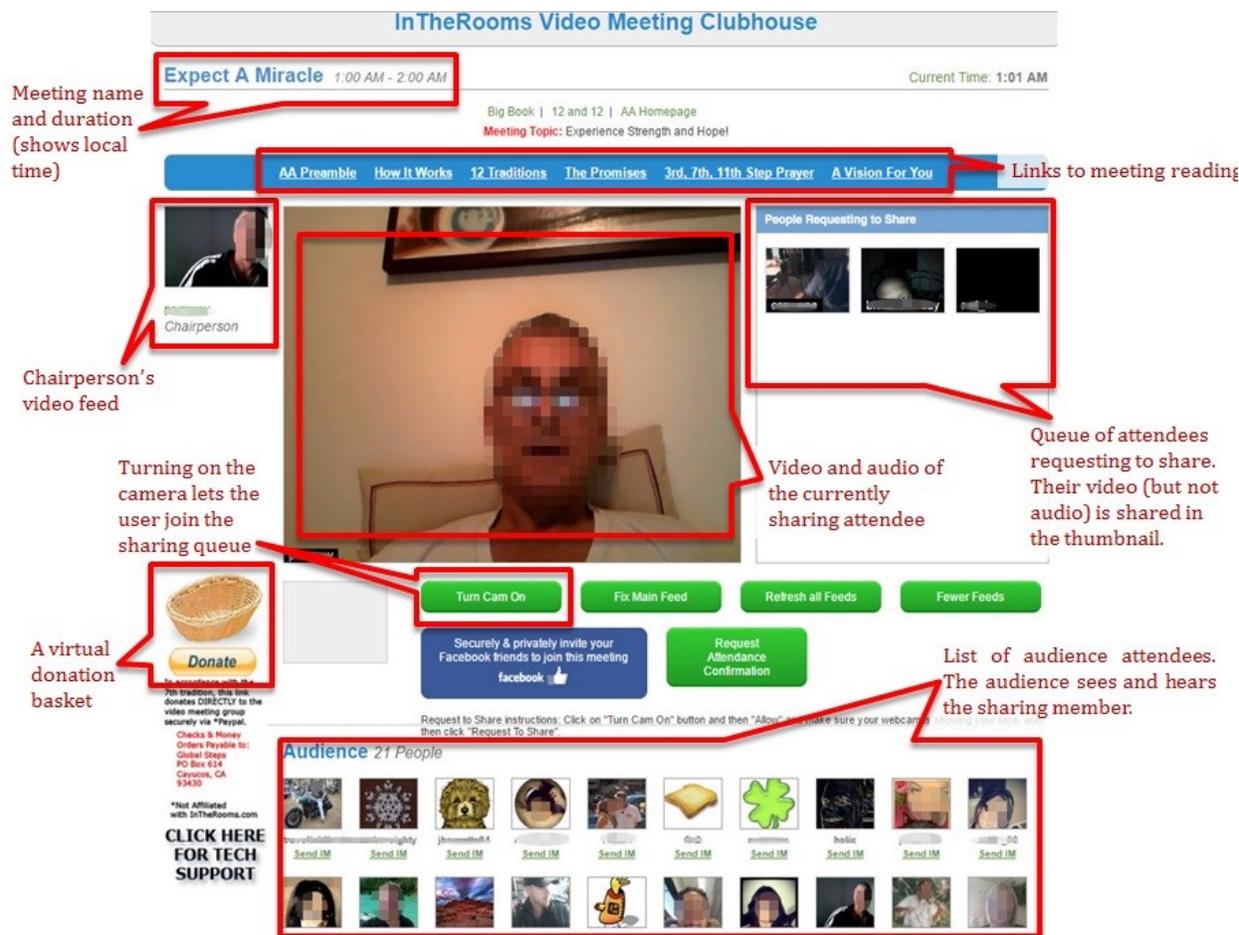


Figure 1. The Interface and Key Features of an InTheRooms.com Online 12-step Meeting

core topics, such as enacting anonymity, forming and maintaining strong tie support networks, and group self-organization around the sociotechnical issues of privacy, enforcing social norms, and more. Second, this is the first opportunity to study active video-mediated peer support meetings in an online health community in a naturalistic (rather than clinical intervention) setting. Understanding video-mediated meeting practices in this community can inform the design of technologies in other health contexts.

ETHICAL CONSIDERATIONS

Recovery from substance use is a personal and private undertaking for most people and we took steps to consider the ethical implications of our work and to protect the rights of ITR users. All research activity on this project was reviewed and approved by our university IRB as an investigation where potential benefits of the scientific work outweighed the risks to the participants. The approval covered three phases.

First, in order to scrape basic quantitative characteristics of website use (described above), we created an account

marked as a research account and unaffiliated with any fellowship. We confirmed that such scraping activity did not violate terms of service. ITR meetings are considered public online spaces since they are listed as “open” meetings (i.e., which may be attended by non-members as observers²). Since personal anonymity is part of the site’s terms of service (i.e., users are not to reveal their full names or phone numbers in public sections of the site, such as profiles or usernames), we were able to collect lists of pseudonymous usernames and timestamps for specific activities of interest without asking for informed consent from each site user (as that would have been impractical).

Second, we worked with the ITR website founders and owners to reach out directly to ITR users with a questionnaire. A link to the questionnaire was distributed as a paid banner advertisement on the ITR homepage for one month, as well as advertised in the weekly ITR newsletter with a message from the researchers explaining that we were interested in learning more about the role of technology in recovery. All users who completed the questionnaire, viewed and responded to an

² e.g., <http://aavirginia.org/hp/meetings/ocm.html>

online informed consent form, but documentation of informed consent was waived in order to preserve participant anonymity.

Third, we reached out to potential interview participants via email or on-site private message. Participants were provided with the opportunity to volunteer to be interviewed over phone or Skype with a broad solicitation to share their experience on ITR with a researcher. All participants viewed and verbally consented to an informed consent form, though again, documentation of informed consent was waived in order to preserve anonymity. All interviews were audio recorded only with the participant’s permission.

TWO SYNERGISTIC INVESTIGATIONS

In order to understand how video-based online 12-step meetings are used by recovery communities, we conducted two synergistic investigations: an online questionnaire to understand how video meetings fit into the participants’ recovery ecosystems and an in-depth interview study to understand the lived experience and inherent tensions experienced by the participants of these online meetings. Both of these investigations focus on understanding participant perceptions of their naturalistic experience on ITR, rather than as feedback on a targeted intervention.

STUDY 1: ONLINE QUESTIONNAIRE OF ITR USERS

Previous studies have pointed out community worries about how video-mediated meetings may affect commitment to recovery and in-person meeting attendance [65]. ITR provides an excellent opportunity to investigate how online meeting may fit into the participants’ other recovery activity, as well as provide initial insight as to why they chose to attend (or not attend) online meetings. We conducted an online questionnaire to answer the following research questions:

- **RQ1:** How do ITR users combine online and f2f 12-step meeting attendance in their recovery?
- **RQ2:** What characteristics differentiate participants who currently attend online only, attend f2f only, or attend both types of meetings?

Methods

We designed and deployed an online questionnaire to understand how ITR users combined online and f2f meetings.

Recruitment & Procedure

As discussed earlier, a link to the questionnaire was distributed as a paid banner advertisement on the ITR homepage for one month, as well as advertised in the weekly ITR newsletter. Participants were asked to complete a 10-minute questionnaire about their recovery. The survey included the following information requests:

- Basic demographic information
- Recovery history, including self-reported continuous clean/sober time
- Commitment to recovery as measured by a modified 7-item AAI (Alcoholics Anonymous Involvement) scale [23] (modification converted the word “alcohol” to the phrase “alcohol / drugs / my problem behavior”).
- F2f and online meeting attendance frequency
- Perceptions of one’s anonymity in (f2f, online, or both) meetings measured using a 5-item scale (included as an online appendix)

We also included an opportunity for the survey taker to share additional contact information if they were willing to be interviewed over phone or Skype about their experience.

Overall, 285 members of ITR completed the entire questionnaire (another 100 started but did not complete the questionnaire). The age ($M=49$, $SD=11.5$) gender (61% F, 39% M), and geographic (72% from US and 28% from 15 other countries) breakdown of the participants was similar to the site use demographics scraped in the situating quantitative investigation. Survey participants had an average of 8.5 years of recovery time ($SD=9.5$ years), which also seems consistent with scraped data.

Limitations

While the ITR questionnaire allowed us to answer some important questions about the role of online meetings in participants’ recovery, this method also had inherent limitations. As with all questionnaires, there was a self-selection bias to the participants who chose to respond. For example, respondents with strong opinions were more likely to want to participate, whereas respondents earlier or less confident in their

	Only f2f Meeting N=64	Only Online N=43	Both N=148	
Age	M = 49.7 (SD = 9.8)	M = 56.21 (SD = 11.3)	M = 56.54 (SD = 9.05)	
Gender (%F, %M)	68% F, 32% M	65% F, 35% M	56% F, 44% M	
Involvement Score (out of 40, higher score = greater involvement)	M = 32.5 (SD = 4.1)	M = 34.5 (SD = 4.7)	M = 32.9 (SD = 3.5)	
Years in Recovery	M = 12.2 (SD = 12.3)	M = 7.7 (SD = 10)	M = 8.3 (SD = 9.5)	
Self Anonymity Score in Group (out of 25, higher score = greater anonymity)	M = 15.6 (SD = 6)	M = 19.1 (SD = 5.6)	F2f M = 14.6 (SD = 6.1)	Online M = 18.6 (SD = 6.7)
Number of meetings per month	M = 15 (SD = 14.63)	M = 19 (SD = 18)	M = 10 (SD = 7.5)	M = 17 (SD = 17.7)

Table 1. Statistics of Meeting Attendees from Survey

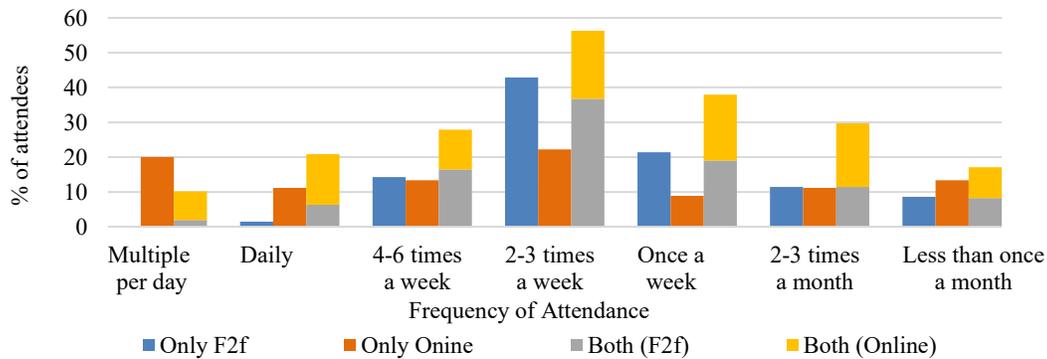


Figure 2. Statistics of meeting attendance for each type of attendees

recovery may have chosen not to respond. Since our questionnaire and most of ITR meetings are in English, most of our participants were from the United States, Canada, or Western Europe, thus limiting our potential for cross-cultural insights. Additionally, the ITR website is an existing community which people use in a naturalistic setting as they see fit, rather than a controlled clinical intervention. Therefore, while we list self-reported continuous recovery time for each participant, these should not be interpreted as outcome variables of a controlled intervention, since a number of confounding factors likely affect both meeting attendance and recovery time (e.g., disorder severity, commitment to recovery, etc.).

Results

Our survey results revealed three types of ITR participants: those who currently attend f2f meetings only (22%), those who currently attend online meetings only (15%), and those who attend both types of meetings (52%).³ Since only 15% of people exclusively attend online meetings, it was important to understand how and why ITR participants made use of both online and f2f recovery meetings. Table 1 presents the descriptive statistics for each type of meeting attendee on several key characteristics. Figure 2 provides meeting attendance statistics for each of the three types of ITR participants. We report the outcome statistic of average self-reported continuous recovery time for each group, which is highest (12.2 years) for people who only attend f2f meetings and lowest for people who attend only online ones (7.7 years). However, given that these are high averages with large variability, and a number of confounding variables (e.g., ability to drive, severity of condition), we recommend continued quantitative investigation of the efficacy of online meetings.

We do not conduct statistical hypothesis testing since this work was exploratory and not driven by *a priori* hypotheses. However, it does suggest some possible hypotheses for future exploration:

- People who attend online meetings may be more likely to be new to recovery (but not younger in age).
- People who attend only online meetings may have an increased chance of relapse (as they report less time in continuous recovery).
- Participants are more likely to remain more anonymous in online meetings than in f2f meetings (which echo other studies of online anonymity (e.g., [46,49]))
- People who attend both online *and* f2f meetings may attend more meetings total per month than people who specialize and attend only one type of meeting.

We asked people who have attended at least one meeting online and f2f about the perceived usefulness of each meeting type. Figure 3 reveals a distribution of responses where the mode describes the two types of meetings as equally helpful, though a greater number of participants describe online meetings as less helpful than f2f meetings.

Given that f2f meetings are still seen as an important part of people's recovery, we also provided a free response field to allow people who did not attend these meeting regularly to share their reasons. On the questionnaire, 60 people mentioned that they no longer attend f2f meetings at all and 38 mentioned that they were temporarily unable to attend meetings. We conducted an inductive analysis to cluster the provided reasons into categories. The most common reasons were:

- Lack of transportation (30% of the 98 participants),
- Health problems and/or disability (19%),
- Work scheduled during meeting times (12%)

Other reasons were less common and included lack of child-care (5%), disliking the people in local f2f meetings (8%), and philosophical disagreements with local 12-step approaches (9%). Clearly, online meetings filled an important gap for these participants, allowing them access to recovery

³ These should not be interpreted as the relative proportions of these behaviors in the general population. Our population

was ITR users. People who use ITR are more likely to do so in order to attend online meetings.

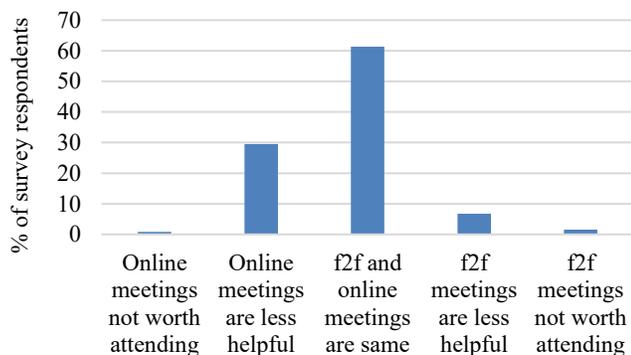


Figure 3. Usefulness of f2f and online meetings

options that otherwise would not have been available to them.

Our finding suggested that online meetings served an important role in the recovery of the participants we surveyed. This lies in contrast to previous work which suggests that 12-step members are wary of video-mediated and online meeting participation [65]. To understand the lived experience of online recovery among ITR members, we conducted an in-depth interviewing investigation.

STUDY 2: IN-DEPTH INTERVIEWS WITH ITR MEMBERS

To understand the lived experience of ITR members and the role that video-mediated meetings play in their recovery, we conducted in-depth interviews with influential members of ITR. We aimed to answer the following research questions:

- **RQ1:** What tensions do participants face in their experiences of meeting attendance?
- **RQ2:** What strategies do they appropriate to address these tensions?

Methods

We conducted in-depth semi-structured phone/video-chat interviews with fourteen members of ITR. We describe the participants, procedure, analysis, and limitations below.

Participants

We followed an “abductive” qualitative sampling approach, by selectively reaching out to participants who may have interesting perspectives on online recovery [44]. Reasons for selecting a potential participant included:

1. Recent active participation in f2f meetings (from responses on study 1 questionnaire)
2. Specific characteristics of ITR participation determined from the preliminary quantitative analysis, such as frequent online activity, large number of ITR friends, and recent participation or chairing of an ITR meeting.

Our goal was to be able to gather a diverse set of perspectives on online meetings and we actively sought divergent viewpoints on online recovery through this selective recruitment process. Table 2 provides a description of the participants and the selection criteria for each participant. We continued

recruiting participants until deemed that we had reached data saturation on the specific topic of interest.

Procedure

We reached out to potential participants via private message on ITR, email, or by phone. Potential participants were referred to the previous research activity of our group on ITR (the questionnaire and associated newsletter post) and asked to volunteer to be interviewed about “how to improve online recovery communities” and “how places like ITR.com can help people in recovery.” Eleven of the interviews were conducted via video-chat and the other three via phone (based on participant preferences). All interviews were audio recorded with participants’ permission. Interviews were each conducted by one of the two investigators, following a common protocol. Each interview lasted between 40 and 110 minutes with an average of 53 minutes. Interviews were open-ended, prompting participants to share personal narratives about their online recovery. Participants’ time was compensated with a \$25 gift card.

Analysis

We transcribed all interviews and analyzed the transcripts using an inductive data-driven approach [31,54]. Analysis consisted of two passes. In the first pass we generated open codes (over 1,500 total) to capture diverse individual viewpoints. This high number of open codes is due to our effort to capture the nuance in the specific statements of each participant and was significantly reduced through the process of memoing and clustering [31]. In the second phases of analysis, we memoed and clustered the codes using a constant comparison method operationalized as affinity mapping. Each open code was compared to others and positioned to reflect its affinity to emerging themes and clusters. Through this process, we identified some major tensions in online meetings as themes which are presented in the following section. The reported themes consisted both of ones that appeared consistently across multiple interview participants, and also the ones that came from points of contention and represented divergent responses and opinions.

Limitations

We acknowledge that there is an unfortunate implicit sampling bias in our recruiting approach as the people who volunteered for the interviews were more likely to want to share their opinions about their experiences and thus perhaps hold stronger opinions (either positive or negative) than the larger body of their fellowships. Again, since the interviews were conducted in English, our participants represented mostly the United States, Canada, and Western Europe, limiting potential for cross-cultural comparison (we did not find any difference between tensions reported by US and non-US participants in this study). Additionally, nine of the fourteen participants were female, presenting a gender bias. However, this may be close to a true representation of ITR members’ gender (~60% of ITR members are female based on the quantitative scraping in the situating study) and females are more likely to participate in voluntary service [70].

#	M/F	Country	Primary Fellowship	Meeting Types Attended	Recovery Time	ITR Member For...	Selection Criteria
P1	F	USA	AA	AA, CoDA, Women's Meetings, Dual Diagnosis	12 months	11 months	1, 3, 4, 5
P2	M	USA	AA	AA	393 months	20 months	1, 2, 5
P3	F	USA	AA	AA, ACA, OA, Dual Diagnosis, PTSD, CoDA, Al-Anon	11 months	37 months	1, 3
P4	F	USA	AA	AA	183 months	62 months	1, 2, 3, 4
P5	M	USA	AA	AA, NA	26 months	28 months	1, 2, 3, 5
P6	F	USA	AA	AA, CoDA, Al-Anon	228 months	39 months	1, 2, 5
P7	M	USA	AA	AA, NA	193 months	62 months	2, 4
P8	F	USA	AA	AA, NA	184 months	28 months	1, 2, 3, 5
P9	F	USA	NA	NA, AA	123 months	36 months	1, 2, 3
P10	F	Germany	ACA	ACA, Dual Diagnosis, CoDA, Al-Anon	8 months	46 months	1
P11	M	USA	AA	AA, NA	2 months	25 months	1, 2
P12	F	UK	NA	NA	57 months	65 months	1, 2, 3
P13	F	Canada	NA	AA, NA	24 months	10 months	2
P14	M	UK	CA	AA (Skype and Email Meetings)	11 months	24 months	2

Table 2. Participants and features of their online recovery. Types of Meetings included: AA (Alcoholics Anon.), NA (Narcotics Anon.), OA (Overeaters Anon.), CoDA (Co-Dependents Anon.), Al-Anon (Families of Alcoholics), ACA (Adult Child in Alcoholics), Dual Diagnosis (for mood disorder), Women's Meeting, and PTSD (Post Traumatic Stress Disorder). Selection Criteria Included: 1. Recent active participation in online meetings, 2. Recent active participation in 12f meetings, 3. Frequent activity on ITR, 4. High number of friends on ITR, and 5. Chairing meetings on ITR

Results

Our analysis revealed five major tensions inherent in synchronous communication in this community.

Self-Disclosure vs. Anonymity

The choice between disclosing identifiable information and remaining anonymous is an important tension in attending online meetings. Many participants may want to keep their recovery private from employers and others, but at the same time need to share details about their personal lives in order to receive the support they need. This was an inherent tension found in many participants' interviews and they were able to reflect on their choices and compromises.

There were several views of anonymity espoused by the participants. Some saw it as a spiritual principle embodied in the 12th tradition as "principles before personalities," meaning that all people in the room are equal and do not bear names. Others viewed it as a personal choice: "it's okay for me to break mine" (P4) and "anonymity is not a big deal for me" (P2), but also clarified the importance of maintaining others' anonymity: "it's not okay for me to break somebody else's" (P4) and "it's also about sponsees' anonymity" (P8). Given the public nature of ITR's video meetings, participants enacted their anonymity in different ways.

Six participants reported that they do not share key aspects of their experience on ITR. They were aware of the fact that ITR has a lot of members that they do not know and who may violate anonymity:

If I have an argument with my sponsor, I wouldn't come to the ITR meetings and talk about that. Even if she hadn't been in the room, for sure somebody could be spreading it. (P9)

One always needs to be mindful of anonymity being respected. So many people there that would take something that was perhaps shared in the meeting under the 12th tradition of anonymity and often share with someone else. For the joy of gossip, or trying to bad-mouth somebody, they may break your anonymity. (P8)

Moreover, they were concerned about other possible harms caused to their and others' offline lives by self-disclosure, such as "losing a job if employer knows about recovery" (P11), "losing self-esteem to other circle of friends who are not in recovery" (P9), "seeing guys in meetings who I have dated before" (P3) or, "celebrities who are members of the community, it is very important for them to be anonymous" (P2). P5 thinks non-recovering people (referring to them as "normies") cannot comprehend what the addicts have gone through and may judge an addict's past behavior.

On the other hand, other participants considered self-disclosure as a way of getting help and as a responsibility to let newcomers know that they are not alone. Many chose to share and be open about recovery as a way of letting others know that help is available and there are ways out of addiction:

I want them to know that I'm in AA and I want them to know that if they would ever get in same situation there is something they can turn to for help. And I try to set that example in all my actions, in all my daily affairs, just like it says in step 12. (P2)

I feel like there's so much addiction in the world and if we don't start coming out of our anonymity, nobody is gonna know that. There are addicts everywhere. They are not just you know, some bomb on the street. It's like illness, and it's a problem and that we need to fix it. (P3)

P1 described her life to be "kind of an open book", so that anyone can ask questions and she can answer.

While most participants chose to either emphasize anonymity or self-disclosure in their use of ITR, some participants described a mixed approach. For example, they only shared detailed stories and personal information with their sponsors or close friends on ITR, or through private messaging on or off the site, but not in public video meetings.

To summarize, participants were cautious and made explicit decisions about their self-disclosure practices in ITR video meetings, balancing the desire to help others and to seek support with the risks of breaking own or others' anonymity.

Diversity vs. Like-Mindedness

ITR attendees have the opportunity to interact with 12-step members around the world, as ITR hosts over 100 different online meetings with attendees from more than 70 countries. Our interview participants described an inherent tension between wanting to be exposed to people with diverse perspectives on recovery and wanting to hear from like-minded others who follow familiar practices.

The diversity of personalities, people, and experiences makes online meetings different from f2f ones, as P5 highlighted:

I guess the thing I really dislike about f2f is if you go to the same meeting week after week, you pretty much got their stories down. On ITR, you get the ability to hear from people from east to west coast, all over the world, different perspectives about the program as it is in different places. The variety of experience, strength, and hope is far greater. (P5)

However, as a divergent narrative, P12 saw this level of diversity sometimes manifesting itself with people “jumping from one meeting to another and making the meetings a blurry mess.” Even P5 (who was generally positive about meeting diversity) admitted that it could be overwhelming or intimidating for a newcomer, causing an “information overload”. Indeed, several participants mentioned that they preferred to hear message of recovery from “other people having similar problem” (P12), “somebody in their area” (P4), and “like-minded people that [she] trusted and shared with” (P6).

There were several strategies participants used for managing this tension. Many of the participants mentioned specifically listening for the consistent purpose and message of recovery and support across the diverse meetings and members:

So many different people and that's what interesting for me that, all the different people that come together for one single purpose: to get sober, to stay sober. (P2)

I mean feeling like that every day... I can sit and be alone in my trailer. But NO, I'm not ALONE because I have all these people all over the world. They know who I am and they care about me. (P1)

As a second strategy, participants sought out alternative viewpoints and approaches and then picked the message that was right for them in their situation:

It's very interesting to see the perspectives of someone from Germany and what their f2f meetings are like, talking to them.

Then hearing to somebody in Japan, it's just what their experiences have been in recovery is... when you have that group of people to choose from and to learn from. (P5)

There's this is old saying, and I'll just say this, 'how many meetings do you need?' I need one a week. The problem is I don't know which one it is. You've got to hear which you need to hear. Just don't know which one it at be, so hit all. (P9)

In summary, video-mediated meetings on ITR provide their members with an opportunity to attend a 12-step meeting with diverse people with varied experiences. While this may be overwhelming to newcomers, participants dealt with this tension by listening for the common purpose and picking and choosing approaches from the diverse set of ideas that could best support their particular situations.

Convenience vs. Contact

While ITR members can attend a variety of online meetings easily, in online meetings they miss out on the f2f benefits of being together physically. The tension between convenience and physical contact is a vital aspect of how our participants managed their recovery.

Nine participants expressed that the most positive and compelling feature of f2f meetings is its physicality, for example: “smelling coffee” (P1, P2, P3, P7), “seeing others' body language” (P10), “touch, hugs, and handshakes” (P4, P7), “more personable” (P13), “better sense of emotion” (P2), etc. P6 considers this something that can never be achieved through computer-mediated communication:

I wasn't brought up with the technology. To me that physical contact is really really important. It makes me feel human. (P6)

Nonetheless, the flexibility and convenience of being able to attend meetings from the comfort of one's home was frequently mentioned as a reasonable trade-off:

But there happen days when the weather is really bad and I don't feel comfortable driving because I have to drive at least 25 minutes to get to a meeting in the morning. I'll get what I need for my recovery that day through the online meetings. (P12)

The ability to go online, the ability to introduce yourself from a camera, from the comfort of your own home, from a place of familiarity, makes someone much more susceptible, even if they choose not to show their face, or comment on a board. (P11)

Online meetings are also more convenient in terms of time and can be portable, since one can join on a laptop, tablet, or smart phone:

But there are few meetings at least [when I travel], I can attend the meetings in my browser on the tablet. (P9)

Sometimes I'll be out in sporting events, like with my husband and if I get bored and I know there's a meeting coming or you know...when I've started to not feel comfortable with people I'm around, then I just take my iPad with me, and login, connect to people. It's easy and available. (P12)

These findings echo those of other online health communities (e.g., [16,22]), but important to establish for video-mediated meetings given that video may introduce new constraints on convenience. Individual preferences for f2f versus

online meetings seemed to be influenced by the particular importance of physicality for the individual participant and their experiences of intimacy in f2f meetings. For example, P7 attends only f2f meetings and facetiously said he would attend online meetings only if technology can “make his computer emit the smell of coffee.” Some participants also resisted the necessity to “become more computer-literate” (P10) or “adopt new technology” (P14). On the other hand, P3 has decided not to go to anymore f2f meetings since “the intimacy isn’t there, like it is online, which is really odd.” However, many of the participants who preferred online meetings also acknowledged a potential danger, as going online to online meetings could “turn [us] into hermits” (P4), or “feed into [my] laziness” (P13).

There were several strategies participants used to deal with this tension. The first strategy was to mix attending f2f and online meetings:

I go to their online meetings, when I'm sick or can't get to f2f meeting. (P4)

You'll find a good meeting f2f, then a good meeting online. But you can also find a bad meeting f2f, and a bad meeting online ... I think a combination of the two really is the best. Then you get the best of both worlds. (P8)

As another strategy, people who attended only online meetings sought specific opportunities to deepen their contact with their online support network, such communicating via other channels (e.g., one-on-one Skype) and taking opportunities to meet in-person when possible. For example, one participant mentioned attending the AA international convention to meet his ITR connections:

We went to the conference and it was great because I actually met about ten people there from InTheRooms. And it was fantastic! (P5)

To summarize, f2f meetings provide a physicality that is difficult to replicate online and is important to some participants. On the other hand, others build strong online connections and appreciate the convenience of attending meetings from home. Participants managed this tension by combining f2f and online meetings when possible and seeking opportunities for strengthening online connections through other channels.

Immediacy vs. Awareness

Online meetings are available on ITR almost every hour of every day, allowing participants to receive immediate support, but also creating meetings with a less consistent attendance base and making it more difficult to recognize if a person is in need of help.

On one hand, the number and universal availability of online meetings allow newcomers to find immediate support in meetings “available around the clock” (P8). Additionally, meeting people online allowed participants to form a support network that could field a phone call for help even at really late or early local times:

I needed people to call that would be available at anytime. A lot of the people around here aren't available at any time. In Arizona when it would be ten o'clock in Arizona, versus being midnight in Georgia. So there were a lot of people that reached out and gave me their numbers. (P6)

These findings replicated the findings of some previous online health community work (e.g., [16,22]), however they are also different from those of other online health support groups (e.g., [39]) – this may point to “immediacy” as a dimension that has to be established and measured for different online health communities.

While immediacy is generally positive, in this community it seemed to conflict with the goal of awareness. F2f meetings typically have a consistent set of attendees, making it easy for attendees to become aware of a newcomer or somebody who is struggling:

They might go to an online meeting and get great support. But if they don't share, if they are not recognized, people can't approach them, whereas in a f2f meeting people will typically know if somebody is new and will go up and say “Hi how are you doing? Are you new or new to the area?” (P11)

You shake somebody's hand and it's a sweaty hand, they've got stuff going on in their mind, they're trying to get sober. (P7)

This awareness is not possible in online meetings unless an individual chooses to identify as a newcomer in need of help, as the audience is abstracted as a set of still icons (i.e., “the individual is not visible, it's a steady picture” (P10)). Even with known individuals, online meetings may provide fewer opportunities to be aware of their state on any given day since their video is only shown during their share. As P3 stated, “you only get small amount of time with them,” in contrast to the easy ability to gaze over at a friend during a f2f meeting.

To resolve this tension, participants had to be willing to reach out to others outside of the video meetings to develop an awareness of others in their social circles. Nobody mentioned doing this for newcomers who did not self-identify. However, a few participants with established ITR friend groups mentioned checking in with each other during a meeting through back-channels (e.g., IM and Skype text chat) or through private messaging after the meeting.

Norms vs. Inclusion

Twelve step fellowships generally follow a codified set of norms known as the “Twelve Traditions,” however specific interpretations and practices regarding the traditions may vary, leading to a tension between enforcing consistent norms versus being inclusive to diverse interpretations.

One concrete example is in identifying oneself at the start of the meeting. Some fellowships interpret the traditions to mean that everybody should use the same language and refer to the common condition when identifying (i.e., “I am an alcoholic” in AA, “I am an addict” in NA). However, this interpretation is more flexible in some geographic regions than others (e.g., some AA meetings are fine with an attendee identifying as an addict, etc.). While the same tension exists in f2f meetings and online ones, the geographic diversity of

norms can cause friction in meetings. Some participants described getting corrected (or wanting to correct others) on language and program-specific norms:

In NA, we have our own program and we don't want you to come in and start talking about what stuff you do in AA and reading from AA literature, CoDA or any other fellowships ... drives me nuts! (P12)

Especially the old-timers, they are very hard core crusty, can be aggressive. It turns people off, it used to turn me off quickly. I think people are really sensitive when they are new and coming in. (P3)

I thought they were much better off when they just had a meeting without attaching a fellowships name to it, just InTheRoom meetings. (P4)

There were other examples of divergent norms that reflected geographic differences in the interpretations of the traditions, such as the use of the donation basket, cross-gender sponsorship, etc.

However, there were also some clear-cut examples of norm violation that were not specific to the interpretation of the traditions. Several participants who served as the chairperson of a meeting described a number of uncomfortable situations, such as people not wearing a shirt while sharing video, people treating the meeting as an opportunity to flirt, and people not sharing on the topic of recovery. For example, some chairpersons mentioned:

People get up there and they won't shut up. Where five people are waiting on the box that want to talk, this person just talks about that really isn't recovery related. (P6)

Suddenly they all talk about relationship or something. What is the purpose of that meeting? Meeting should be literature and topic related. (P5)

Each chairperson faced a trade-off. On one hand, they could allow the person to continue sharing (in the name of inclusion but at the cost of maintaining a focus on recovery). Frequently, this led to complaints from others after the meeting:

When you don't take other attendees' advice and put it into use or into action, they get offended by that. (P2)

On the other hand, they could ban the participant from the meeting which could result in a person in need not getting the help that they may desperately require. This approach was also criticized by participants:

It does bother me that they take it to upon themselves to close the doors of AA to certain individuals over certain things and it's not their group, it's their site. Now I have never known a church to come up and say, so and so can't come to our meetings. (P5)

Unlike other tensions, there seemed to be no established and clear-cut way for online meeting participants to determine appropriate norms and strategies around consistently enforcing them. The tension of norms versus inclusion was left almost entirely up to the chairpersons and there seemed to be no solution that was acceptable to all members.

DISCUSSION

We conducted two synergistic investigations of video-mediated peer support in an online recovery community. In this section, we bring together insights from these two studies to provide recommendations and future directions for online health communities in this and other contexts.

Opportunity for Video-Mediated Support

Our investigation points to the potential of video-mediated meetings to enhance the social peer support exchanged in online health communities. Our questionnaire revealed how these meetings fit into the participants' recovery ecosystem. Many participants who used ITR combined f2f and online meetings, allowing them to increase the number of meetings attended monthly. Online meetings also expanded access to 12-step meetings for participants who temporarily or permanently could not attend f2f meetings in their area because of transportation, health/disability, or work schedule. Those who had tried both online and f2f meetings, generally reported that online meetings were almost as useful as f2f ones. In interviews with participants, we learned that while online meetings were not always non-problematic, participants saw a number of advantages to having this opportunity to connect online. These advantages included the diversity of viewpoints provided, the immediacy of support and feedback, and the convenience of being able to attend without physically going to a specific location. Overall, this points to significant potential benefits of including synchronous video-mediated meetings as a component in other peer support health communities (as has already been shown for clinician-led social support interventions [e.g., 35–38,43]). As most online peer-led health communities currently focus on text-based interaction, video-mediated support group meetings may provide a promising compromise between the intense interaction of f2f support groups and the diversity, convenience, and immediacy of online support.

Future Work

While our investigations point to the potential of online video-mediated peer support, there are many unanswered questions about the efficacy of online meetings. For example, due to a number of confounding variables, it is difficult to conduct a meaningful comparison between the self-reported outcome measures (continuous recovery time) of participants who do and those who do not use online meetings. One initial step in this direction could be conducting a larger scale propensity matching analysis on our scraped data set to better quantify the effect of online meetings on recovery time. A more rigorous and less confounded investigation would include a controlled trial with random assignment of participants to attend f2f meetings only, online meetings only, or both. However, given that we found that online meetings may be perceived as less effective by many participants who have attended both online and offline meetings, it may be ethically questionable to assign participants to the "online only" condition.

Opportunity for Synergy with Face-to-Face Support

It is important to emphasize that participants did not generally think that online meeting should replace f2f interaction. In our questionnaire, we saw that a relatively small minority (15%) attended online meetings exclusively. Many of those participants were unable to attend f2f meetings because of life circumstances, rather than by choice. In interviews, many of the participants seemed conflicted about online meetings, citing worries about self-disclosing online, a lack of physicality, and loss of awareness of others' states.

When possible, many participants preferred hybrid strategies rather than relying exclusively on online meetings. They limited self-disclosure in video meetings, but sought out additional support through more private channels. They found opportunities to meet online friends in-person and to connect through other channels that provided more time and awareness than a brief share in a meeting would allow. Finally, many seemed to prefer to combine both online and f2f meeting attendance as part of their recovery to get "the best of both worlds" (P8). Taken together these findings highlight that online meetings should not try to replace f2f ones. For online peer support groups that currently meet exclusively online (as many of the groups studied in previous literature (e.g., [41,55,57])), this may point to the importance of providing periodic opportunities for f2f reunions, meetings, and conventions to create opportunities for the physicality and awareness that may otherwise be lacking in online groups.

Future Work

Our studies asked participants to reflect and discuss their current experience on ITR and in f2f recovery. One important aspect that was not investigated in our study is that of recovery as an ongoing and evolving journey. There may be phases in one's recovery where f2f contact is more important (e.g., immediately following relapse, during major life changes). On the other hand, it is possible that online support may increase participants' willingness to seek f2f support if they seek a more anonymous venue before being willing to self-identify as an addict/alcoholic in f2f meetings. Understanding the role of f2f versus online support and recommending the appropriate solution given a person's stage of recovery, personality, privacy concerns, etc. are important questions for supporting individual recovery.

Challenge of Transparency of Norms

Norms seemed to lie at the core of the conflict experienced by online video meeting participants. Our questionnaire revealed that participants may be less likely to self-disclose information that could lead to a loss of anonymity in online meetings rather than f2f ones. Our interviews continued to probe this point, with some participants revealing that they were hesitant to self-disclose because it was not clear that other video meeting participants would follow the anonymity traditions and norms of 12-step recovery.

Norms were also at the core of a tension that did not seem to have a clear resolution. Some online participants would behave in clearly inappropriate ways, such as soliciting dates or sharing non-recovery topics in meetings. Other tensions were subtler. Geographic differences in the interpretation of the traditions of each program led to strongly conflicting opinions as these variances intersected on the international stage of online meetings. Online meetings provided a diversity of perspectives that was appreciated, but also a polyvocality on norms that led to a loss of unity. Our participants did not have immediate strategies for resolving these problems, but this issue does lead to two implications for these and other online health support spaces.

First, online health support groups need opportunities and spaces to discuss, work out conflict, and develop a consensus on specific group norms and policies (i.e., "storm and norm" [12]). While ITR currently does host two "business" video meetings, this is significantly less time than is typically spent in similar activities by f2f groups (which typically hold group business meeting monthly for *each* meeting and regular other meetings at the area, region, state, and national levels, with a clear path for information in both directions). Other online health communities frequently provide little (if any) opportunity for meta-discussion and consensus building. As a second implication, once norms are established, they need to be made as transparent as possible to all of the participants in the community, as intuitions participants develop in local f2f communities of the same fellowship may not translate to the online space. For example, as a person joins an online meeting, they may be asked to read the list of policies out loud and state that they agree (similar to the reading portion in f2f meetings).

Future Work

The CSCW community has conducted significant work on how collaborative practices emerge, evolve, and get reinforced in peer production communities (e.g., [15,18,25,29]). There is also a fair amount of work at CSCW that focuses on identify specific norms expressed in online health communities (e.g., [33]). However, there is a need for additional research in how norms in online communities are negotiated over time and made visible to new participants. One possible direction for this work in health communities is applying analysis methods used on Wikipedia discussion pages (e.g., [29]) to examining visible artifacts developed in group, area, and regional "business" meetings of 12-step fellowships (e.g., meeting notes, meeting logistics online forums). This may lead to a more process-oriented understanding of norm formation in health peer support groups which may inform the design of digital artifacts in this context.

Challenge of Constructive Moderations

Our interviews revealed that currently, the burden for forming, interpreting, and enforcing the norms in online video meetings fell almost exclusively to the chairperson of each meeting. Several of the chairpersons shared that they felt

caught between the desire to maintain the norms and recovery atmosphere of a meeting and the desire to be inclusive to all participants. This tension may be an especially significant one in health peer-support communities, as the decision to ban an individual may result in that individual's death. On the other hand, the decision to allow an individual to break the norms may reduce that group's helpfulness to other participants leading to them leaving the community. Online communities frequently maintain norms and reduce vandalism through techniques like censorship and banning (e.g., [18]), but these may not be appropriate in life-critical online spaces like peer-support health communities. Certainly, it seems that site chairpersons, moderators, and administrators should receive significant training and support in making decisions, if bans are employed in the community. However, we believe that this also points to the necessity of considering peer moderation that goes beyond bans.

Future Work

There is significant potential for future socio-technical work exploring constructive moderation in online communities. Constructive moderation approach in online peer support should consider a norm violation to be an opportunity to educate the offending individual in the norms of the community and provide them with an opportunity to participate in more productive ways. Constructive moderation approaches have been previously used and found to be effective in online games (e.g., [28,52]). One concrete idea for supporting constructive moderation in online 12-step communities is to encourage groups to create explicit group policy documents (many in-person groups do so) and allow for anonymously referring individuals to specific sections of the policy (e.g., NA group policy may include the clarity statement⁴, so a person using AA language may be sent a pointer to this policy). This and other approaches point to interesting potential directions for constructive moderation in online peer-support communities.

CONCLUSION

InTheRooms.com (ITR) is an active online community for people seeking peer support for recovery from substance use disorders. It provides an underexplored feature of video-mediated online 12-step meetings. We conducted two investigations to understand participants' use and perceptions of video-mediated peer support on ITR. First, we deployed an online questionnaire showing that many people attended online meetings when no other options were available to them, but most people preferred to mix online and face-to-face meetings and part of their recovery. Second, we conducted in-depth semi-structured interviews with members of ITR, finding that they negotiated a number of tensions regarding their use of video meetings. From our findings, we conclude that video-mediated meetings may be a promising addition to other health peer-support communities, especially if combined with periodic face-to-face opportunities.

However, we also found that two challenges will need to be addressed to support such meetings in this and other health communities: enabling forming and making visible of community norms and supporting constructive moderation.

ACKNOWLEDGMENTS

We thank Angela Yu, Sahithi Asireddy and Thanh-Mai Phan for helping us in scraping public data from ITR.com and for developing the questionnaire. We would also like to acknowledge the leadership of ITR.com, and our survey and interview participants who shared their time and experience with us. This work was funded by the NSF grant (1464376).

REFERENCES

1. National Institute on Drug Abuse. 2015. Trends & Statistics. Retrieved May 24, 2016 from <https://www.drugabuse.gov/related-topics/trends-statistics>
2. Leila Alem, Susan Hansen, and Jane Li. 2006. Evaluating Clinicians' Experience in a Telemedicine Application: A Presence Perspective. In *Proceedings of the 18th Australia Conference on Computer-Human Interaction: Design: Activities, Artefacts and Environments (OZCHI '06)*, 47–54. <http://doi.org/10.1145/1228175.1228187>
3. Morgan G. Ames, Janet Go, Joseph "Jofish" Kaye, and Mirjana Spasojevic. 2010. Making Love in the Network Closet: The Benefits and Work of Family Videochat. In *Proceedings of the 2010 ACM Conference on Computer Supported Cooperative Work (CSCW '10)*, 145–154. <http://doi.org/10.1145/1718918.1718946>
4. Archer L Batcheller, Brian Hillgoss, Kevin Nam, Emilee Rader, Marta Rey-babarro, and Xiaomu Zhou. 2007. Testing the Technology: Playing Games with Video Conferencing. In *Proc. of CHI*, 849–852.
5. Bridgette M. Bewick, Karen Trusler, Michael Barkham, Andrew J. Hill, Jane Cahill, and Brendan Mulhern. 2008. The effectiveness of web-based interventions designed to decrease alcohol consumption — A systematic review. *Preventive Medicine* 47, 1: 17–26. <http://doi.org/10.1016/j.ypmed.2008.01.005>
6. Sara A. Bly, Steve R. Harrison, and Susan Irwin. 1993. Media spaces: bringing people together in a video, audio, and computing environment. *Commun. ACM* 36, 1: 28–46.
7. Scott W. Campbell and Michael J. Kelley. 2008. Mobile phone use among Alcoholics Anonymous members: new sites for recovery. *New Media & Society* 10, 6: 915–933. <http://doi.org/10.1177/1461444808096251>
8. Rajesh Chandwani and Rahul De. 2013. Doctor-patient Interaction in Telemedicine: Linking the Structural Aspects to Institutionalization. In *Proceedings of the Sixth International Conference on Information and Communications Technologies and Development: Notes - Volume 2 (ICTD '13)*, 17–20. <http://doi.org/10.1145/2517899.2517934>

⁴ http://www.na.org.za/static_docs/clarity_statement.pdf

9. Katherine Y. Chuang and Christopher C. Yang. 2012. A Study of Informational Support Exchanges in Medhelp Alcoholism Community. In *Proceedings of the 5th International Conference on Social Computing, Behavioral-Cultural Modeling and Prediction (SBP'12)*, 9–17. http://doi.org/10.1007/978-3-642-29047-3_2
10. Susannah Fox. 2014. The social life of health information. *Pew Research Center*. Retrieved May 24, 2016 from <http://www.pewresearch.org/fact-tank/2014/01/15/the-social-life-of-health-information/>
11. Jan Copeland and Greg Martin. 2004. Web-based interventions for substance use disorders: A qualitative review. *Journal of Substance Abuse Treatment* 26, 2: 109–116. [http://doi.org/10.1016/S0740-5472\(03\)00165-X](http://doi.org/10.1016/S0740-5472(03)00165-X)
12. Donald B. Egolf. 2001. *Forming Storming Norming Performing: Successful Communications in Groups and Teams*. iUniverse.
13. Gunther Eysenbach, John Powell, Marina Englesakis, Carlos Rizo, and Anita Stern. 2004. Health related virtual communities and electronic support groups: systematic review of the effects of online peer to peer interactions. *BMJ* 328, 7449: 1166. <http://doi.org/10.1136/bmj.328.7449.1166>
14. Shelly Farnham, Lili Cheng, Linda Stone, et al. 2002. HutchWorld: Clinical Study of Computer-mediated Social Support for Cancer Patients and Their Caregivers. In *Proc. of CHI (CHI '02)*, 375–382. <http://doi.org/10.1145/503376.503444>
15. Ryan Faulkner, Steven Walling, and Maryana Pinchuk. 2012. Etiquette in Wikipedia: Weening New Editors into Productive Ones. In *Proceedings of the Eighth Annual International Symposium on Wikis and Open Collaboration (WikiSym '12)*, 5:1–5:4. <http://doi.org/10.1145/2462932.2462939>
16. Robert Douglas Ferguson, Michael Massimi, Emily Anne Crist, and Karyn Anne Moffatt. 2014. Craving, Creating, and Constructing Comfort: Insights and Opportunities for Technology in Hospice. In *Proceedings of the 17th ACM Conference on Computer Supported Cooperative Work & Social Computing (CSCW '14)*, 1479–1490. <http://doi.org/10.1145/2531602.2531631>
17. Jerry Finn. 1999. An Exploration of Helping Processes in an Online Self-Help Group Focusing on Issues of Disability. *Health & Social Work* 24, 3: 220–231. <http://doi.org/10.1093/hsw/24.3.220>
18. R. Stuart Geiger and David Ribes. 2010. The Work of Sustaining Order in Wikipedia: The Banning of a Vandal. In *Proceedings of the 2010 ACM Conference on Computer Supported Cooperative Work (CSCW '10)*, 117–126. <http://doi.org/10.1145/1718918.1718941>
19. Michael Gossop, Duncan Stewart, and John Marsden. 2008. Attendance at Narcotics Anonymous and Alcoholics Anonymous meetings, frequency of attendance and substance use outcomes after residential treatment for drug dependence: a 5-year follow-up study. *Addiction* 103, 1: 119–125. <http://doi.org/10.1111/j.1360-0443.2007.02050.x>
20. David H. Gustafson, Robert P. Hawkins, Eric W. Boberg, et al. 2002. CHES: 10 years of research and development in consumer health informatics for broad populations, including the underserved. *International Journal of Medical Informatics* 65, 3: 169–177.
21. Hwajung Hong, Eric Gilbert, Gregory D. Abowd, and Rosa I. Arriaga. 2015. In-group Questions and Out-group Answers: Crowdsourcing Daily Living Advice for Individuals with Autism. In *Proceedings of the 33rd Annual ACM Conference on Human Factors in Computing Systems (CHI '15)*, 777–786. <http://doi.org/10.1145/2702123.2702402>
22. Jina Huh. 2015. Clinical Questions in Online Health Communities: The Case of “See Your Doctor” Threads. In *Proceedings of the 18th ACM Conference on Computer Supported Cooperative Work & Social Computing (CSCW '15)*, 1488–1499. <http://doi.org/10.1145/2675133.2675259>
23. Keith Humphreys, Lee A. Kaskutas, and Constance Weisner. 1998. The Alcoholics Anonymous Affiliation Scale: Development, Reliability, and Norms for Diverse Treated and Untreated Populations. *Alcoholism: Clinical and Experimental Research* 22, 5: 974–978. <http://doi.org/10.1111/j.1530-0277.1998.tb03691.x>
24. Keith Humphreys and Rudolf Moos. 2001. Can Encouraging Substance Abuse Patients to Participate in Self-Help Groups Reduce Demand for Health Care? A Quasi-Experimental Study. *Alcoholism: Clinical and Experimental Research* 25, 5: 711–716. <http://doi.org/10.1111/j.1530-0277.2001.tb02271.x>
25. Charles Kiene, Andrés Monroy-Hernández, and Benjamin Mako Hill. 2016. Surviving an “Eternal September”: How an Online Community Managed a Surge of Newcomers. In *Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems (CHI '16)*, 1152–1156. <http://doi.org/10.1145/2858036.2858356>
26. David S. Kirk, Abigail Sellen, and Xiang Cao. 2010. Home video communication: mediating “closeness.” In *Proc. of CSCW*, 135–144.
27. Herbert D. Kleber, Roger D. Weiss, Raymond F. Anton, et al. 2007. Treatment of patients with substance use disorders, second edition. American Psychiatric Association. *The American Journal of Psychiatry* 164, 4 Suppl: 5–123.
28. Yubo Kow and Bonnie Nardi. 2013. Regulating Anti-Social Behavior on the Internet: The Example of League of Legends.
29. David Laniado, Andreas Kaltenbrunner, Carlos Castillo, and Mayo Fuster Morell. 2012. Emotions and Dialogue in a Peer-production Community: The Case of Wikipedia. In *Proceedings of the Eighth Annual International Symposium on Wikis and Open Collaboration (WikiSym '12)*, 9:1–9:10. <http://doi.org/10.1145/2462932.2462944>
30. Min Kyung Lee, Nathaniel Fruchter, and Laura Dabbish. 2015. Making Decisions From a Distance: The Impact

- of Technological Mediation on Riskiness and Dehumanization. In *Proceedings of the 18th ACM Conference on Computer Supported Cooperative Work & Social Computing (CSCW '15)*, 1576–1589. <http://doi.org/10.1145/2675133.2675288>
31. John Lofland, David Snow, Leon Anderson, and Lyn H. Lofland. 2006. *Analyzing Social Settings: A Guide to Qualitative Observation and Analysis*. Wadsworth/Thomas Learning, Belmont, CA.
 32. Diana MacLean, Sonal Gupta, Anna Lembke, Christopher Manning, and Jeffrey Heer. 2015. Forum77: An Analysis of an Online Health Forum Dedicated to Addiction Recovery. In *Proceedings of the 18th ACM Conference on Computer Supported Cooperative Work & Social Computing (CSCW '15)*, 1511–1526. <http://doi.org/10.1145/2675133.2675146>
 33. Diane Maloney-Krichmar and Jenny Preece. 2005. A Multilevel Analysis of Sociability, Usability, and Community Dynamics in an Online Health Community. *ACM Trans. Comput.-Hum. Interact.* 12, 2: 201–232. <http://doi.org/10.1145/1067860.1067864>
 34. Jennifer Mankoff, Kateryna Kuksenok, Sara Kiesler, Jennifer A. Rode, and Kelly Waldman. 2011. Competing Online Viewpoints and Models of Chronic Illness. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI '11)*, 589–598. <http://doi.org/10.1145/1978942.1979027>
 35. Stephanie L. Marhefka, Eric R. Buhi, Julie Baldwin, et al. 2013. Effectiveness of Healthy Relationships Video-Group—A Videoconferencing Group Intervention for Women Living with HIV: Preliminary Findings from a Randomized Controlled Trial. *Telemedicine and e-Health* 20, 2: 128–134. <http://doi.org/10.1089/tmj.2013.0072>
 36. Stephanie L. Marhefka, Hollie J. Fuhrmann, Patricia Gilliam, Bernice Lopez, and Julie Baldwin. 2011. Interest in, Concerns About, and Preferences for Potential Video-Group Delivery of an Effective Behavioral Intervention Among Women Living With HIV. *AIDS and Behavior* 16, 7: 1961–1969. <http://doi.org/10.1007/s10461-011-0040-x>
 37. Stephanie L. Marhefka, Sharon Iziduh, Hollie J. Fuhrmann, et al. 2013. Internet-based video-group delivery of Healthy Relationships – A “prevention with positives” intervention: Report on a single group pilot test among women living with HIV. *AIDS Care* 25, 7: 904–909. <http://doi.org/10.1080/09540121.2013.793266>
 38. Elsa Marziali and Peter Donahue. 2006. Caring for Others: Internet Video-Conferencing Group Intervention for Family Caregivers of Older Adults With Neurodegenerative Disease. *The Gerontologist* 46, 3: 398–403. <http://doi.org/10.1093/geront/46.3.398>
 39. Michael Massimi. 2013. Exploring Remembrance and Social Support Behavior in an Online Bereavement Support Group. In *Proc. of CSCW (CSCW '13)*, 1169–1180. <http://doi.org/10.1145/2441776.2441908>
 40. Michael Massimi, Jackie L. Bender, Holly O. Witteman, and Osman H. Ahmed. 2014. Life Transitions and Online Health Communities: Reflecting on Adoption, Use, and Disengagement. In *Proc. of CSCW (CSCW '14)*, 1491–1501. <http://doi.org/10.1145/2531602.2531622>
 41. Xiaoxiao Ma, Guanling Chen, and Juntao Xiao. 2010. Analysis of an Online Health Social Network. In *Proceedings of the 1st ACM International Health Informatics Symposium (IHI '10)*, 297–306. <http://doi.org/10.1145/1882992.1883035>
 42. Helena M. Mentis, Ahmed Rahim, and Pierre Theodore. 2016. Crafting the Image in Surgical Telemedicine. In *Proceedings of the 19th ACM Conference on Computer-Supported Cooperative Work & Social Computing (CSCW '16)*, 744–755. <http://doi.org/10.1145/2818048.2819978>
 43. Emilie Meyers, Linda Garcia, and Elsa Marziali. 2011. Using online videoconferencing for connecting caregivers of people with dementia. *Journal of CyberTherapy and Rehabilitation* 4, 2: 223–225.
 44. Michael Muller. 2014. Curiosity, Creativity, and Surprise as Analytic Tools: Grounded Theory Method. In *Ways of Knowing in HCI*, Judith S. Olson and Wendy A. Kellogg (eds.). Springer New York, 25–48. Retrieved July 30, 2015 from http://link.springer.com/chapter/10.1007/978-1-4939-0378-8_2
 45. Mark W. Newman, Debra Lauterbach, Sean A. Munson, Paul Resnick, and Margaret E. Morris. 2011. “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 (CSCW '11)*, 341–350. <http://doi.org/10.1145/1958824.1958876>
 46. Mark W Newman, Debra Lauterbach, Sean A Munson, Paul Resnick, and Margaret E Morris. 2011. “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 *Proc. of CSCW*.
 47. Jiazhi Ou, Yanxin Shi, Jeffrey Wong, Susan R. Fussell, and Jie Yang. 2006. Combining Audio and Video to Predict Helpers’ Focus of Attention in Multiparty Remote Collaboration on Physical Tasks. In *Proceedings of the 8th International Conference on Multimodal Interfaces (ICMI '06)*, 217–224. <http://doi.org/10.1145/1180995.1181040>
 48. Maria Pagano, Karen Friend, Scott Tonigan, and Robert Stout. 2004. Helping Other Alcoholics in Alcoholics Anonymous and Drinking Outcomes: Findings from Project MATCH. *Journal of studies on alcohol* 65, 6: 766–773.
 49. Umashanthi Pavalanathan and Munmun De Choudhury. 2015. Identity Management and Mental Health Discourse in Social Media. In *Proceedings of the 24th International Conference on World Wide Web (WWW '15)*

- Companion), 315–321.
<http://doi.org/10.1145/2740908.2743049>
50. Jenny Preece, Blair Nonnecke, and Dorine Andrews. 2004. The top five reasons for lurking: improving community experiences for everyone. *Computers in Human Behavior* 20, 2: 201–223.
<http://doi.org/10.1016/j.chb.2003.10.015>
 51. Farzana Rahman, Ivor D. Addo, and Sheikh I. Ahamed. 2014. PriSN: A Privacy Protection Framework for Healthcare Social Networking Sites. In *Proceedings of the 2014 Conference on Research in Adaptive and Convergent Systems (RACS '14)*, 66–71.
<http://doi.org/10.1145/2663761.2664199>
 52. Kathryn E. Ringland, Christine T. Wolf, Lynn Dombrowski, and Gillian R. Hayes. 2015. Making “Safe”: Community-Centered Practices in a Virtual World Dedicated to Children with Autism. In *Proceedings of the 18th ACM Conference on Computer Supported Cooperative Work & Social Computing (CSCW '15)*, 1788–1800. <http://doi.org/10.1145/2675133.2675216>
 53. Benjamin Sadock and Virginia Sadock. 2007. Substance-Related Disorders. In *Kaplan and Sadock's Synopsis of Psychiatry: Behavioral Science/Clinical Psychiatry*. 381–464.
 54. Irving Seidman. 2006. *Interviewing as Qualitative Research: A Guide for Researchers in Education and the Social Sciences*. Teachers College Press.
 55. Yoko Setoyama, Yoshihiko Yamazaki, and Kazuhiro Namayama. 2011. Benefits of peer support in online Japanese breast cancer communities: differences between lurkers and posters. *Journal of Medical Internet Research* 13, 4: e122. <http://doi.org/10.2196/jmir.1696>
 56. Elizabeth Silence. 2010. Seeking out Very Like-Minded Others: Exploring Trust and Advice Issues in an Online Health Support Group. *Int. J. Web Based Communities* 6, 4: 376–394.
<http://doi.org/10.1504/IJWBC.2010.035840>
 57. Acar Tamersoy, Munmun De Choudhury, and Duen Horng Chau. 2015. Characterizing Smoking and Drinking Abstinence from Social Media. In *Proceedings of the 26th ACM Conference on Hypertext & Social Media (HT '15)*, 139–148.
<http://doi.org/10.1145/2700171.2791247>
 58. J. Scott Tonigan, Gerard J. Connors, and William R. Miller. 1996. Alcoholics Anonymous Involvement (AAI) scale: Reliability and norms. *Psychology of Addictive Behaviors* 10, 2: 75–80.
<http://doi.org/10.1037/0893-164X.10.2.75>
 59. Gina Venolia, John Tang, Ruy Cervantes, Sara Bly, and George Robertson. 2010. Embodied Social Proxy: Mediating Interpersonal Connection in Hub-and-Satellite Teams. In *Proc. of CHI*, 1049–1058.
 60. Kuo-Cheng Wang, Yi-Hsuan Hsieh, Chi-Hsien Yen, et al. 2014. SoberDiary: A Phone-based Support System for Assisting Recovery from Alcohol Dependence. In *Proceedings of the 2014 ACM International Joint Conference on Pervasive and Ubiquitous Computing: Adjunct Publication (UbiComp '14 Adjunct)*, 311–314.
<http://doi.org/10.1145/2638728.2638847>
 61. Jennifer L. Welbourne, Anita L. Blanchard, and Marla D. Boughton. 2009. Supportive Communication, Sense of Virtual Community and Health Outcomes in Online Infertility Groups. In *Proceedings of the Fourth International Conference on Communities and Technologies (C&T '09)*, 31–40.
<http://doi.org/10.1145/1556460.1556466>
 62. William L. White. 2009. The mobilization of community resources to support long-term addiction recovery. *Journal of Substance Abuse Treatment* 36, 2: 146–158.
<http://doi.org/10.1016/j.jsat.2008.10.006>
 63. Danny M. Wilcox. 1998. *Alcoholic Thinking: Language, Culture, and Belief in Alcoholics Anonymous*. Greenwood Publishing Group.
 64. Xinyu Xing, Yu-Li Liang, Hanqiang Cheng, et al. 2011. SafeVchat: Detecting Obscene Content and Misbehaving Users in Online Video Chat Services. In *Proceedings of the 20th International Conference on World Wide Web (WWW '11)*, 685–694.
<http://doi.org/10.1145/1963405.1963501>
 65. Svetlana Yarosh. 2013. Shifting Dynamics or Breaking Sacred Traditions?: The Role of Technology in Twelve-step Fellowships. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI '13)*, 3413–3422.
<http://doi.org/10.1145/2470654.2466468>
 66. Svetlana Yarosh, Anthony Tang, Sanika Mokashi, and Gregory D. Abowd. 2013. “Almost Touching”: Parent-child Remote Communication Using the Sharetable System. In *Proceedings of the 2013 Conference on Computer Supported Cooperative Work (CSCW '13)*, 181–192. <http://doi.org/10.1145/2441776.2441798>
 67. Chuang-wen You, Kuo-Cheng Wang, Ming-Chyi Huang, et al. 2015. SoberDiary: A Phone-based Support System for Assisting Recovery from Alcohol Dependence. In *Proceedings of the 33rd Annual ACM Conference on Human Factors in Computing Systems (CHI '15)*, 3839–3848.
<http://doi.org/10.1145/2702123.2702289>
 68. Mi Zhang and Christopher C. Yang. 2014. Classifying User Intention and Social Support Types in Online Healthcare Discussions. In *2014 IEEE International Conference on Healthcare Informatics (ICHI)*, 51–60.
<http://doi.org/10.1109/ICHI.2014.15>
 69. Online Intergroup: Alcoholics Anonymous. Retrieved from http://www.aa-intergroup.org/directory_venue_telephone.php
 70. Why Don't Men Volunteer as Much as Women? *Priceonomics*. Retrieved May 19, 2016 from <http://priceonomics.com/the-altruism-gender-gap/>