Therapy for Therapists: Design Opportunities to Support the Psychological Well-being of Mental Health Workers

AISHWARYA CHANDRASEKARAN, University of Delaware, USA
REBECCA CURRANO, Stanford University, USA
VAFA BATOOL, Dartmouth College, USA
KAIPING CHEN, University of Wisconsin-Madison, USA
ELIZABETH L. MURNANE, Dartmouth College, USA
DAVID SIRKIN, Stanford University, USA
MATTHEW LOUIS MAURIELLO, University of Delaware, USA

On-demand mental health services—including counseling, crisis hotlines, and peer support programs—are vital to the healthcare system, providing acute and ongoing support through telephone, online chats, and text messaging. Although such services have proven effective at reducing hopelessness, psychological pain, and suicidality, they put the providers of these services at high risk of burnout, secondary traumatic stress, and compassion fatigue. Our interviews with professionals from four mental health organizations revealed that while these workers have a strong motivation to help clients with mental health care needs, they face various challenges themselves, particularly regarding heavy caseloads, difficult crisis clients, and coping with repeated exposure to abuse and harassment. To overcome challenges, participants identify the need to be self-reliant and engage in self-care practices ranging from socializing with coworkers to yoga and meditation. Although organizations spend significant time training workers before their involvement with clients, the training typically lacks components of self-compassion and self-care. Designers might see technology as an opportunity to promote such practices; however, while technology is an integral part of their work routine, participants, irrespective of age, had misapprehensions regarding technology use in the mental health care space, including managing their psychological well-being. We recommend design guidelines for HCI researchers, including developing contextualized just-in-time adaptive interventions to promote self-compassion and educating workers on using various technologies to manage their well-being.

CCS Concepts: • **Human-centered computing** → **Empirical studies in HCI**; **Computer supported cooperative work**.

Additional Key Words and Phrases: mental health, crisis hotlines, counseling, peer support, burnout, self-care

ACM Reference Format:
Aishwarya Chandrasekaran, Rebecca Currano, Vafa Batool, Kaiping Chen, Elizabeth L. Murnane, David Sirkin, and Matthew Louis Mauriello. 2024. Therapy for Therapists: Design Opportunities to Support the Psychological Well-being of Mental Health Workers. *Proc. ACM Hum.-Comput. Interact.* 8, CSCW2, Article 418 (November 2024), 34 pages. https://doi.org/10.1145/3686957

Authors' Contact Information: Aishwarya Chandrasekaran, University of Delaware, Newark, Delaware, USA, aishc@udel.edu; Rebecca Currano, Stanford University, Stanford, CA, USA, bcurrano@stanford.edu; Vafa Batool, Dartmouth College, Hanover, NH, USA, vafa.batool.gr@dartmouth.edu; Kaiping Chen, University of Wisconsin-Madison, Madison, WI, USA, kchen67@wisc.edu; Elizabeth L. Murnane, Dartmouth College, Hanover, NH, USA, emurnane@dartmouth.edu; David Sirkin, Stanford University, Stanford, CA, USA, sirkin@stanford.edu; Matthew Louis Mauriello, University of Delaware, Newark, Delaware, USA, mlm@udel.edu.

ACM 2573-0142/2024/11-ART418
https://doi.org/10.1145/3686957

1 Introduction

Mental health issues such as anxiety and depression are considered a leading cause of disability across the world [25]. A recent report by the World Health Organization estimated that depression affects about 322 million people globally, representing an 18.4% increase in just a decade [50]. Such trends are driving demand for mental health care and the emergence of new services. Specifically, while telephone-based suicide prevention lines have been in operation for more than half a century [48], more general psycho-emotional hotlines continue to proliferate, along with new technology platforms that employ text messaging, web chat, and automated agents to engage in tens of millions of conversations around mental health support (e.g., 7cups[1], and 988 Suicide & Crisis Lifeline[2], Crisis Text Line[3]). These are typically geared toward helping people in a mental health crisis, which is defined as any situation in which a person's behavior puts them at risk of hurting themselves or others and/or prevents them from being able to care for themselves or function effectively in the community [2]. Alongside traditional forms of counseling and therapy, alternative options such as peer support counseling, both remote and in-person, are becoming prominent as mental health communities. These services collectively help make mental health care more mainstream by reducing stigma and increasing access, particularly for young adults, who face a higher incidence of mental illness and general distress. The COVID-19 pandemic further amplified the need for these services, as local media and scientific studies observed a nearly 50% average increase in contacts to national suicide hotlines and textlines, with some regions seeing case volumes double or triple [21, 63].

While much research from the CSCW and interactive computing communities has examined the experiences of people and patients managing these mental health challenges, we focus on the psychological well-being of the mental health professionals and volunteer workers who staff these crisis hotlines and counseling services. These mental health workers often enter the profession due to a strong commitment to helping others and empathy stemming from their own personal experiences with physical abuse and violence; however, many end up quitting, and there is a high rate of turnover [17, 19]. Indeed, these individuals face a high risk for burnout [39] and secondary traumatic stress or compassion fatigue [15, 46], which is compounded by the strains of heavy workloads resulting from the growing prevalence of mental health problems. In turn, such distress negatively impacts counseling performance, creating a cycle of distress and vulnerability for both workers and the clients who depend on them.

In this paper, we investigate the following research questions to (1) characterize the day-to-day needs and challenges of mental health workers and (2) explore opportunities to design self-monitoring and self-care tools (including high-tech, low-tech, and no-tech solutions) to support workers' psychological well-being:

- What are the perceived benefits, challenges, and unmet needs of workers who provide mental health care across crisis lines, peer support, and counseling communities, particularly when it comes to managing their own psychological well-being?
- What self-care practices and coping strategies (technological and non-technological, formalized by employers or ad hoc, etc.) have these worker populations adopted, why, and how have their experiences been?
- What are worker attitudes, constraints, and needs regarding the application of technologies to support their own psychological well-being?

[1] https://www.7cups.com
[2] https://988lifeline.org/chat/
[3] https://www.crisistextline.org/

To answer these questions, we employed a qualitative needfinding approach to investigate the lives of mental health workers, especially with respect to their work practices, through semi-structured interviews and thematic analysis of the resulting data. Our study highlights commonalities across multiple mental health communities—crisis line, peer support, and counseling—and reveals additional challenges, such as maintaining personal and professional boundaries and managing expectations of performance. Further, we found that workers ascribe importance to self-reliance and use several coping strategies such as socializing with coworkers, physical activity such as walking and yoga, and meditation to overcome their challenges. On the other hand, although technology is an integral part of their work routine, we observed that workers were not very keen on using it to manage their own mental well-being or generally within the mental health space.

Overall, our main contributions include:

- Qualitative insights regarding the experiences of mental health workers across crisis lines, peer support, and counseling communities, including new understanding around work-related benefits, challenges, and unmet needs of these worker populations.
- A typology of technological and non-technological coping mechanisms these workers employ to overcome their challenges and effectively provide mental health support to the larger populations they serve.
- Opportunities and recommendations for designing effective, low-burden tools to protect the psychological well-being of these workers and new directions and implications for HCI researchers.

Content Warning: Discussing the intense challenges that mental health workers experience, this paper presents potentially painful descriptions of mental distress, illness, and suicide. If you are feeling any level of mental distress, you can find the US-based helpline number at https://suicidepreventionlifeline.org.

2 Related Work

HCI and CSCW literature has presented extensive research on the mental health challenges of workers in the human services sector—particularly mental health support providers (e.g., crisis line workers, peer support volunteers). We begin by providing an overview of this body of work and explain how our study extends it. We then discuss prominent tools for managing psychological well-being for a general population, as well as tools designed specifically for workers operating in emergency situations such as firefighters, healthcare workers, and mental health professionals. We end by identifying gaps in these tools and highlighting the attitudes and perceptions of workers towards these technologies.

2.1 Mental Health Challenges in Human Service Work

Researchers have identified several mental health challenges commonly experienced by human service workers such as healthcare providers and nurses [27, 71]. These challenges include vicarious traumatization, secondary traumatic stress, compassion fatigue, and professional burnout. While vicarious traumatization, secondary traumatic stress, and compassion fatigue are related, they represent distinct effects. Vicarious traumatization refers to cognitive changes that result from prolonged empathic engagement with trauma survivors [51]. Secondary traumatic stress refers to behaviors and emotions that result from knowing about traumatic events experienced by another [22]. Compassion fatigue, on the other hand, encompasses a range of symptoms associated with these aforementioned effects [4]. The accumulation of stress and trauma from these events often leads to professional burnout.

Pines and Aronson define professional burnout as a state of physical, emotional, psychological, and spiritual exhaustion from prolonged exposure to individuals or populations that are vulnerable or suffering [53]. Newell and MacNeil further distinguish burning out as a progressive state that occurs over time—which introduces the potential to intervene in its progress—and identify the largest risk factor for developing professional burnout in human service work, in general [46]. Continual empathizing, professional requirements, and expectations around the display of emotions are strong professional risk factors for burnout [36, 37]. Additional factors include excessive workloads, inability to influence organization policy, and a lack of support from peers and supervisors [10, 37], all of which can potentially affect crisis counseling and similar workers.

Mental health workers may face one or more of these challenges. As with burnout, they are influenced by both personal characteristics (emotional suppression or other poor coping skills and personal histories of trauma or mental health disorders) and organizational factors (administrative constraints, lack of supervision and support, and cultural norms and values) [1]. Many of these effects are measurable outside the clinical diagnosis and treatment context and can be followed over time. For example, the Maslach Burnout Inventory (MBI) [55] is the most popular and broadly validated measure of burnout. It includes separate versions focusing on medical personnel and human services workers. In this construct, high levels of emotional exhaustion and depersonalization, combined with low personal accomplishment, characterize burnout.

In our study, we aim to more deeply investigate the challenges that mental health workers experience in different roles and organizations. In particular, while the majority of prior work highlights the mental health challenges of healthcare workers broadly speaking, we focus on difficulties specific to roles such as crisis line workers, peer support volunteers and specialists, and part-time and full-time crisis counseling professionals – and the impact of these challenges on their mental well-being [58, 69]. Understanding role-specific challenges and their impacts will allow researchers to design more tailored technological solutions for managing the unique issues facing different workers in various care roles.

2.2 Digital Tools for Managing Psychological Well-being

The collective efforts within the HCI and CSCW communities have yielded innovative solutions that cater to the unique mental health needs of different populations, including young people and other vulnerable groups [18, 20, 67]. These efforts range from mobile sensing and digital phenotyping [40, 41] to the integration of Cognitive Behavioral Therapy (CBT) techniques and storytelling [29] to provide users with personalized and engaging approaches to address their mental health concerns. In recent years, there has been a significant increase in self-tracking technologies, particularly those that aim to empower users to track well-being indicators such as mood, sleep patterns, and stress levels. The growth in this domain is accompanied by an increase in HCI research to study and support self-tracking practices.

Much of this research is conducted through the lens of behavior change, which has widely influenced the design of interventions and personal informatics tools [64, 65]. Other work focuses more on acceptance and self-care; for example, Ayobi et al. discussed ways in which people with multiple sclerosis experienced a sense of regained control over their condition by engaging in self-care practices facilitated by self-tracking technologies [7, 8]. Research also continues to push beyond individual-level support to consider the social contexts of self-care; for example, Murnane et al. offered design implications for personal informatics systems that take into account care ecologies in the context of serious mental illness [44].

To enhance mental health outcomes, various interaction modalities for emerging technologies have been explored by HCI researchers. For example, conversational agents have gained particular attention as a means of offering intuitive, personalized support [38]. Furthermore, gamification

techniques have been utilized to motivate users through rewarding tasks and activities [29]. Immersive and therapeutic experiences have been created using virtual reality [24]. Additionally, the use of mHealth applications and wearables has gained prominence, allowing individuals to track and manage their well-being more continuously and in-situ [56, 70]. As such tools become increasingly automated and passive, guidelines for app-based interventions formulated by Bakker et al. remind designers of the importance of supporting manual self-reporting and customization [9]. In this study, we build on these foundations to explore the opportunities that personal informatics may offer to mental health workers in need of personalized tools for managing their own personal well-being.

2.3 Mental Health Worker-Facing Tools

Ample literature has been published on the design of tools for workers operating in emergency situations, such as firefighting, policing, healthcare, and mental health. For firefighters, these ubiquitous systems range from improving work performance through improved communication to providing timely help to the workers in case of emergencies [11, 31, 45]. Likewise, for law enforcement officers, there have been efforts by the HCI community to make communication more effective while detecting explosive materials in an environment that poses challenges for proactive coordination [5]. Additionally, machine learning models have been integrated into systems that identify the likelihood of police officers being subjected to adverse events that involve direct interaction with the public, such as shootings [13].

The prevalence of mobile devices has seen rapid integration within the healthcare system for improved communication via text messaging and video calling as well as to improve hospital information systems like electronic health records (EHRs), electronic medical records (EMRs), and informational resources for quick access by health care professionals [66]. As clinical treatments and diagnoses progress, so do digital resources designed for physicians to consult for answers on diagnosis recommendations, management, and therapy [34]. Additionally, because nurses manage multiple patients and often switch between patients, efforts have been made to improve the efficiency of their workflow. An early example is a tablet-based mobile dictation application that allows on-the-fly recording and easy editing of patient information [26].

Stress and mental health interventions have been largely studied for use with the general public—especially for information workers. In a recent study by Tong et al., a browser-based intervention was used to deliver micro-interventions to mimic therapeutic practices [62]. For mental health care, in particular, prior work has identified how digital technologies can facilitate recovery-focused care using co-production principles that encourage active collaboration between service users and providers [3]. Further, mental health service providers have used digital tools in their practice to provide more personalized care to each service user by involving them directly in logging their expectations, progress, and feedback [54]. Other ways in which technology has assisted therapists include tools that allow them to record, review, and comment on videos of sessions with clients [35]. In general, technologies have been designed to facilitate mental health workers' performance in providing care, but few (if any) tools are focused specifically on aiding workers' own mental well-being.

2.4 Attitudes of Mental Health Workers Toward Technology

There is a small but growing body of recent work that examines the attitudes of mental health workers toward technologies. Worker attitudes include acceptance of digital platforms for improved practice, interpersonal relationships with their clients, and personal accountability of their work performance [35, 54]. Recent empirical evidence found mixed results regarding the attitudes of

workers toward these emergent technologies. Hirsch et al. developed CORE-MI, a machine learning-based automated system to code and evaluate dialog in counseling sessions. In a pilot study, they found that experienced counselors worried about it being used for workplace surveillance and could lead to penalizing providers [30]. Kuo et al. further studied its real-world use in a university counseling center and found that counselors' perceptions of its usefulness depended on their level of experience; individuals at the early stages of their practice found this software to be useful for self-reflection and feedback, while supervisors tended to see its utility only for training purposes and not for actual use in their practice [35]. Pithara et al. developed a mobile app tool for mental health workers to use with clients to co-design their recovery plans. Although it showed promise in supporting personalized care, some practitioners were wary of including technology in an interaction that is meant to be therapeutic and interpersonal in nature [54]. The technologies in these studies focus on supporting skill building and job performance of mental health workers. In our work, we aim to look at the attitudes of mental health workers in various organizations toward self-care tools aimed at supporting their own mental well-being.

3 Methodology

This research aims to understand the critical challenges mental health support providers face in managing their psychological well-being and how they navigate them. In particular, we wanted to understand what role, if any, technology might play in the self-care routines adopted by these workers and attitudes toward adopting technology for managing their psychological well-being.

3.1 Research Partnership

We conducted this study in collaboration with four mental health support organizations in the Mid-Atlantic and Midwest of the United States. Next, we describe these organizations and the roles and responsibilities of the mental health workers we interviewed.

3.1.1 Organizations. Table 1 lists the organizations, the distribution of participants within them, the key deliverables of each organization, and their target audiences.

Organization	Participants	Organization Deliverables and Target Audience
O1 - University Center for Counseling and Student Development	CO1	In-person counseling support for university students spread across sessions during a semester
O2 - Crisis line organization	CL1, CL2, and CL3	Remote support for anyone who calls on their line, both warmline and hotline
O3 - Rape crisis therapy center	CO2 and CO3	University-adjacent organization providing services to clients
O4 - Peer support organization	PS1 and PS2	University-adjacent organization mostly providing peer support with the help of student volunteers with lived mental health experiences

Table 1. Distribution of participants across four partner organizations.

3.1.2 Participants. We recruited both full-time and part-time workers in roles ranging from crisis line volunteer to executive director. Participants were 20–72 years old, had 1–38 years of experience in the human services field, and were all female. Table 2 details their demographics and roles.

Participant ID	Age in Years	Gender	Race	Job/Role	Experience in Years
CO1	33	Female	White/American Indian	Clinical Psychologist, College Counselor	9
CL1	52	Female	Hispanic	Executive Director, Crisis Line Worker	32
CL2	42	Female	Black/African American	Crisis Service Coordinator, Crisis Line Worker	13
PS1	20	Female	White	Peer Support Volunteer	1
PS2	23	Female	White	Peer Support Volunteer, Part-time Counselor	5
CL3	72	Female	White	Crisis Line Volunteer	38
CO2	31	Female	White	Counseling Professional	2
CO3	55	Female	White	Counseling Professional	15

Table 2. Participant demographics, job/role, and years of experience.

3.1.3 Participant Roles and Responsibilities. All participants self-identified as counseling professionals or peer support specialists—both categorized as mental health professionals by Mental Health America (MHA) [6] or as crisis line workers. One of the participants was cross-trained in different professions as a part-time counselor and peer support specialist (PS2), and another was a formally trained doctor of clinical psychology and is currently a practicing university counselor (CO1). The following details are based on the participants' descriptions of their organizational roles. While these descriptions are consistent with prior research [28, 49], they may not encompass the full range of services offered by crisis helpline, peer support, and traditional counseling & therapy services beyond these organizations.

- **Crisis Line Workers** receive calls, texts, or online chats from individuals ranging from those who are lonely or experiencing general struggles (warmline) to those in actual crisis (hotline). These workers are not required to be clinically trained or have a background in psychology. They do not have background information on callers or a script to follow, and they are not expected to know the "right thing" to say or to solve callers' problems. Rather, they serve as active listeners for those who need someone to talk to for support and may redirect them to relevant resources or professional help depending on the severity and seriousness of the call. They increasingly work remotely and take shifts to ensure no call or text goes unattended since crisis line organizations operate 24 hours a day. CL3 describes the nature of her work:

  > *...some people call us up and say 'I've got a stomach ache... What do I do?' Call your doctor. We don't say take aspirin and go to bed... And this is where it's very different from the kind of therapy when a person is a counselor and sees somebody regularly... We don't have a background [on callers that] we can trust. We may have some notes, but we don't know whether somebody is under psychiatric care, for instance, unless they have told us that.* (CL3)

  The senior workers provide training and outreach, monitor calls organization-wide, ensure the organization has sufficient resources to continue operating smoothly and take shifts when necessary to meet the demand and ensure coverage.
- **Counseling Professionals** are licensed practitioners—typically with an MS or PhD in psychology—who work in schools, hospitals, community health centers, and businesses to support mental health and improve psychological well-being. They often specialize in specific populations (e.g., children), and if clients need a prescription, they refer them to a psychiatrist. Depending on seniority and education, they may also teach, supervise, and manage funding

and outreach in addition to managing their client load. They may also interact with advocates from the district attorney's office, who refer clients to them. Counseling sessions follow different models depending on the organization. For example, at O1:

> *Historically, at the counseling center, there has been a session limit. So, it's usually been between 8 to 12 sessions per year… We are in the process of switching our model, so there won't be hard session limits. However, the model will be more about a specific treatment plan. So, it's going to be about defining a very specific and concrete goal... It's not necessarily an open-ended process type of therapy.* (CO1)

- **Peer Support Workers** are trained volunteers who, by definition, have personal experience with a behavioral health challenge [6]. They handle client calls, conduct in-person sessions, and support other workers, particularly in difficult situations such as suicidal clients. They may also engage in administrative work, such as organizing fundraising events. As volunteers, they tend to have more flexible work hours than full-time staff, and they often advance to staff or peer specialist roles. For example, PS2 explains:

> *In high school, I was starting to deal with a lot of anxiety that was pretty debilitating with everything from going to school to eating... So that kind of kick-started my real interest in helping people and knowledge about psychology… It's tricky because a lot of therapists [for] professional reasons, won't really share about themselves...here, we try and have that open communication and share our struggles if that could pertain to the person we're helping, but a lot of therapists won't share that.* (PS2)

3.2 Data Collection

We conducted semi-structured interviews, both online and in-person, with eight mental health support workers. To preserve participant privacy, we identify participants in this paper by unique identifiers. CO1 was a counseling professional at a university; CL1, CL2, and CL3 were at a crisis hotline; PS1 and PS2 were student peer support volunteers; and CO2 and CO3 worked at a university-adjacent counseling center. (See Table 2 for full details).

3.2.1 Recruitment. To recruit mental health support providers, we distributed Google Forms in English via our partner organizations that asked for a respondent's basic details such as name, contact information, and other information, including demographics, employment status, years of experience, and description of involvement (e.g., crisis line volunteer, crisis line employee, peer support specialist, counseling professional). The study required participants to (i) be 18 years of age or older, (ii) have professional involvement in mental health support, and (iii) have experience using telephone, video conference, text messaging, or similar technologies in their support practice. Apart from these restrictions, we encouraged people of all genders and ethnicities to participate. The senior staff of each organization shared our recruitment materials through their internal communication channels. While our initial target sample was crisis hotlines, we quickly realized that our study could be enriched by the nuances other mental health support communities have to offer, given these communities converge in their goal to provide mental health support in various forms. Thus, we expanded our scope, and our analysis of participant experiences is enriched by the perspectives of a diverse population of mental health service providers.

3.2.2 Interview Protocol. After recruiting our participants, we investigated their typical workday using a qualitative needfinding approach in the form of semi-structured interviews that were conducted both online and in-person (depending on participant preferences). The interviews lasted approximately 60 minutes and were conducted from July to September 2022. Interviews were audio

recorded in person using a hand-held recorder and video recorded online using Zoom. Although we did not use the videos for analysis (i.e., instead, we extracted the audio data), we encouraged participants to turn on their videos to build rapport with the researchers. The study received approval from the Institutional Review Boards of all collaborating universities. See Supplementary Materials for the Interview Protocol.

3.2.3 Limitations and Opportunities. Our sample in this paper is small because we spent significant time and effort recruiting participants and building relationships with mental health support communities. We contacted 30+ organizations in a span of 2 years and were only able to collaborate with 4 of them to conduct this research study. As a result, our data set does not represent all the different experiences of mental health support providers in the United States. However, by interviewing mental health workers across three different communities, our sample represents the perspectives of workers who may need more support in managing their own psychological well-being. Our findings should not be taken to indicate that all mental health service providers face similar challenges and need the same amount of support. Despite these limitations, we believe our findings provide detailed insight into a significant subset of workers' experiences and are indicative of some non-exhaustive challenges that vulnerable workers may face. Future work should engage with workers from a broader range of backgrounds, including workers who speak other languages or are from cultures outside the United States. We encourage researchers wishing to replicate this work to define target groups of mental health support workers and engage with workers from each group to understand the range of their needs and how technology can be leveraged to support their well-being.

3.3 Data Analysis

We analyzed the interview transcripts in this study using thematic analysis [12]. Working from prior literature, our team developed a codebook containing 32 codes identifying the training mental health support providers receive, the challenges they encounter in managing their own psychological well-being, the use of technology in self-care, and their attitudes towards adopting technology (see Supplemental Materials). Subsequently, two researchers conducted open coding on a line-by-line basis and worked together to resolve disagreements through discussion (i.e., adjusting code definitions as well as adding and removing codes as necessary to best fit the data). At the end of this process, the two researchers discussed the results of the coding process and resolved any disagreements. By this stage, the two researchers double-coded all of the transcripts due to the small sample size. Next, they identified relationships between the codes and extracted higher-level themes.

Participants' experiences varied widely based on their professional identities, practices, resources, and the level of support they received from individuals, including themselves, and may have been further shaped by their race, language, and education. We try our best to avoid preconceived distinctions when we present our findings and instead aim to maintain authenticity using participants' own words as much as possible.

4 Results

Findings from our semi-structured interviews are organized into the following five sections: (i) motivations and work-related benefits that mental health support providers receive from their roles, (ii) formal education and work-related training, background, and experience relevant to their current roles, (iii) job-related challenges, particularly those relevant to client interactions, and their impact on well-being, (iv) coping mechanisms adopted by mental health workers to manage their psychological well-being, and the (v) use and adoption of, and attitudes toward technology in managing their psychological well-being. Throughout this paper, we use the terms "client" and "caller" interchangeably, with the latter typically used for individuals seeking help from a crisis

line organization in particular. It is crucial to note, however, that the dynamic between those seeking help and those offering support at crisis lines and peer support centers is not a formal client relationship (as in professional counseling).

4.1 Mental Health Workers' Motivations

Participants' primary motivations for becoming involved in providing mental health services included a history of personal mental well-being issues, such as anxiety and depression, and a strong desire to help others. Some were motivated by negative childhood experiences, such as suffering from abuse or being part of a family they viewed as dysfunctional (CL1, CO2, and CO3). For instance, CO3 describes her motivation as follows:

> *I feel like I have been a therapist my whole life since I was young... I grew up in a dysfunctional family with a mother who had a lot of mental health stuff and a father who was an alcoholic. And there were eight of us. And so I always felt like I was taking care of everybody all the time.* (CO3)

Participants' past experiences managing their mental health shaped them to be resilient and give back to the community through service. In pursuing a career as support providers, some (CO1, CL2, CO2) felt privileged to be able to enhance other people's mental states and, eventually, lives. A few participants (CL1, CL2) mentioned religious motivations to serve the community and do so on a continual basis. As CL1 said: *"Making an impact in people's lives is really the component of it. Because I'm doing a service. My background, in our church, we're all about serving, however you serve. You're doing something for somebody, and you're giving of yourself."*

Other motivations, particularly for volunteers, were the intrinsic rewards they receive, with the most rewarding being the impact they could have on people's lives. Additional benefits include gaining perspective (CL3), sharing others' vulnerability (PS2), connecting with people (PS2 and CL3), honing interpersonal skills (PS2), and witnessing client progress (CO1, CL2). Participants described several personal qualities that support their roles, including patience, humor, resilience, and empathy. All participants had prior personal mental health challenges, and several noted that the empathy that developed from those experiences was the primary differentiating factor in how they performed in their roles and influenced how they gauged client outcomes.

4.2 Organizational Training

Participants often steered their formal education based on the specific type of work they aspired to do. Aside from PS1, who was an undergraduate student, all had earned college or graduate degrees (2 PhDs, 3 Masters, 2 Bachelors). For example, CO1 pursued a doctoral degree in Psychology with the intent to go into teaching, consulting, and clinical work. While counselors require relevant formal education, it is also common for peer support workers and crisis line workers to have educational backgrounds supporting their roles. Even so, some expressed concerns about the gap between knowledge and practice, emphasizing the need for training on the job. For instance, CL2, a crisis line worker who earned graduate degrees in both Administration & Human Services and in Community Counseling, stated: *"I would say having a degree helped me only 50/50. Yes, definitely, having the education and the knowledge base is really important. But you actually have to be on the ground... You really got to learn who you can work with."* In addition to their educational backgrounds, some participants also had prior experience working in related roles such as victim services (CL1), youth emergency services (CL2), psychotherapy (CO3), and sexual abuse therapy (CO2). They generally viewed this experience as having helped them in their roles, except CL2, who stated:

> *I had to deconstruct my whole way of thinking because when you're a counselor, [you are] solving the problem for them, helping them get to a solution. Here [at the*

> *crisis line], there is no solving their problem... I had to [ask], "...tell me the last time you did that. Did that work for you? What worked? What didn't work? How can you do it differently this time?" versus [in previous counseling work] "This is what you need to do." It took me a good six months to deconstruct all of that thinking... and learning of solving people's problems.* (CL2)

Training is therefore critical to onboarding all mental health support providers, including part-time volunteers and full-time staff. Participants described varying degrees of training they underwent as part of the onboarding process for their roles, and training at each organization evolved over time. Next, we distinguish aspects of this training for crisis line workers, peer support workers, and counseling professionals.

4.2.1 Training at the Crisis Line Organization. Training at O2 spans 44 total hours, combining classroom training and hands-on apprenticeship in the call rooms. In these sessions, trainees first interact with a current volunteer to gauge the kinds of calls the hotline handles, next, listen to the responses given by senior volunteers, then listen to both sides of the conversation, and finally receive calls under observation by senior volunteers. Trainees are thus exposed to common types of calls they would encounter, such as sexual assault, suicide, anxiety, and depression, to prepare them for intense situations. CL2 exemplifies the importance of training as follows:

> *Even though people say 'Oh, I just want to help people, I want to give back,'...they may not be able to handle a middle-aged man calling saying that he's done everything, and he's ready to end his life. You may not know how to walk through that. So what this course definitely teaches them is really how to listen.* (CL2)

Augmenting traditional training (primarily YouTube videos and TED talk modules) with role play provides trainees with a simulated experience of intense situations–realistic enough to learn from but not so much as to psychologically trigger them. CL1 and CL2 note that many prospective volunteers drop out of training due to a realization that they 1) lack the necessary preparedness, 2) find themselves triggered during intense calls, or 3) volunteer for the wrong reasons (e.g., to make themselves feel better, to provide advice, to find closure in their personal lives).

4.2.2 Training at the Peer Support Organization. At O4, peer support workers undergo four months of training, including activities and workshops on how to use their personal experiences to support clients. It includes the completion of three sections: (1) ten of the 13 modules from the *Academy of Peer Services*,[4], (2) seven remote sessions to introduce mental health topics relevant to service at the organization, and (3) seven "healthcare theater" sessions, in which trainees practice their communication skills with actors who play the role of young adults seeking help. The training concludes with a mock session with a peer specialist to assess their preparedness to begin serving as a peer support provider. PS1 and PS2 mentioned that while mock sessions help identify a lack of readiness, they can induce anxiety, as they take place in a group setting rather than one-on-one. Healthcare theater sessions are intentionally designed to be very intense, and awkward silences often ensue because the actors present situations in which trainees might not know how to respond. This is unlike actual peer support sessions, which flow more naturally as conversations *"The mock sessions are great.... it is a live situation and a real person at that moment. But it is less pressure because their emotions aren't at stake."* To improve the outcome of their training, sessions include one week dedicated to cultural competency, as PS2 noted: *"I think the difficulty we have here is that our staff and peers aren't very diverse. So sometimes, we have one week dedicated to cultural competency. And people answer fine. I think that's an area that we could use a bit more training..."*

[4]https://www.academyofpeerservices.org/

4.2.3 Training at Counseling Organizations. Unlike crisis support volunteers (CL1, CL2, and CL3) and peer support specialists (PS1 and PS2), the counseling professionals (CO1, CL3, CO2) already had formal training from their educational backgrounds. Though they are not always required to undergo additional training before providing counseling services, counselors participate in continuing education to renew their licenses annually or voluntarily attend training sessions, workshops, and conferences based on their interests.

4.3 Challenges of Mental Health Workers

In this section, we highlight participants' critical work-related challenges and unmet needs and outline the impact of these on their mental well-being. We categorized their challenges into two subsections: *(i) heavy workload*, and *(ii) nature and outcomes of client interactions.* For each category, we first describe the challenge faced by crisis line workers, followed by that of counseling professionals, and finally, peer support workers. After each challenge, we highlight the impact of it on workers' psychological well-being.

4.3.1 Heavy Workload. The crisis line organization and the peer support organization operate 24/7 to ensure that every person who approaches them seeking mental health support receives help promptly. Unlike the formal counseling sessions at O1 and O3 (conducted by CO1, CO2, and CO3), which are timed and paid for, there is no hard limit enforced at O2 (CL1 and CL2) and O4 (PS2) on either the number of sessions or the time in each session for full-time workers. These workers can receive any number of calls during their shifts and often suffer from major fatigue and feel burned out by the end of the day.

Crisis Line Workers at O2 often have difficulty providing undivided attention to their callers because unanswered calls keep the lines ringing. CL3 contrasts her experience to that of counselors (such as CO1, CO2, and CO3), who can put their phones away during a session and focus full attention on their clients. They often have to weigh the priority of ongoing versus incoming calls and abruptly end conversations with clients to attend to those not yet served.

Due to their workload, crisis line workers are challenged to maintain a balance between work and personal life, as the perception among full-time staff is that their responsibilities extend around the clock. As CL2 explains, despite working fewer than 24 hours, they experience the pervasive impact of their job throughout the entire day:

> *It is 24 hours. Sometimes it is very hard to build that work-life balance with this kind of job. I am a support worker from 7 am to 11 pm, which generally means that whoever's calling if they need some more assistance, or if they've been triggered by something because we are dealing with human people, and we all have trauma in our path and different things... And that's something that I have to do [deal with] as well as regular work—the regular eight hours—it's [my work is] 7 am to 11 pm.* (CL2)

Those in leadership roles at crisis line centers also need to respond to calls outside of their shift hours, adding to their duties overseeing center operations and exemplifying the loss of boundaries between work and personal life due to the unpredictable nature of crisis intervention work. CL1 describes her experience as follows:

> *When a call comes in, a call comes in... Phone rings, answer. Sometimes we'll get 10 calls [in] that four-hour shift, or sometimes we'll get 5. Sometimes we may get 15. I'll get a text message saying '[Name], I'm getting swamped. Can you take the lines for about an hour?' 'Okay, I got it.' Because sometimes we have to answer the other*

> *line. If it's one of our frequents, 'listen, call back in an hour'. Or if it's not a serious call, 'Listen, call back in the afternoon. Let us know how your day was.* (CL1)

Counseling Professionals usually work standard 8–9 hour shifts, but the experience of fatigue and burnout was also common among them. CO1, CO2, and CO3 interact with their clients on clocked-hour schedules and feel stretched thin, as the sheer number of clients creates a conflict between offering quality counseling and serving all those in need. The high client load combined with the internal conflict they feel is taxing on their own mental health. In CO1's words: *"By the end of the day, there's usually a little bit of fatigue. Stress level might depend on how many clients are back to back, how the clients are presenting, how severe their concerns are."*. CO2 expressed similar sentiments, emphasizing that her stress tends to peak at the beginning of the day, as she juggles caregiving duties from her personal life before commencing work, and at the end of the day when she strives to complete her professional responsibilities. Additionally, there is also an expectation from the organization regarding the number of clients workers serve. This adds to their mental load, and CO1 emphasizes the importance of acknowledging one's limits of being able to serve their clients. In her words: *"Rather than, Oh, you saw 800 clients in a semester, like, yes, of course, we're here to help people and we also have to, know our own limits."*

On the other hand, this experience is less common for more senior workers, as they have a choice to allocate their time between administration and client interactions. CO3, who is in a leadership role, mentions shifting her work from full-time professional therapy to include administration to better distribute her workload between seeing clients, supervising therapists, and completing administrative tasks, as she experienced constant emotional burnout when she only saw clients. CO3 reflects on her burnout:

> *Part of the reason I took this role was because I needed more of a balance. I was getting really burnt out just seeing clients all the time. I really enjoy the supervision part, working with therapists and the CCS folks on what their clients need, and trying to figure out how we can be most effective in serving them... There are a few clients who I saw in private practice who are here now as clients. And when they contacted me, I didn't want to say I'm not taking any more clients. So I took them.* (CO3)

When counseling professionals reach home after an intense day, they often carry the burden of client interactions into their personal lives. Organizational expectations tend to reinforce over-performing, which in turn impacts their mental well-being. As CO1 summarizes her first-hand experience:

> *The idea that over-functioning gets reinforced, and there is this quantity over quality mindset, and that productivity is king. I think that is the diametrical opposite of good mental health. So, higher education and the counseling center have fallen into that system and way of being in operation.* (CO1)

CO1 further elaborates how these expectations affect her daily experience: *"First, not be burning ourselves out, I think especially with the national shortage of mental health providers and COVID burnout, we need to learn from this experience and do better ...this is the tension I think I hold on a daily basis."*

Peer Support Workers at O4, similar to the senior counseling professionals, are less susceptible to burnout due to heavy caseloads, as they are voluntary workers who are not obligated to minimum time commitments. However, since they primarily serve university (and sometimes high school) students, they do experience high caseloads during the academic year.

4.3.1.1 Workload During the Pandemic: Consistent with media reports and findings in recent studies, mental health worker caseloads and the intensity of client interactions increased with the onset of the pandemic, which we elaborate on in the following section [21, 63]. CO1 mentioned: *"There was more of a complexity in the cases that we have seen during that time."* CL1, the director of crisis line center O2, mentions a slight increase in their calls, mostly due to out-of-state callers and people not being aware of local resources. She also cites new stressors in populations who would not otherwise have called the center. CL3 describes the pandemic situation as follows:

> *I think overall the staff says it is busier. Over the whole country, there used to be more 24/7 places than there are now. So people have gotten our number. And I think we've had more calls from out of state. This can be difficult—we can't transfer people to their local mobile crisis the way we could here... But there's been more of that since COVID. A few more people going kind of crazy. Just stir crazy. Not getting out - being very frustrated.* (CL3)

At the counseling center, workers' responsibilities grew to include licensing for multiple states as students moved home during the pandemic, but such additional tasks were not recognized as part of their workload. CO1 describes it as follows:

> *I think, pre-COVID, there was much more of an infrastructure for support for mental health clinicians. And then, I don't know that there was a full understanding or appreciation of all that the clinicians took on during the pandemic. For example, overnight, we all had to learn how to provide telehealth and update all of our documents, and be available to students. At first, a lot of those students were not even in Delaware, getting licensed for multiple other states so that we could provide continuity of care for students who were in their home states.* (CO1)

Peer support center O4 was established during the pandemic, making it difficult to attribute changes in caseload to its effects, as there was no prior call record to serve as a comparison.

4.3.2 Nature and Outcomes of Client Interactions Participants mentioned various client interaction stressors contributing to the challenge of managing their mental well-being.

4.3.2.1 Clients in Severe Crisis: One of the most critical challenges among all three professions is the workers' interactions with suicidal and severe crisis clients.

Crisis Line Workers at O2 (CL1, CL2, and CL3) elaborated that not having a binary answer or strict script enforced for interacting with any of their callers makes them prepare to enter a high-stress situation as soon as they identify a call coming through the National Suicide Prevention Line (NSPL). In CL1's words:

> *I can tell on the caller ID, if that's the 15 local, or is it 16, the 800 number, that means anybody can call from anywhere. And so line 17 we know that's the NSP line. So that puts us in an immediate need of 'okay, this is 17 and what's going on? Who's calling NSPL? Oh my God, could just be a suicide' That's our way to prepare ourselves too.* (CL1)

Although they mention that identifying a call through that line is a way of preparing themselves for the call, these calls put them into a source of high stress. CL3 describes how her stress changes during such times as *"It comes in on a particular line. . . . Oh, it's SPL, so I'll get a little nervous a little more. . . If somebody is really, really upset, and I can't reach them, then my stress will go up."*

In the realm of crisis intervention, phone-based interactions of crisis line workers present greater challenges when dealing with severe cases compared to counselors or peer support workers who engage with clients in person in a more controlled setting. CL1 expresses this challenge in her own

words: *"I'm going to get a call saying I want to jump off the bridge. And he tells me he's on this bridge, and I get the police on the phone. And then he tells me this other bridge – I'm not sure if he's honest or not. But I'm not gonna see him [to] determine that."*

As counselors, CO1, CO2, and CO3 can follow the progress of their clients over multiple sessions. Crisis line and peer support workers, however, don't have this capacity, as they do not have the same structure in terms of scheduled or recurring appointments and typically do not have access to background information on their clients that they can use to monitor improvements. The crisis line workers instead made use of reports generated by iCarol[5], a commonly used software system among crisis line workers, to assess a caller's short-term mood changes within each call. At times, these severe crisis cases may not result in any tangible resolution, necessitating that workers come to terms with the absence of definitive outcomes. CL1 describes this experience in her own words:

> *And sometimes we just never know, and then they hang up on you. So we have to train everyone to understand that sometimes there's no end to it. You may not get a satisfaction from it, you may not know the outcome of it. Sometimes the police will call us back and say, 'Hey, we got them, don't worry about it'. Or sometimes they don't. We have to be okay with that.* (CL1)

Additionally, there might be personal experiences in people's lives making crisis calls more difficult. CL3 recollects one such instance as follows:

> *Because what I have found is that often I do connect with the person, and I feel that the connection helped, but . . . there was one where I did call the support worker because a person that I didn't know well, but that I did know had recently committed suicide. And so I had an NSPL call...it [was] hard.* (CL3)

These difficult interactions with clients in severe crises were often intense but necessitated the workers to leave these interactions behind as it has the potential to enter their personal lives and, in turn, those related to them. CL1 shared the story of her own experience with a severe crisis client as follows:

> *They are hard and difficult. I had one with whom I was on the phone for 70 minutes. She didn't care if she still lived the next day. She lost her son in a car accident. A drunk driver hit her son—he was 22. At the time, my son was 22. She had a teenage daughter who graduated from high school. . . . No matter what I said, no matter what I did, no matter what connection I gave her. . . . I tried everything. . . . We end[ed] up calling the police on her also because she did not care. She started to sound a little groggy to me. And the police got there. Thank God, it was so funny because she said 'hold on' and she went and answered the door and came back. She said, 'Did you call the police?' I said, 'Hey, didn't I tell you at the beginning of this conversation that you're so important? You go in there, you talk to the police and let them know how you're feeling.' Sometimes, we can get somewhere. So that was very draining. . . I hope she gets the help she needs, and then we have to move on. If not, it can easily eat you alive, and you can't have that. . . . I have a husband, two kids, and a dog. You can't go home and take all that with you.* (CL1)

Counseling Professionals at O1, on the other hand, take shifts to account for unexpected cases with severe crises. Similar to the experience of crisis line workers, CO1 describes days when she takes that shift to be higher in stress as *"And also there are blocks of time when we are the counselor on duty. So if anyone does have a need for emergency counseling or they're in crisis, and it can't wait for a scheduled time, those days might be higher in stress."* The research board at CO1's organization

[5] https://www.icarol.com

considers clients with suicidal ideation and behavior to be most stressful for workers, not just among college counselors but also the broader mental health worker population:

> *The most stressful client behavior...across the board... tends to be suicidal ideations or suicidal behaviors. That tends to be the most worrisome for clinicians. That's something that I see and then manage in my work. And that it's not specific to college counseling, I think, just what it means to be a therapist.* (CO1)

Further, she added that she considers her client's mental health to be a big responsibility for her as:

> *I think there's always kind of a stressful aspect to any job. But certainly, you know, being responsible for other people's mental health is a big responsibility. And I can tell you lots of research that's been done for people in positions of being a therapist. The most stressful aspect can be a lack of progress for clients. if they are stuck, or if the interventions that you're offering are not a good fit for them and not working.* (CO1)

Peer Support Workers' severe crisis client interactions are similar to that of counseling professionals in a more controlled environment as compared to crisis line workers' experience, but they have very limited information regarding their clients (similar to crisis line workers) and only as much as the client chooses to reveal. Therefore, the method of deciding whether or not someone is suicidal can be stressful for these workers at times. PS2 mentions that there is no right or wrong answer to even detecting if a client is suicidal and, in her own words, explains as follows:

> *Yeah, it's tricky, because there's no 'yes' or 'no' answer, there is really no 'right' answer. It's just making sure that they're [the client is] safe. And I know, in the beginning, even the mention of suicide I'd, 'oh, Flag Flag Flag, let me get someone'. But, now I'm to the point where if someone expresses suicidal ideation, I'm just getting more comfortable letting them walk [away] and trusting that they won't hurt themselves. ... it's difficult because you never know if someone's lying to you. You can usually get a general idea, but, if you think they're at risk, look immediately when they leave, even if you could get them to promise, 'I'm not gonna hurt myself overnight. I'm gonna come back here tomorrow, and we're gonna continue this,' it's scary, because This person is actively suicidal, and doesn't want to be alive. And I have to just let them out of my hands. And who knows what would happen. I'm gaining comfort with that.* (PS2)

To elucidate the impact this episode had on her, PS1 further elaborates *"I didn't think it affected me. But then that following weekend, I had gone home, and I was having panic attacks. I really didn't realize how affected I was by it. So that wasn't great."* Talking more generally regarding severe crisis clients at the peer support center and how it affects their mental well-being, PS1 adds:

> *When you have a serious situation, it can affect you more than you realize. And that can be emotionally really difficult to deal with. Sometimes, if you have someone who is a danger to themselves or someone else you have to deal with, that's really difficult to do without making the person more upset, but still effectively dealing with the situation. I think these are the biggest challenges we face.* (PS1)

The peer support workers sometimes had clients fill out standard psychological scales, but often, judgments of client outcomes were based on workers' intuition. Sometimes, it was also direct validation by the client. In PS1's words:

> *I had one kid who was on the football team. I had done maybe three or four sessions ever. So I was reading into them. But that one was really good. He was very open. He was showing me things on his phone. I don't think he would have if I hadn't made him feel comfortable. So I felt like that had gone really well. And then when we were*

> *leaving, he told me talking about it helped. 'I feel a little better.' And I was like, Oh, I did good.* (PS1)

Although workers realize that they are not expected to cure someone, they feel unsatisfied when they sense they have not provided sufficient support. In PS2's words:

> *I know that the expectation isn't to cure someone. But if they walk out and are still feeling pretty bummed or anxious, that's sometimes hard. Other times, if it's a more high-risk situation, there's not always a very strict protocol. You have to ask yourself, do you think this person is going to harm themselves or someone else, and a lot of the times, it's a really fine line. So… that can be definitely difficult and stressful, because then if they leave, you're kind of on the fence, then it's just a stressful situation. And you know, if they do end up hurting themselves or anything, then it's like, could I have done more? Should I have done this instead of this?* (PS2)

PS1 emphasized a sense of fear when there is a severe crisis client she is dealing with and the pressure of being able to provide help instead of further worsening the situation as *"Sometimes, if you have someone who is a danger to themselves or someone else that you have to deal with, that's really difficult to do effectively without making the person more upset, but still, effectively dealing with the situation."* As Peer Support Workers are individuals with prior experience with mental health issues, they often struggle to navigate client interactions where they are unable to relate with the other person. As detailed in Section 4.1, empathy is a key quality that makes workers confident of providing help to others, and the lack of it makes it difficult for them to assess the quality of service they have provided to their clients. As PS1 notes:

> *I don't know if I was able to effectively help them. I had that one Zoom session… with a girl who had PTSD from a house fire. And obviously, I was able to sympathize with her… but, I wasn't directly able to relate to that. I'm sure it was fine. But in my mind, I was like, wow, I don't know, if I gave her what she needed. That was a little nerve-racking.* (PS1)

Another peer support worker (PS2) added that gaining experience also helps in convincing themselves that they did the best thing for that situation and not question too much about what else they could have done.

4.3.2.2 Lonely and Abusive Clients Our mental health worker participants' challenging interactions were not limited to clients in crisis. Another theme that emerged from crisis line workers is their interaction with clients who are lonely and want someone to talk to and update them about their lives. For example, CL1 notes that one such client has been calling for over 20 years. In CL1's words:

> *There's always a fine line between enabling and empowering. You have to enable a little bit so you can empower somebody. So you say to them, 'Okay, glad you called.' That's the enabler part of it. 'Call us back in the afternoon. Tell us how your day was.' That is the empowering part of it.* (CL1)

The frequent callers are not blocked, but emergencies involving crisis and suicidal ideation take precedence over the others. As expressed by CL3: *"The caller ID... doesn't give any names, but it will give a number [I might recognize]. If it's frequent it'll be fine, but then the ones that don't make any sense, I have problems with and then I get nervous."* The crisis line center O2 also gets calls from people who misuse the system. Although the leadership finds ways to deal with such calls, such as blocking them, the call itself makes the workers tensed and nervous, adding to their existing challenges of dealing with actual clients who are in severe crisis and need their help. CL3 recollects one of those instances as:

> *Occasionally, we have people that misuse the system. And eventually, the staff deals with [those individuals] however they can. But sometimes if we have told somebody, okay, we've had enough, 'I've got to go, you know I don't give advice,' or 'I'm gonna hang up now.' And sometimes they'll call right back. Sometimes they'll call back 10 times in the next hour– those are horrible. That's where I'll get really tense.* (CL3)

In addition to lonely clients, participants sometimes also interact with clients who use disrespectful language (for example, in discussing personal or political opinions), or abusive language (e.g., when workers express disagreement or intention to end the conversation). CL2, who is a senior staff at the crisis hotline, is very supportive and says that she does not tolerate disrespect toward workers at the organization. While they promptly monitor call reports and find ways to block such callers, the calls that do get through cause mental distress for workers. Unlike the counseling center, which falls under the primary care medical system in the United States and maintains access to client information and background health history, peer support and crisis line organizations operate under complete anonymity of both client and worker. The level of information the client or caller wants to reveal is at their discretion, but to preserve their identities, they are not required to reveal any personally identifiable information. Despite this, it becomes difficult for workers to maintain neutrality and anonymity, as callers sometimes rail about politics or other topics disrespectfully. CL3 describes that at O2, the crisis line workers use pseudonyms to maintain their privacy, in part because callers ask their names and may get upset if they refuse to disclose their names. These types of client interactions were not as prevalent at O1, O3, and O4.

4.3.2.3 Client Interactions during the Pandemic: Our participants across all three professions highlighted the shift in their clients' needs during the pandemic.

Crisis line workers, specifically, encountered novel stressors in their callers and had to adapt to addressing evolving client needs and navigating unfamiliar situations. Additionally, new populations, such as law enforcement officers, began seeking assistance during this period, who would not have sought help or called the crisis line if not for the pandemic. CL2 mentions how the interactions during the pandemic also got more uncertain than usual. She explains in her own words as follows, instances where the uncertainty made the workers question their purpose of existence as mental health supporters:

> *It was just very, very difficult. And no one realized how bad it was going to get. And for us, for the people being able to call us, it got very scary. And it was like, why are we here? Like, oh, I'm dealing with a pandemic, like everybody's dealing with the pandemic. And we're here having doctors and nurses and everybody calling us and talking about the pandemic.* (CL2)

Counseling professionals echoed similar concerns of having their own mental load to manage, along with assisting their clients. In CO1's words: *"There was more of our own mental load that we were managing, simultaneously, and trying to figure out as we go, how to make more space for ourselves and our own needs. With the same volume of student needs at the same time."*

Peer support workers at O4 had fewer in-person sessions during the pandemic and client interactions transitioned to a virtual setting. PS2 found it difficult to manage high-stress situations over the phone, which put her under more pressure. This experience of peer support workers during the pandemic was similar to that of crisis line workers on a regular basis. In her own words:

> *If they're here, I know they're here, I'm reading their body language of 'okay, they're about to have panic attacks.'...But over the phone, it's just more difficult. And*

> *I definitely find myself more stressed, and under pressure, if I'm dealing with a high-stress situation over the phone.* (PS2)

Overall, mental health workers faced the most difficulty in managing their expectations in the following situations: a perceived lack of progress in their clients (CO1); when an intervention offered is not working (CO1); when someone walks out of the peer support organization without feeling better (PS2) or not being satisfied by the help being provided (CL1, PS1); and generally not having any follow-up regarding clients' outcomes (CL1).

4.4 Workers' Coping Mechanisms to Overcome the Impact of Their Challenges

Most of our participants, having dealt with difficult mental health issues themselves, identify the importance of self-care and compassion. Therefore, over a period of time, they have learned to be self-reliant when it comes to exercising care. Counseling professionals and crisis line worker participants emphasize the importance of taking breaks between sessions and decompressing. The nature of the activity performed during these breaks depends on the personal interests of the worker. For example, CO1 likes to take a walk, while CL2 indulges in snacks. To deal with the after-effects of client interactions involving severe crises and suicidal ideations, workers incorporated various coping strategies such as relying on their coworkers for moral support, yoga, and meditation. We further detail the coping strategies adopted by the worker populations below.

4.4.1 Accepting Limitations. All our participants face compounding effects from their caseload and the nature of their client interactions, resulting in managing their expectations as mental health support workers. Although each worker population is capable of helping their clients to different extents, they all realize that there is a certain limit to their capacity to assist another individual in taking control of their mental well-being. Therefore, whenever they encounter a situation where they may be unable to see tangible results or outcomes from their client interactions, their primary coping mechanism is to acknowledge their efforts while accepting their limitations. Crisis line worker CL2 mentions in her own words:

> *It helps that my personality is 100% stellar. People love my humor, because… the work here is very serious. We deal with a lot of things. … And it's like, there's nothing [more] I could do if I was to [try to] help that person. We have to really encourage ourselves, especially the past two years have been extremely difficult for us.* (CL2)

Our college counseling professional CO1 mentions that understanding her limits as a mental health professional, both in terms of managing her caseload and client progress, prevents her from burning out and echoes similar thoughts when she says:

> *What's been really important for me is developing a self-compassion practice for myself as someone who's in the role of being a kind of caregiver to others. And to check my expectations that even though I am in a helping role, really decisions or actions are in my clients' hands. It's their life, there's only so much that I can do. So not to be unreasonable of myself, not to be unreasonable of my clients, but also to know that in this work… it's not just kind of like a linear, neat, nice progress kind of line, that they're going to be kind of ups and downs, there will be setbacks, from time to time, and to remember, that's just part of the process.* (CO1)

4.4.2 Establishing Personal-Professional Boundaries. Crisis line workers emphasize the importance of creating space between work and home by including hours in between (CL2) and not using their work accessories (such as phones) when at home and/or decompressing (CL1, CL2). CL2 explains: *"When I leave here, I always just take a ride to put space in between leaving the crisis center and going home because those things can intertwine, and you don't want that in your house. You know your piece*

of stuff." Similar to crisis line workers, counselors used different strategies to establish a boundary between their personal and professional lives. For example, they distinguish work and non-work hours by establishing strict routines. CO1 noted that during the pandemic, *"…I was living where I work, and had to be really intentional about those boundaries between when am I in work mode, and when am I home in relaxation mode."*

4.4.3 Limiting their Working Hours. Among the crisis line workers, those who volunteered and did not work full time mentioned that the freedom to limit their working hours is what helped them sustain themselves and take care of themselves as mental health workers. In CL3's words:

> *I want it to be like a volunteer shift, I don't want to do it 20 hours a week. If I were doing that, I would need a different level of self care. And for me, it's self care by limiting it. And even if I start to feel a little bit jaded, like "if I hear this person one more time…." I will maybe remember that and the next month only schedule three shifts, or I might take a week off… Which again, is not something that a professional full time counselor can do, but a volunteer can do.* (CL3)

For counseling professionals, on the other hand, there is no concept of volunteering part-time. However, maintaining a strict workday routine with a few exceptions helps them sustain their practice. In CO1's words:

> *Given the choice, I will not work longer than like a traditional seven hour work day… If I'm working until 6pm, I'd rather start at 10am rather than do like 8am to 6pm because then I would just be wiped out. …I will say also, I'm someone who's sensitive to the change of seasons. And for example… you can go start your work before the sun is totally up. And then by the time you end your work, like the sun's already down, that can be really tiring for me. But I'm someone who also really likes outreach. So… if I'm staying late, because I'm leaving my office, and I'm going somewhere else on campus, to meet students, and to have that sense of community and feel that kind of group energy around an event, that tends to be more manageable to me, besides a nine-hour workday would not be sustainable.* (CO1)

4.4.4 Peer Support. Crisis line workers at O2 had a very strong support system among themselves and especially from their organizational leaders. They rerouted calls to their peers if they were swamped or even when they've just had a rough call. CL3 mentions that they don't have any specific recommendations for self-care except for sharing uncomfortable situations with one of the staff. CL1, an upper-level manager, mentioned that she and other senior staff continuously monitor call reports to see if their workers have had to deal with difficult situations and to voluntarily check on them in those cases. CL2 echoes this when she says *"I often make sure that my staff and volunteers exercise self-care at all times, even if it is just 'you're doing a good job' on one of their call reports."* Due to the constrained resources of a crisis line center, CL1, the executive director of O2, sent all of the workers to a sexual assault conference but sacrificed by staying back. However, when CL1 struggles with mental health challenges, there is no one in the organization from whom she can seek help, as board members may question her fitness for the job, and staff members are already under similar stresses:

> *The Executive Director, who do they talk to? It's always the question. And we have a lot of support groups, and different agencies that bring a lot of the Executive Directors together. And it's always the same. Who do we go to? You don't want to go to the Board and complain? And then the Board starts looking at you like, "Oh, can you not handle this?" Or you can't talk too much with your staff because then you're burning them out.* (CL1)

The counseling professionals at O1 also have established a strong support system among themselves, as CO1 describes:

> *But for me, personally, I think just being in a space with other people who are doing the same or similar work, there is a sense of, like a common experience. And people understand the difficulties of the work, the stresses of the work. Even just an opportunity to consult about, if there's a challenging situation with a client, and maybe I'm not sure what would be kind of the best avenue, getting someone else's perspective on it, or their advice of what they might do.* (CO1)

CO1 adds how the transition to working from home and telehealth changed her experience of seeking peer support:

> *That's something that became more obvious when we were working completely from home and doing telehealth. We could always call each other or we could email like set of times to talk, but you didn't just have that kind of easy access of just like knocking on someone's door and just popping in to have a quick chat or whatever. That really shifted.* (CO1)

However, they are not supported beyond the formal encouragement to use their leaves if required:

> *I think it's very much a message of take care of yourself, but, you figure it out for yourself, we're not necessarily going to help you do that, or we're not going to give you the time, or the tools or the resources to provide that for you. But we do want you to take care of yourself,...use the sick time that you need.* (CO1)

At O3, Similarly, CO3, who is a more senior counseling professional and an administrator, describes her attempts to establish a healthy peer support environment for her workers as follows:

> *So one of the things that we do here is whatever hours somebody works, whether they're full time, halftime, whatever, part of their work hours are supposed to be spent on self-care of some kind. So at least one hour a week. So I'm always looking at everybody's calendars to make sure that they're taking some time for themselves.* (CO3)

Peer Support Workers found significant understanding and comfort in discussing their mental health issues with the organization leaders and used their own organization's help dealing with it. For example, PS1 mentions how she visited O4 as a client herself when she had the aftereffects of stressful interactions to deal with.

4.4.5 Physical Activity and Mindfulness. All our counseling professional participants emphasized the importance of moving around between sessions and when stressed. CO1 *"I will say having a break for lunch, midday is really helpful. Because again, I use that time to go outside and get fresh air and take a walk and move around."* CO3 mentions that to deal with stressful situations at work, she always ensures there is a mat under her desk, which she uses to practice yoga. In her own words:

> *So what I do for me when I get stressed is I'll take the yoga mat out, and I'll do some yoga. Sometimes I just sit and breathe and regulate my breathing. Sometimes I get up and I walk down the hall, just to get out of my office and out of my head, sometimes I go outside, and I just sit down outside... and breathe.* (CO3)

Similar to CO3, CO2 uses her yoga ball and practices short guided meditation to relieve her stress. Additionally, she mentioned that incorporating brief mindful moments at the beginning of her day serves as a cultural shift that contributes to enhancing her psychological well-being. CO1 also mentions the practice of yoga and meditation at the start of her day, especially during the pandemic when she had to enforce strict boundaries between her personal and professional life.

4.4.6 The Use of [No] Technology for Coping Crisis line workers do not have fixed schedules for their client interactions. Therefore, they engage in a coping mechanism as soon as they get off a call. For example, CL2 engages in digital media to divert her attention from the residual effects of a serious call to something lighter:

> *Just to eat and watch something super funny. My older kids turned me on to Tik-Tok…And so it was just fun to divert my attention to something else just to kind of create some space in between what I just dealt with and what has to happen afterward.* (CL2)

On the other hand, counseling professionals mention plugging off their devices when taking breaks and decompressing. For instance, CO3 mentions not taking her phone with her when she goes out to decompress from stressful situations. In her own words: *"And I don't take my either- I have two cell phones. One is a personal phone, and one is a work phone. So I don't take either of them with me, I just go out there by myself."* CO1 echoes similar thoughts when she mentions her struggles of maintaining personal and professional boundaries during the pandemic, as it was even more difficult working from home. So, she was really intentional for the first hour or two in the morning and did not plug into any devices before starting her work.

4.5 Technology Use by Mental Health Workers

In the previous section, we outlined mental health workers' use (or lack thereof) of technology for coping when they are stressed. In the sections below, we first outline the various uses of technology by these workers for their professional purposes and then move on to their use of technology for their psychological well-being, along with their perceptions and recommendations regarding the same.

4.5.1 Use of Technology for Professional Purposes. With the onset of telehealth as an alternative to in-person consultation in primary care, mental health organizations have also started increasingly integrating technology to support the providers by expanding care options to allow them to work remotely. During the pandemic, for example, organizations and workers adopted virtual meeting software like Zoom to interact with their clients. However, this was not an option for CL1, CL2, and CL3 in O2, which instead set up phone call rerouting to allow workers to answer calls from home. The crisis line workers use a call monitoring and reporting software called iCarol (CL1, CL2, and CL3). CL1, CL2, and CL3 use iCarol to schedule their shifts up to 3 months in advance. or search engines like Google (CL2 and CL3).

Although the crisis line workers (CL1, CL2, and CL3) have been using Information and Communication Technologies (ICT) for a while now, the traditional counselors and peer support workers only moved to telehealth recently (since the onset of the pandemic), as their work was primarily focused on providing support in person. They found it difficult to learn to make that change suddenly. Specifically, CO1 mentions receiving insignificant acknowledgment from O1 regarding the efforts by counseling professionals in migrating to telehealth (see section 4.3). The counselors used Electronic Health Record systems like Titanium (CO1). Except for PS1 and PS2, all participants store information regarding their client interactions electronically.

Peer support workers use technology more generally to find information and resources on Psychology Today (PS1 and PS2). They also added that they had recently begun to use Google Classroom for training purposes and are very satisfied with it. To manage their schedules and clock in their working hours, they used an application called Home Base. PS1 and PS2 noted that they only document crisis client interactions.

> *Any overnight interaction will be documented. It's just contact information, a description like 20 males and 20 females came in left around this time, and then just a*

> *brief follow-up section. So we'll do that for any overnight because that is crisis hours. And then a situation that's high stakes where we might have had to send a person to in-patient, we'll document that. But just general sessions, unless they escalate, we don't document.* (PS2)

4.5.2 Workers' Attitudes on Technology for Personal Psychological Well-being. As new applications and sensing technologies for digital well-being have gained attention in mental health communities, support providers have begun recommending them to their clients to aid in their recovery journeys and timelines. In this section, we first outline the perspectives mental health workers had on technology use and recommendations for professional purposes and then highlight their perspectives on the use of the same for their personal mental well-being for each mental health worker population - crisis line workers followed by counseling professionals and finally peer support workers.

Crisis line workers, notedly, are not allowed to provide clinical advice to their callers. They only serve as active listeners and redirect them to professional help. Therefore, they do not recommend the use of technology to any of their callers to manage their mental well-being. However, CL3 mentioned that the most challenging part of her role is to navigate technology. In her own words:

> *Sometimes technology is hard. I'm not a highly technological person. And we do have more than one line coming in. And we are expected to check all the calls that come in. And that's hard. . . . And sometimes juggling the technology is hard, pushing the right buttons, the hold, the new call. And when Murphy gives you two new calls at once, that's not good. So technology is the biggest one.* (CL3)

However, when we asked our participants about the use of technology for managing their own psychological well-being, workers echoed the importance of having the human touch in mental healthcare broadly and, more specifically, in managing workers' mental well-being. For example, CL3, who is the most senior volunteer at O2, expressed a strong opinion on technology replacing humans in the mental health space when she said: *"Make sure there is a human in future systems. This is one of the fields where it is most important to have the human touch. So, technology cannot do our [mental health workers'] jobs."*

CL1, the director at O2, mentioned how they do not need technology, as the senior staff can provide personal help to workers who need it. In her words: *"We can tell by the call reports if it didn't go very well or something, then sometimes we call them and say 'Hey, I just saw you had a rough call. Tell me how you feel.' I think that that's a little bit more in a personal sense."* However, we saw in Section 4.4 that CL2 engages in digital media to divert her attention from the residual effects of a serious call to something lighter. She further adds that technology can help crisis line workers:

> *You know what would be good? If you had a whole database. . . almost like Google. . . for crisis workers. They can look on a tab for self-help, like you're gathering all these resources for them, and use the technology to spin and maybe create an app. We can get a dating website for therapy workers.* (CL2)

Counseling Professionals, on the other hand, have the expertise and freedom to recommend techniques and apps to their clients based on their experience. For example, CO1, who is trained in biofeedback, recommends the usage of an app called *Inner Balance*[6] and CO2 recommends using *Calm*[7] and *Headspace*.[8]. Although CO3 recommended apps like *YogaNidra*[9] and *Insight Timer*[10]

[6] https://store.heartmath.com/innerbalance
[7] https://www.calm.com
[8] https://www.headspace.com
[9] https://apps.apple.com/us/app/yoga-nidra-sacred-sleep/id1003009018
[10] https://www.insighttimer.com

to her clients, she is often concerned about the legal questions around what happens after she recommends apps. She stated:

> *Twelve years ago, when I was in private practice, we had a big discussion about apps, and whether we could recommend them to clients without being legally responsible for what happens afterwards. We decided we couldn't. So what we would say is, these are some apps you might find helpful, but we can't recommend anything to you. And, so we created a big list of apps to hand out to people.* (CO3)

Further, CO1, a college counseling professional, expressed concerns regarding security associated with client conversations online. For example, while CO1 and CL1(in the context of therapists) acknowledged the potential benefits of technology, they strongly believed that technology (even in the form of telehealth), may not be useful in all situations and is not for everybody. As CL1 stated:

> *There's a yay and nay regarding telehealth. But we ended up having to do telehealth for our sexual assault counselors and therapists downstate because of COVID. Everyone would tell you that it was good and I want to use the word "bad". Because if there was a wife that was sexually assaulted, but she didn't tell her husband, how can she do telehealth at home if her husband is also at home? So that is the worst part of the technology. It's great that we have the capability of it but bad because it's not for everybody. And every time people talk, especially in the medical field… …we're not talking about your appendix. We're talking about someone who was sexually assaulted. We're talking about someone who's survived their own suicide. Telehealth may not be the best thing if they have no safe space to talk about it. Then let's get back to the low income community. They may not have internet. So technology. Yay. But it's not yay for everybody.* (CL1)

CO3 adds that moving away from physical space usually helps clients transfer that burst of energy into something better. This is something she echoes when she leaves behind her phones and goes out to walk away from her workplace whenever she is stressed as outlined in Section 4.4. In her own words:

> *I think that there's a lot of stuff with electronic media that causes problems for folks with mental health [issues]. What I've noticed is if they can get up, like if they're activated about something or triggered, going on their phone doesn't really seem to help in the long run. They need to get up and leave that physical space they're in and do something else. Because what's happening is they're getting that big buildup of energy, and they need to get it out of their body. And so sitting on the phone really isn't giving them what they need.* (CO3)

CO1 started using Inner Balance herself to test it before recommending it to her clients and continues to use it for stressful situations like flying. CO2 similarly felt it was important to take care of herself first to be able to take care of her clients, and feels that apps such as Calm and Headspace can be helpful for mental health providers' self-care. She additionally recommends the design of reminder apps to prompt mental health providers to take care of their mental well-being. On the other hand, although CO1 is a strong believer in therapy for therapists, she believes in nature-based healing and wants to spend time outside without technology to feel better. In her own words:

> *For me, I think it's a combination because I think yes, technology is important, and I'm someone who's a big believer in nature-based healing, too. I think there's a time and space for technology, and there's also a time and space for just time outside and away from screens, too.* (CO1)

When we asked our participants whether they would use technology to manage their psychological well-being, CO3 shared a similar view with other participants regarding moving away from screens when she elaborated:

> *Personally, I probably would not use any kind of app or any kind of electronic thing, because that's all I do all day long, I get headaches. And if I'm on a computer after nine o'clock at night, I can not get to sleep. And so I'm just really careful about my use. I guess I don't fit into that mold of how to use an app for yourself. I'm old-fashioned. And I'd rather do more hands-on things.* (CO3)

CO3 further added:

> *So personally, I would say no because I'm not a big electronics person. I use it because I have to. I would much rather read a book to relax or do yoga, or go for a walk. But yeah, I do use some of these apps every once in a while, but it's not like I use them on a daily basis because I get inundated with the electronic piece of everything. That's just how I look at it because of the way I grew up.* (CO3)

Peer Support Workers, highlighted their reliance on technology for even professional purposes being very limited. For example, when we asked our participants whether they see technology benefiting them in any way, PS1 mentioned:

> *Um, I think it depends. I know, obviously, some places will have more reliance on technology. And then it could be something like where I wanted to talk to [a coworker], it might be a zoom call, or whatever it might be. So I don't know. For us, I think we really don't use it[technology] too much. Other than like, finally texting someone, obviously.* (PS1)

PS2 added by emphasizing the need for peer support workers to benefit from additional support in discovering available technological resources for managing and logging their schedules and staying updated on constantly changing insurance and therapist information.

When we asked our participants across roles whether they would use technology to manage their own mental well-being, they rejected the idea due to several reasons such as belief in nature-based healing, loss of personal touch in technology and not being a highly technological person, to name a few, and the remaining participants did not show much enthusiasm. This observation was common across all mental health worker groups.

5 Discussion

Our needfinding interviews with mental health workers reveal that their journeys are often motivated by personal mental health challenges. Organizations onboard these workers with extensive training to help them prepare for client interactions, yet these often neglect to address the self-care challenges workers may face while performing their prospective roles. Although some of our partner organizations demonstrated an effort to create supportive environments, there can be limitations to seeking peer support (e.g., availability or proximity of peers). Participants tend to focus instead on self-care practices both to cope with stressful client interactions and to manage their psychological well-being. Our findings indicate that the use of technology is notably absent from workers' coping mechanisms due to their (a) concerns about its pervasiveness in their lives, (b) lack of knowledge of how it may be used to support their well-being, and (c) desire to engage in direct human contact for support.

The gap we identified in our work presents a timely opportunity to develop technology-based self-care tools that support mental health workers' psychological well-being in indirect ways that augment and enable rather than replace the physical, nature-based, or interpersonal strategies they

find most helpful. In this discussion, we describe the central theme of how mental health workers can benefit from such technologies. Overall, based on the concerns identified from our interviews, we present the following recommendations: (1) recognizing the importance of the psychological well-being of mental health workers, (2) addressing diverse attitudes toward "technology for mental well-being" among mental health workers (3) tackling inadequate organizational policies for prioritizing the mental health worker well-being and finally, (4) design recommendations for researchers interested in developing novel self-care tools for mental health workers.

5.1 Protecting Psychological Well-being of Mental Health Workers

Mental health is a vital component of the healthcare system in the United States. The growing prevalence of mental health problems, especially among younger populations and college students, is straining counseling centers and mental health workers, compounding the challenges they already face. Our findings reveal a diverse set of challenges for mental healthcare workers that differ in terms of operational model, their relationships with clients, professional practices, and roles within their communities. Findings from Section 4.1 highlighted that all but one (90%) of our participants had mental health challenges in the past. Additionally, results from Section 4.3 highlight the various challenges mental health workers across different roles face and how these impact their mental well-being. Consistent with prior research in human services work, our results show that mental health workers suffer from excessive workloads [10, 37]. Our work also reveals that the stressful nature and unexpectedness in outcomes of client interactions negatively impact workers' mental well-being. However, while the experience of senior workers' difficulties seeking support from their supervisors is consistent with prior work, the junior workers in our study found significant peer support [10, 37]. Additionally, we identify dynamically evolving responsibilities of mental health workers due to reasons like the pandemic and changing organizational expectations, outlined in Sections 4.3.1 and 4.3.2. Specifically for crisis line workers, our findings on challenges they face navigating abusive client interactions and the stressful impact of not finding closure in client interactions is consistent with prior research by Pendse et al. [52] on workers at a mental health helpline in India and indicates this is a broad-reaching problem, not limited to one culture or region.

Given the prevalence of workers in this field having a personal history of mental health problems, their service to an at-risk population, and the challenges of their work, we argue that these workers are subject to an array of stressors posing a threat to their mental well-being. Therefore, dealing with the impacts of these stressors is crucial to both their own well-being and that of the populations they serve. Research on the psychological well-being of mental health workers aligns well with the objectives of the HCI and CSCW community as it seeks to understand and design technology that affects groups, organizations, communities, and networks (see [52] and [69] for exceptions). However, prior research in these areas has focused on building tools to support crisis and mental health workers, mostly for their professional activities and job performance. Therefore, designing sociotechnical systems that support workers' psychological well-being has the potential to improve their ability to provide high-quality care while also prioritizing their own mental health. In the following section, we present challenges, implications, and suggestions to support the psychological well-being of workers based on the themes that emerge from our findings.

5.2 Complementing the Design of Technologies with Mental Health Organizational Policies

While the mental health workers described in this work might benefit from novel applications for improving psychological well-being, several factors make them unlikely evangelists for adoption. First, these workers operate in an organizational context where their workflows and incentives

are not closely coupled with an emphasis on their well-being. Section 4.2 reveals that despite extensive training curricula, our partner organizations do not include any training on handling the emotional burden of their work, nor do they provide resources to apply when encountering distress and emotional burnout. This appears to be consistent with training in other organizations, as related work focuses on training needs only in the context of identifying skill gaps and professional resources [42] (see [69] for exception). Additionally, mental health organizations have inadequate formal support structures for employee well-being. While most workers feel comfortable seeking support from peers and managers, some note the lack of available assistance, being encouraged to take care of themselves without any resources to do so other than taking sick leave. In other instances, workers are encouraged to manage their well-being, but the guidance lacks initiative, leaving them to navigate the process of self-care on their own. In contrast, Section 4.3.2 highlights managers' concerns about seeking support from their supervisors for stress or burnout, as revealing such challenges to board members might bring their managerial competency under scrutiny.

A potential solution to this problem is the adoption of worker-facing tools to improve their psychological well-being when peer support is not readily available. There is a growing body of work in HCI and CSCW researching worker-facing technologies. Findings from storyboard-driven interviews with 33 information workers reveal anticipated harms to privacy arising from workplace-situated sensing, and the compounding impact of hierarchical social structures on workers' ability to withhold consent [33]. Another study found that workers in various fields view Emotion Recognition technology specifically as a deep violation of privacy that could be deployed to enforce compliance with expectations of emotional expression (emotional labor) and that workers may suppress emotions as a mechanism to preserve their privacy [57]. Therefore, it is essential to be cautious when employing technologies in the workplace, especially in the context of emotional monitoring and workplace sensing for mental well-being. Prior research points out that rigid policies, the introduction of new risks, and the absence of incentives for adopting new work practices are significant obstacles to the implementation of new technology [43]. However, CSCW literature directs researchers to navigate organizational barriers [16]. Therefore, we recommend organizations foster a healthy climate to promote mental health worker well-being and facilitate future adoption of self-care tools.

5.2.1 Reflections on Building Partnerships with Mental Health Organizations. Our recruitment efforts with 30 mental health organizations and a success rate of 13% (4) across regions can be indicative of multiple factors. First, we acknowledge that mental healthcare centers were engaging in multiple activities apart from meeting the growing needs of mental health challenges in people due to which the workers suffered from the burden of a heavy workload. Engaging in research activities means additional commitment and time away from their actual responsibilities. However, for other organizations, given the aim of our research, it could also be an indicator of a lack of focus on prioritizing worker well-being. From our interactions with our partner mental health organizations, we learned that many centers shut down during the pandemic and because our recruitment efforts occurred during this time, we attribute some portion of our response rate to that. Additionally, workers' apprehensions regarding adopting technology-based solutions to manage their mental well-being could be indicative of a more widespread attitude among mental health workers, especially senior administrators, towards these technologies.

5.3 Attitudes Toward Technology for Mental Well-Being

Our study findings surface hesitancy and apprehensions of mental health workers toward technology use for mental well-being due to various reasons (Section 4.5.2). For example, the older participants, among whom this attitude was more pronounced, did not grow up with technology

exposure. Other reasons, as reflected in our participants' views, attributed to practices around technology use for mental well-being not being universally appropriate, for example, when technology is used for sexual assault. Peer support workers highlighted their limited reliance on technology for professional purposes as another factor for not using it to manage their mental well-being. On the other hand, counseling professionals, despite acknowledging the limitations of technology in mental healthcare, recommend it to their clients for use. These diverse attitudes held by mental health workers open up new areas of research for investigating the adoption of technology by mental health workers for managing their mental well-being.

Recent work in CSCW has found that perceived risks and uncertainty regarding novel use of technology can influence treatment decisions [47]. Replacing human support or the workers' current coping strategies with technology is not our intention. However, we want to design technologies that can help them manage their mental well-being. As one of our participants suggested, we can leverage technology to create a database with self-help resources and apps for mental health workers to use. Given all the above considerations, we recommend future technology to support different entry points of users based on mental health worker communities, age groups, experience with technology broadly, and technology use for mental well-being [59]. Furthermore, we encourage researchers to uncover additional reasons behind conflicting attitudes toward recommending mental health tools but not using them to manage their well-being. Our findings establish the need for more focus groups and co-design sessions in which workers can participate in prototyping mental health tools as per their preferences.

5.4 Design Recommendations to Promote the Psychological Well-being of Mental Health Workers

Based on our findings in Section 4.3, we provide design recommendations for researchers interested in designing technologies for mental health workers' psychological well-being. To help achieve this end, we recommend that new tools:

(1) **Provide self-awareness diagnostics.** As outlined in Section 4.3, mental health workers undergo multiple intensive, stressful client interactions throughout the day and often fail to gauge their emotional states and stress responses accurately in real time. Supporting self-awareness and recognition of stress and emotion is thus important to the design of self-care tools and can be accomplished by different means, such as timely reminders to encourage self-reflection and the use of Automated Emotion Recognition (AER) technology. However, the implementation of such tools should be done cautiously. For example, existing AER tools are limited in their deployment; however, recent studies have raised concerns about their reliability and the impact such systems might have on workers [32, 57]. To improve the effectiveness of these tools, they might be supplemented by technologies that can acquire and analyze client interaction data (when available) and provide contextual data and metadata such as the number of client interactions since the start of the day, the nature and tone of those interactions (crisis vs. casual), and their duration.

(2) **Promote work-life balance** Prior research has found that work-life balance needs are gender-dependent and that women are more likely to struggle with maintaining adequate work-life balance due to interruptions related to caregiving responsibilities [68]. As women account for 76% of the global healthcare workforce, future technology should be mindful of their perspectives on and needs for work-life balance. Likewise, as noted in Section 4.3.1, our participants expressed having to make a concerted effort to prevent work responsibilities and stresses from impinging on their personal lives. There are different ways CSCW and HCI have approached promoting work-life balance among various workers. There is a body

of literature that focuses on the use of multiple devices to separate work and non-work boundaries [23]. Stawarz et al. found that the use of tablets can negatively affect work-life balance "by encouraging and enabling people to complete work tasks during home time and vice versa." [60] Another recent study by Cox suggests that smartwatches might have a dual effect - on the one hand, encouraging users to be constantly available, and on the other hand, providing a quick way to judge when to draw a boundary [14]. Therefore, workers' self-care tools should help them identify when boundaries are being crossed (based on contextual factors such as time of day, day of week, etc.) and also identify ways in which they can reinforce those boundaries.

(3) **Suggest interventions.** There are several potential guidelines for intervention design that mental well-being tools for these workers could implement, including:
   (a) **Preserve and augment, rather than replace, human-centered care.** The workers we interviewed strongly feel that humans and a human-centered focus are essential features of providing care, as discussed in Section 4.5.2. Given their apprehension towards technology, this support could take the form of coworker-created affirmative personalized messages following difficult (e.g. abusive) client interactions, reminders to seek help regularly from peers and colleagues, and encouragement to get out of the workplace and into nature, to better unwind and process their experiences.
   (b) **Leverage existing support systems.** Integrating social features into worker-facing tools can complement workers' existing social support systems. While interviewees understood the importance of self-care and self-reliance, this realization was sometimes motivated by the unavailability of other support options within their organizations or personal networks. Therefore, researchers and application designers might focus efforts on developing tools that leverage existing peer-to-peer communities. This could include providing individual and group chats, discussion boards, or alerts that help workers know who is working at the moment and how the day (or shift) has been for them. A "buddy" feature could remind workers to occasionally check in with their peers after difficult sessions with clients or take a shared break, walk, or a meal.
   (c) **Deliver personalized Just-In-Time Adaptive Interventions (JITAI).** Mental health work involves a fair amount of stressful, intense interactions. Findings from Section 4.4 highlight that workers engage in a range of coping mechanisms from taking walks to practicing mindfulness to overcome the impact of stressful interactions. We, therefore, recommend that self-care tools deliver personalized real-time interventions when they detect moments of heightened distress [62]. These interventions may be based on situational meta-data, or users' pre-defined preferences, and could include mindfulness-based techniques, breathing activities, physical activity (PA), or nudges to temporarily leave the physical work environment to gain a psychologically safe distance from an emotionally fatiguing or traumatic incident. For instance, existing wearable devices for PA intervention offer recommendations based solely on PA trends and not other measures such as stress, and therefore may not be ideally suited in their current form to provide appropriate interventions [47]. However, it opens up an opportunity for future research to integrate PA interventions in mental health tools to simultaneously support mental and physical well-being, as they are intertwined.

(4) **Be Unobtrusive** Our participants mentioned "unplugging" from devices as a way to prepare for their day, reduce stress between client interactions, or wind down after work. Prior research has also shown that immersing in Information and Communication Technologies (ICT) such as mobile phones can have debilitating effects such as stress and anxiety [61]. Our participants mentioned "unplugging" from devices as a way to prepare for their day, reduce

stress between client interactions, or wind down after work. Therefore, we recommend future tools should not overly distract or demand attention from the user.

(5) **Employ natural interfaces** Our research indicated that workers have a broad range of technological expertise, and they expressed deep concern about the idea and possibility of technology replacing human beings in mental healthcare. Prior research in HCI and CSCW has extensively studied the use of technology for the mental health needs of the general population. Recently, however, researchers have increasingly understood the importance of including human support in these tools [47]. Therefore, we recommend that future technology aimed at supporting the psychological well-being of mental health workers by motivating and empowering them to take control of their mental health with a human touch.

6 Limitations and Future Work

This study has several limitations. First, we only interviewed eight participants, the details of which are further outlined in Section 3.2.3. Second, this research examined workers from only three mental health communities- crisis line, peer support, and counseling, and while diverse, these may not be representative of mental health support more broadly, and we cannot make generalized claims about the challenges, the impact of these challenges, and attitudes towards well-being technologies for other kinds of workers and roles. This study is a part of an ongoing research project in HCI that aims to present a broader understanding of the psychological needs of Mental Health Workers in the United States. Going forward, we plan to expand our data collection, conducting additional interviews at mental health organizations in the US Northeast and West Coast regions to explore similar worker concerns and opportunities within broader communities and geographic regions. Our future work includes applying additional methods, such as onsite ethnographic observation, to better understand healthcare worker needs and practices that participant interviewees may not recall or recognize as relevant. We also plan to follow our needfinding efforts with the development and testing of a worker-facing personal toolkit that (a) supports self-monitoring through passive sensing and self-tracking of well-being and work-related performance and (b) offers personal feedback and actionable interventions to enhance self-knowledge and self-care.

7 Conclusion

In this work, we used a qualitative needfinding approach to investigate the experience of eight workers across four mental health support organizations. We found that despite beginning their journeys with a strong motivation stemming from childhood experiences or personal struggles with mental health challenges, they face a multitude of challenges in providing mental health care that impact their psychological well-being. Such challenges include maintaining a good work-life balance, managing performance expectations, and dealing with the emotional impact of difficult client interactions. Furthermore, we found that workers identify the importance of self-reliance and use several coping strategies, such as socializing with coworkers, meditating, and engaging in physical activity like walking and yoga to overcome their challenges. On the other hand, although technology is an integral part of their work routine, they were not very keen on using it to manage their mental well-being or within the mental health space generally. In addition to contributing a summary of the experiences of our participant sample, we present and discuss several design recommendations for future application designers working with mental health organizations and workers.

Acknowledgments

This research was supported in part by National Science Foundation grant FW-HTF-P #2128865. We would also like to thank our anonymous participants and partner organizations for sharing their experiences providing mental health care.

References

[1] 2012. National Strategy for Suicide Prevention: Goals and Objectives for Action. A Report of the U. *ERIC Clearinghouse* (2012).

[2] 2018. Navigating-a-Mental-Health-Crisis. https://www.nami.org/Support-Education/Publications-Reports/Guides/Navigating-a-Mental-Health-Crisis/Navigating-A-Mental-Health-Crisis

[3] 2023. PeoPle Powered HealtH Co-ProduCtion Catalogue. https://media.nesta.org.uk/documents/co-production_catalogue.pdf. Accessed: 2023-7-18.

[4] Richard E Adams, Joseph A Boscarino, and Charles R Figley. 2006. Compassion fatigue and psychological distress among social workers: a validation study. *Am. J. Orthopsychiatry* 76, 1 (Jan. 2006), 103–108.

[5] Joelle Alcaidinho, Larry Freil, Taylor Kelly, Kayla Marland, Chunhui Wu, Bradley Wittenbrook, Giancarlo Valentin, and Melody Jackson. 2017. Mobile collaboration for human and canine police explosive detection teams. In *Proceedings of the 2017 ACM Conference on Computer Supported Cooperative Work and Social Computing* (Portland Oregon USA). ACM, New York, NY, USA.

[6] Mental Health America. 2023. Types of Mental Health Professionals. https://mhanational.org/types-mental-health-professionals. Accessed July 15, 2023.

[7] Amid Ayobi, Paul Marshall, and Anna L Cox. 2016. Reflections on 5 years of personal informatics. In *Proceedings of the 2016 CHI Conference Extended Abstracts on Human Factors in Computing Systems* (San Jose California USA). ACM, New York, NY, USA.

[8] Amid Ayobi, Paul Marshall, Anna L Cox, and Yunan Chen. 2017. Quantifying the body and caring for the mind. In *Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems* (Denver Colorado USA). ACM, New York, NY, USA.

[9] David Bakker, Nikolaos Kazantzis, Debra Rickwood, and Nikki Rickard. 2016. Mental health smartphone apps: Review and evidence-based recommendations for future developments. *JMIR Ment. Health* 3, 1 (March 2016), e7.

[10] M Barak, J Nissly, and A Levin. 2001. Antecedents to retention and turnover among child welfare, social work, and other human service employees: What can we learn from the past research? A review and meta-analysis. *Social Service Review* (2001), 625–661.

[11] Pietro Battistoni, Marianna Di Gregorio, Domenico Giordano, Monica Sebillo, Genoveffa Tortora, and Giuliana Vitiello. 2020. Wearable interfaces and advanced sensors to enhance firefighters safety in forest fires. In *Proceedings of the International Conference on Advanced Visual Interfaces* (Salerno Italy). ACM, New York, NY, USA.

[12] Virginia Braun and Victoria Clarke. 2006. Using thematic analysis in psychology. *Qualitative Research in Psychology* 3, 2 (2006), 77–101.

[13] Samuel Carton, Jennifer Helsby, Kenneth Joseph, Ayesha Mahmud, Youngsoo Park, Joe Walsh, Crystal Cody, Cpt Estella Patterson, Lauren Haynes, and Rayid Ghani. 2016. Identifying police officers at risk of adverse events. In *Proceedings of the 22nd ACM SIGKDD International Conference on Knowledge Discovery and Data Mining* (San Francisco California USA). ACM, New York, NY, USA.

[14] Marta E Cecchinato and Anna L Cox. 2017. Smartwatches: Digital handcuffs or magic bracelets? *Computer* 50, 4 (2017), 106–109.

[15] Fiona Cocker and Nerida Joss. 2016. Compassion fatigue among healthcare, emergency and community service workers: A systematic review. *Int. J. Environ. Res. Public Health* 13, 6 (June 2016), 618.

[16] Lucas Colusso, Cynthia L Bennett, Gary Hsieh, and Sean A Munson. 2017. Translational resources: Reducing the gap between academic research and HCI practice. In *Proceedings of the 2017 conference on designing interactive systems*. 957–968.

[17] Carolyn Cyr and Peter Dowrick. 1991. Burnout in crisisline volunteers. *Administration and Policy in Mental Health and Mental Health Services Research* 18 (1991), 343–354.

[18] Cynthia Delgado, Michael Roche, Judith Fethney, and Kim Foster. 2020. Workplace resilience and emotional labour of Australian mental health nurses: Results of a national survey. *Int. J. Ment. Health Nurs.* 29, 1 (Feb. 2020), 35–46.

[19] Meg Denny. 2020. The right job for me: The motivation, support network, and emotional fortitude of crisis workers. In *University of Montana Conference on Undergraduate Research (UMCUR)*.

[20] Xinlei Dong, Xin Kang, and Xiaolei Ding. 2022. Influence and analysis of music teaching environment monitoring on students' mental health using data mining technology. *J. Environ. Public Health* 2022 (Oct. 2022), 1120156.

[21] Evonne Edwards, Carol A Janney, Amy Mancuso, Heide Rollings, Amy VanDenToorn, Mariah DeYoung, Scott Halstead, and Mark Eastburg. 2020. Preparing for the behavioral health impact of COVID-19 in Michigan. *Curr. Psychiatry Rep.* 22, 12 (Dec. 2020), 88.

[22] C Figley. 1995. *Compassion Fatigue: Coping with Secondary Traumatic Stress Disorder in Those Who Treat the Traumatized.* Brunner/Mazel, Levittown, PA.

[23] Rowanne Fleck, Anna L Cox, and Rosalyn AV Robison. 2015. Balancing boundaries: Using multiple devices to manage work-life balance. In *Proceedings of the 33rd Annual ACM Conference on Human Factors in Computing Systems*. 3985–3988.

[24] D Freeman, S Reeve, A Robinson, A Ehlers, D Clark, B Spanlang, and M Slater. 2017. Virtual reality in the assessment, understanding, and treatment of mental health disorders. *Psychol. Med.* 47, 14 (Oct. 2017), 2393–2400.

[25] Mary Jane Friedrich. 2017. Depression is the leading cause of disability around the world. *Journal of the American Medical Association* 317, 15 (2017), 1517.

[26] J A Garrison. 2003. UpToDate. *UpToDate. Journal of the Medical Library Association* 91, 1 (2003).

[27] Esther R Greenglass, Ronald J Burke, and Lisa Fiksenbaum. 2001. Workload and burnout in nurses. *J. Community Appl. Soc. Psychol.* 11, 3 (May 2001), 211–215.

[28] James D Guy. 2000. Self-care corner: Holding the holding environment together: Self-psychology and psychotherapist care. *Prof. Psychol. Res. Pr.* 31, 3 (June 2000), 351–352.

[29] Aleesha Hamid, Rabiah Arshad, and Suleman Shahid. 2022. What are you thinking?: Using CBT and Storytelling to Improve Mental Health Among College Students. In *CHI Conference on Human Factors in Computing Systems* (New Orleans LA USA). ACM, New York, NY, USA.

[30] Tad Hirsch, Christina Soma, Kritzia Merced, Patty Kuo, Aaron Dembe, Derek D Caperton, David C Atkins, and Zac E Imel. 2018. It's hard to argue with a computer. In *Proceedings of the 2018 Designing Interactive Systems Conference* (Hong Kong China). ACM, New York, NY, USA.

[31] Jason I Jiang, Leila A Hong, and James A Takayama. 2004. Ubiquitous computing for firefighters: field studies and prototypes of large displays for incident command. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI '04)*. Association for Computing Machinery, New York, NY, USA, 679–686.

[32] Harmanpreet Kaur, Daniel McDuff, Alex C Williams, Jaime Teevan, and Shamsi T Iqbal. 2022. "I didn't know I looked angry": Characterizing observed emotion and reported affect at work. In *Proceedings of the 2022 CHI Conference on Human Factors in Computing Systems*. 1–18.

[33] Anna Kawakami, Shreya Chowdhary, Shamsi T Iqbal, Q Vera Liao, Alexandra Olteanu, Jina Suh, and Koustuv Saha. 2023. Sensing Wellbeing in the Workplace, Why and For Whom? Envisioning Impacts with Organizational Stakeholders. *arXiv preprint arXiv:2303.06794* (2023).

[34] Tuuli Keskinen, Aleksi Melto, Jaakko Hakulinen, Markku Turunen, Santeri Saarinen, Tamás Pallos, Pekka Kallioniemi, Riitta Danielsson-Ojala, and Sanna Salanterä. 2013. Mobile dictation for healthcare professionals. In *Proceedings of the 12th International Conference on Mobile and Ubiquitous Multimedia* (Luleå Sweden). ACM, New York, NY, USA.

[35] Patty Beyrong Kuo, Christina Soma, Katherine Axford, Tad Hirsch, Zac E Imel, and Jake J Van Epps. 2022. Do as I say, not as I do: Therapist Evaluation of a Practice and Supervision Aid. *Proc. ACM Hum. Comput. Interact.* 6, CSCW2 (Nov. 2022), 1–23.

[36] Christina Maslach. 2017. Job burnout in professional and economic contexts. In *Diversity in Unity: Perspectives from Psychology and Behavioral Sciences*. Routledge, London, 11–15.

[37] Christina Maslach and Michael P Leiter. 2009. *The truth about burnout.* Jossey-Bass, London, England.

[38] Matthew Louis Mauriello, Nantanick Tantivasadakarn, Marco Antonio Mora-Mendoza, Emmanuel Thierry Lincoln, Grace Hon, Parsa Nowruzi, Dorien Simon, Luke Hansen, Nathaniel H Goenawan, Joshua Kim, Nikhil Gowda, Dan Jurafsky, and Pablo Enrique Paredes. 2021. A suite of mobile conversational agents for daily stress management (Popbots): Mixed methods exploratory study. *JMIR Form. Res.* 5, 9 (Sept. 2021), e25294.

[39] Hannah M McCormack, Tadhg E MacIntyre, Deirdre O'Shea, Matthew P Herring, and Mark J Campbell. 2018. The prevalence and cause(s) of burnout among applied psychologists: A systematic review. *Front. Psychol.* 9 (Oct. 2018), 1897.

[40] Jennifer Melcher, Ryan Hays, and John Torous. 2020. Digital phenotyping for mental health of college students: a clinical review. *Evid. Based. Ment. Health* 23, 4 (Nov. 2020), 161–166.

[41] Jennifer Melcher, Joel Lavoie, Ryan Hays, Ryan D'Mello, Natali Rauseo-Ricupero, Erica Camacho, Elena Rodriguez-Villa, Hannah Wisniewski, Sarah Lagan, Aditya Vaidyam, and John Torous. 2023. Digital phenotyping of student mental health during COVID-19: an observational study of 100 college students. *J Am. Coll. Health* 71, 3 (April 2023), 736–748.

[42] Jonah Meyerhoff, Kaylee P Kruzan, Madhu Reddy, David C Mohr, and Emily G Lattie. 2023. Preparing a Workforce of Care Coordinators to Address Patient Mental Health Needs in the Digital Age: Training and Needs Identification. *SAGE Open Nursing* 9 (2023), 23779608231173279.

[43] Bjorn E Munkvold. 1999. Challenges of IT implementation for supporting collaboration in distributed organizations. *European Journal of Information Systems* 8, 4 (1999), 260–272.

[44] E L Murnane, T G Walker, B Tench, S Voida, and J Snyder. 2018. Personal informatics in interpersonal contexts: towards the design of technology that supports the social ecologies of long-term mental health management. *Proceedings of the ACM on Human-Computer Interaction* 2 (2018), 1–27.

[45] Carman Neustaedter, Josh McGee, and Punyashlok Dash. 2019. Sharing 9-1-1 video call information between dispatchers and firefighters during everyday emergencies. In *Proceedings of the 2019 on Designing Interactive Systems Conference* (San Diego CA USA). ACM, New York, NY, USA.

[46] J Newell and G Macneil. 2010. Professional burnout, vicarious trauma, secondary traumatic stress, and compassion fatigue. *Best Practices in Mental Health* 6, 2 (2010), 57–68.

[47] Ada Ng, Rachel Kornfield, Stephen M Schueller, Alyson K Zalta, Michael Brennan, and Madhu Reddy. 2019. Provider perspectives on integrating sensor-captured patient-generated data in mental health care. *Proceedings of the ACM on human-computer interaction* 3, CSCW (2019), 1–25.

[48] Office of the Surgeon General (US) and National Action Alliance for Suicide Prevention (US). 2012. *2012 National Strategy for Suicide Prevention: Goals and Objectives for Action: A Report of the U.S. Surgeon General and of the National Action Alliance for Suicide Prevention.* US Department of Health & Human Services (US), Washington (DC).

[49] National Alliance on Mental Illness. 2023. Types of Mental Health Professionals. https://www.nami.org/About-Mental-Illness/Treatments/Types-of-Mental-Health-Professionals. Accessed July 18, 2023.

[50] World Health Organization. 2017. *Depression and other common mental disorders: Global health estimates.* Technical Report. Licence: CC BY-NC-SA 3.0 IGO, Geneva.

[51] L Pearlman. 1999. Self-care for trauma therapists: Ameliorating vicarious traumatization. (1999), 51–64.

[52] Sachin R. Pendse, Faisal M. Lalani, Munmun De Choudhury, Amit Sharma, and Neha Kumar. 2020. "Like Shock Absorbers": Understanding the Human Infrastructures of Technology-Mediated Mental Health Support. In *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems* (Honolulu, HI, USA) *(CHI '20)*. Association for Computing Machinery, New York, NY, USA, 1–14. https://doi.org/10.1145/3313831.3376465

[53] A Pines and E Aronson. 1988. *Career Burnout: Causes and Cures.* Free Press, New York.

[54] Christalla Pithara, Michelle Farr, Sarah A Sullivan, Hannah B Edwards, William Hall, Caroline Gadd, Julian Walker, Nick Hebden, and Jeremy Horwood. 2020. Implementing a digital tool to support shared care planning in community-based mental health services: Qualitative evaluation. *J. Med. Internet Res.* 22, 3 (March 2020), e14868.

[55] Igor Portoghese, Michael P Leiter, Christina Maslach, Maura Galletta, Fabio Porru, Ernesto D'Aloja, Gabriele Finco, and Marcello Campagna. 2018. Measuring burnout among university students: Factorial validity, invariance, and latent profiles of the Italian version of the Maslach Burnout Inventory student survey (MBI-SS). *Front. Psychol.* 9 (Nov. 2018), 2105.

[56] Hao Qiu, Xianping Wang, and Fei Xie. 2017. A Survey on Smart Wearables in the Application of Fitness. In *2017 IEEE 15th Intl Conf on Dependable, Autonomic and Secure Computing, 15th Intl Conf on Pervasive Intelligence and Computing, 3rd Intl Conf on Big Data Intelligence and Computing and Cyber Science and Technology Congress(DASC/PiCom/DataCom/CyberSciTech)*. 303–307. https://doi.org/10.1109/DASC-PICom-DataCom-CyberSciTec.2017.64

[57] Kat Roemmich, Florian Schaub, and Nazanin Andalibi. 2023. Emotion AI at Work: Implications for Workplace Surveillance, Emotional Labor, and Emotional Privacy. In *Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems*. 1–20.

[58] Danielle Rozmiarek and Franci Crepeau-Hobson. 2022. A qualitative examination of compassion fatigue in school psychologists following crisis intervention work. *Contemp. Sch. Psychol.* (Nov. 2022).

[59] Sang-Wha Sien, Shalini Mohan, and Joanna McGrenere. 2022. Exploring Design Opportunities for Supporting Mental Wellbeing Among East Asian University Students in Canada. In *Proceedings of the 2022 CHI Conference on Human Factors in Computing Systems* (<conf-loc>, <city>New Orleans</city>, <state>LA</state>, <country>USA</country>, </conf-loc>) *(CHI '22)*. Association for Computing Machinery, New York, NY, USA, Article 330, 16 pages. https://doi.org/10.1145/3491102.3517710

[60] Katarzyna Stawarz, Anna L Cox, Jon Bird, and Rachel Benedyk. 2013. " I'd sit at home and do work emails" how tablets affect the work-life balance of office workers. In *CHI'13 Extended Abstracts on Human Factors in Computing Systems*. 1383–1388.

[61] Monideepa Tarafdar, Qiang Tu, Bhanu S Ragu-Nathan, and T S Ragu-Nathan. 2007. The impact of technostress on role stress and productivity. *J. Manag. Inf. Syst.* 24, 1 (July 2007), 301–328.

[62] Xin Tong, Matthew Louis Mauriello, Marco Antonio Mora-Mendoza, Nina Prabhu, Jane Paik Kim, and Pablo E Paredes Castro. 2023. Just do something: Comparing self-proposed and machine-recommended stress interventions among online workers with home sweet office. In *Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems* (Hamburg Germany). ACM, New York, NY, USA.

[63] Robin Turkington, Maurice Mulvenna, Raymond Bond, Edel Ennis, Courtney Potts, Ciaran Moore, Louise Hamra, Jacqui Morrissey, Mette Isaksen, Elizabeth Scowcroft, and Siobhan O'Neill. 2020. Behavior of Callers to a Crisis Helpline Before and During the COVID-19 Pandemic: Quantitative Data Analysis. *JMIR Ment Health* 7, 11 (6 Nov 2020), e22984. https://doi.org/10.2196/22984

[64] Ajith Vemuri, Keith Decker, Mathew Saponaro, and Gregory Dominick. 2021. Multi agent architecture for automated health coaching. *J. Med. Syst.* 45, 11 (Sept. 2021), 95.

[65] Ajith Vemuri, Megan Heintzelman, Alex Waad, Matthew Louis Mauriello, Keith Decker, and Gregory Dominick. 2023. Towards Dynamic Action Planning with user preferences in Automated Health Coaching. *Smart Health* 28, 100389 (June 2023), 100389.

[66] C Lee Ventola. 2014. Mobile devices and apps for health care professionals: uses and benefits. *P T* 39, 5 (May 2014), 356–364.

[67] Maryam Vizheh, Mostafa Qorbani, Seyed Masoud Arzaghi, Salut Muhidin, Zohreh Javanmard, and Marzieh Esmaeili. 2020. The mental health of healthcare workers in the COVID-19 pandemic: A systematic review. *J. Diabetes Metab. Disord.* 19, 2 (Dec. 2020), 1967–1978.

[68] Alex C. Williams, Shamsi Iqbal, Julia Kiseleva, and Ryen W. White. 2023. Managing Tasks across the Work–Life Boundary: Opportunities, Challenges, and Directions. *ACM Trans. Comput.-Hum. Interact.* 30, 3, Article 48 (jun 2023), 31 pages. https://doi.org/10.1145/3582429

[69] Zheng Yao, Haiyi Zhu, and Robert E Kraut. 2022. Learning to Become a Volunteer Counselor: Lessons from a Peer-to-Peer Mental Health Community. *Proceedings of the ACM on Human-Computer Interaction* 6, CSCW2 (2022), 1–24.

[70] Dharani Yerrakalva, Dhrupadh Yerrakalva, Samantha Hajna, and Simon Griffin. 2019. Effects of mobile health app interventions on sedentary time, physical activity, and fitness in older adults: Systematic review and meta-analysis. *J. Med. Internet Res.* 21, 11 (Nov. 2019), e14343.

[71] Arash Zakeresfahani, Madeline Everhart, Anna N Baglione, Margarita Castellanos Llorca, Vivian Grant, Nia Omega, Alexandria Woertz, and James Clawson. 2022. Design implications to support integrative medicine in pregnancy care. *Proc. ACM Hum. Comput. Interact.* 6, CSCW2 (Nov. 2022), 1–32.

Received July 2023; revised January 2024; accepted March 2024