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AI chatbots cannot replace human interactions in the pursuit of more inclusive mental healthcare

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ABSTRACT

What will the future of mental healthcare look like for those who currently fall through the gaps? There is hope that AI chatbots will meet a rising demand on healthcare systems to provide care to meet the shadow pandemic in mental health. Chatbots are viewed as improving efficiency, affordability, convenience, and patient-driven access with an implicit assumption that this will improve health equity and social inclusion. There are, however, three critically therapeutic aspects of in-person outpatient mental healthcare that are overlooked in discussions about chatbot alternatives: 1) the way mental illness compromises an individual's motivational and self-advocacy capacities, especially for those who are socially marginalized; 2) the embodied nature of empathic communication during any clinical encounter that involves attending to complex non-verbal cues; and 3) how social connections provided by in-person clinics provide indirect social benefits that are not part of a clinical checklist. These three challenges entail corresponding ethical risks of not meeting the obligation to respect patients as persons, to provide empathic care as part of beneficence, and to provide care inclusively to meet demands for fairness and justice. This short communication makes the case for why humans, not chatbots, should be available as first-line mental healthcare providers.

What will the future of mental healthcare look like for those who currently fall through the gaps? In a recent *Wall Street Journal* article three experts envisioned meeting rising mental healthcare demand through the use of AI chatbots. They saw chatbots as providing discerning first line mental healthcare services, with users of chatbots then deciding for themselves if they additionally needed to see a human therapist (Ward, 2021). With AI becoming the trusted gatekeeper to in-person care, "clinicians would be able to spend time where they are most useful and wanted" (Ward, 2021). This would only occur in the future when AI therapy models are refined enough – including to account for "awareness of cultural difference in normative language or behavior" (Ward, 2021). While the social and structural determinants of mental healthcare are thus partially acknowledged, the expectation is that users will be able to recognize when the care is insufficient and, under guidance from a socially sensitive chatbot, when to advocate for an in-person therapist.

The hope is that the chatbots will meet a rising demand on healthcare systems to provide care to meet the shadow pandemic in mental health – the increase in mental distress during, and in the aftermath of, the COVID-19 pandemic. A chatbot is an electronic interface that converses with a human user via text or audio, using natural-language processing machine learning (Nguyen, 2020). In the case of mental healthcare, chatbots can conduct treatments such as cognitive behavior therapy, or provide users with social difficulties a safe way to practice social skills (Abd-alrazaq et al., 2019). Chatbots and similar AI supplements are viewed as improving efficiency, affordability, convenience, and patient-driven access with an implicit assumption that this will improve equity.

As has become clear during the COVID-19 pandemic, there is a need for fast, reliable and consistent healthcare information. As we acknowledge below, online alternatives to in-person healthcare have been critical during the pandemic. Chatbots, if able to represent appropriate 'voices' through collaborative inputs, may indeed be able to provide some basic mental health support in the short-term (Miner, Laranjo, and Kocaballi 2020). Yet such AI alternatives will only be viable once we work out which forms of virtual services actually translate to quality care and health equity (Moreno et al., 2020). Health access and outcomes are fair only when they accommodate diverse population needs, and particularly the needs of the most vulnerable and structurally disadvantaged. People fall through the gaps when their needs go unaccounted for in policy

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provisions designed to help the population at large. In this paper, we draw on our philosophical and ethnographic research on western mental healthcare approaches (Brown, 2020; Halpern, 2001) to reflect on the implications of chatbot mental healthcare triage in America. We argue that if chatbots are relied on to provide triage and human providers are only offered when individuals express an additional need for this, relying on self-advocacy may have profound and unintended consequences for meeting the needs of the most vulnerable patients.

We focus here on ethical consequences of relying on self-advocacy, but acknowledge other important ethical concerns that are discussed elsewhere including the risk of implicit bias (Joerin et al., 2020; Straw & Callison-Burch, 2020). Leaving individuals with mental health struggles to "decide if and when they want another person involved" (Miner, Laranjo, and Kocaballi 2020) overlooks three critical aspects of in-person mental healthcare: 1) the way mental illness compromises an individual's motivational and self-advocacy capacities, especially for those who face dual social marginalization (these disparities compound each other); 2) the embodied nature of empathic communication during any clinical encounter that involves attending to non-verbal cues; and 3) how social contact provided by in-person clinics provide indirect social benefits that are not part of a clinical checklist and cannot be reproduced by virtual reality. We discuss each area with reference to current strains on mental healthcare during the pandemic, and apply the medical ethics principles of respect for autonomy, beneficence, and justice, respectively.

1. Compromised self-advocacy

Mental illness usually compromises an individual's motivational and advocacy capacities, and it is the draw of the relationship or attachment to a personal advocate or a therapist that is often essential for motivating a person to engage in treatment. There are a range of psychological and social barriers that undermine motivation to seek or stay in treatment absent a therapeutic alliance. These barriers pertain to not only severe mental illness but increasingly common illnesses, including depression, panic disorder and other very common anxiety disorders (Boerema et al., 2016; Magaard et al., 2017; Fine et al., 2018). These conditions intersect with social circumstances, such as loneliness and social isolation (Wang et al., 2017), which have been exacerbated during the Covid-19 pandemic. The way that mental distress can cause individuals to socially withdraw, particularly if also facing conditions such as unemployment, presents an ongoing dilemma for mental healthcare (Staiger et al., 2018). The strength of the therapeutic interpersonal alliance has been shown to be the biggest predictor of the effectiveness of psychotherapy (Ardito and Rabellino 2011) in part by helping people sustain social connections. We are concerned that chatbots cannot meaningfully provide social support that improves help-seeking and staying in treatment and ultimately rebuilding social connections.

Engaging in the mental healthcare, or accepting a mental health referral, in the first instance depends on motivational, social and structural factors. In addition to how mental distress can compromise a person's capacity to follow a direct course of action, social discrimination against mental illness also deters help-seeking (Henderson et al., 2013). This stigma is compounded by issues of poor healthcare literacy and access, particularly for those in rural and socioeconomically disadvantaged areas of America where fear and shame around mental illness prevails (Crumb et al., 2019). For those who are more disconnected from society, such as through homelessness, while it may be argued that 'use of technology may add to their sense of belonging and help build social connections,' staying in treatment nonetheless depends on the persistence of multi-disciplinary teams that do not simply focus on the question of medical treatments but rather practical assistance, advocacy and "humanistic" relationships with providers (Dixon et al., 2016). Moreover, socioeconomic barriers are implicated in whether or not individuals feel worthy of mental healthcare. For instance, women from low resource backgrounds who experience depression benefit enormously from human advocates that, in addition to arranging healthcare, can recognize practical and emotional needs such having someone to accompany them during a housing inspection, and, in turn, help these women to recognize that they *deserve* further help despite feeling otherwise socially oppressed (Goodman et al., 2009). While it is not the role of a mental health professional to arrange for assistance with daily living, humans can help to meet needs that connect with, and pave the way for, engagement in formal mental healthcare.

During the COVID-19 pandemic, social isolation and structural factors such as jeopardized employment have seriously worsened the mental health of so many people. The CDC reported that 40.9% of the American population, and particularly those in marginalized communities, have experienced at least one diagnosable mental health condition in the first year of the pandemic (Czeisler et al., 2020). The pandemic has also exposed deep-seated systemic racism, and there is a fast-growing need for holistically oriented mental healthcare that accounts for how socioeconomic struggles and social status shape psychological well-being (Kalin, 2021). Healthcare systems must thus seek to provide integrated healthcare options for significant structural and psychosocial challenges experienced by individuals and communities (Pfefferbaum & North, 2020). Can chatbots provide appropriately respectful responses for people navigating such dramatic Covid-19 related social losses as well as long-standing inequitable social circumstances?

Electronic solutions may of course provide partial assistance with mental healthcare engagement – if human clinicians are also present. Psychotherapeutic engagements are often tenuous, relying on therapeutic alliance, shared decision-making and flexibility, trust, timeliness, and the alleviation of personal and practical access barriers, which electronic solutions may be able to assist with to some extent (Dixon et al., 2016). Human-driven tools such as telehealth or video consults for mental healthcare have been very valuable during the pandemic, although only when clinicians and users feel able to build rapport and a therapeutic alliance. It is also crucial to reduce digital literacy barriers to make care more inclusive across social groups (Torous & Wykes, 2020). The implications of having no human on the other end of the line at all, as would be the case with chatbots, are worrying because engagement in mental healthcare can depend on whether social and therapeutic needs are also being met in other ways. Evidence of the utility of mental health chatbots that, for instance, perform Dialectical Behavior Therapy and successfully decrease anxiety levels and improve self-efficacy of users, is limited to individuals who are already enrolled in psychotherapy with humans prior to the chatbot becoming involved (Schroeder et al., 2018). Further, in placing the emphasis on digital alternatives serving as "pocket psychologist[s]" that 'index' professional mental healthcare, it is assumed that users will follow a designed pathway that reflects the logic of what happens during in-person care settings, even though the experiences of engagement differ (Trnka, 2021).

Ethically, chatbots threaten respect for persons which includes respect for autonomy and protection of those with diminished autonomy. When a person is subject to conditions that compromise their ability to advocate for themselves, providers have a responsibility to help recover the person's autonomy through supportive relationships. This brings us to the subtle nature of therapeutic interactions between individuals that chatbots cannot mirror.

2. Empathic communication

Critically, communication during any clinical encounter involves non-verbal cues and an emotionally invested curiosity, which together comprise *clinical empathy* (Halpern, 2001). All treatment approaches (mental health or otherwise) benefit from clinical empathy, whereby clinicians attune themselves to the often-unspoken emotional needs of patients to build shared understanding, trustworthiness and motivation (Halpern, 2001), and to engender reflective curiosity between therapist and patient. Therapeutic alliances are less a matter of "what" is communicated and more a matter of "how" communication happens (Del et al., 2020). There should be both verbal and non-verbal opportunities

for interruptions and ultimately assertiveness on the part of the patient (Del Giacco, Anguera and Salcuni 2020). Non-verbal attunement that enables adjusting body position, eye contact, and tone of voice to the patient in a moment by moment way are not programmable at this point and some argue in principle cannot occur well for AI (Montemayor et al., 2021). It is not just what the clinician learns from paying attention to the patient's body language, for instance. A clinician can recognize mismatches between how a patient is holding themselves emotionally and what they are otherwise suggesting that they need by way of caregiving, and it is what the patient can likewise learn from reading the clinician's body language. Specific populations seeking to address narrowly defined symptoms, such as some war veterans with potential Post Traumatic Stress Disorder (PTSD) symptoms, may indeed benefit from a more detached or anonymous therapeutic presence *to begin with*: 'virtual human interviewers' – a more embodied chatbot – may provide some level of non-verbal assurance and "build rapport" through appropriately timed head nods (Lucas et al., 2017). Yet PTSD is more complex than a narrow set of symptoms, and human empathy is more complex than initial assurance based rapport-building, and veterans who receive in person psychotherapy describe how the fact that a civilian human being, their therapist, empathized with them was crucial for their being able to overcome shame and talk with their family members about what they had been through (Benner et al., 2016). Building this level of therapeutic trust between persons is much more than not being embarrassed in front of a bot that cannot judge them (Pinto et al., 2012).

Trust is, in fact, the biggest predictor of adherence to any healthcare treatment, and this trust develops if the patient perceives that the clinician is "genuinely worried" about them (Roter et al., 1998). When clinicians and patients are together in a shared space and time, the clinician is able to attune to the patient's emotional shifts as a guide to imagine what the patient might be experiencing. And the patient is more likely to trust the clinician, leading to more disclosure of important clinical information and greater adherence to a treatment plan, two critical determinants of clinical effectiveness (Halpern, 2001). Notably, clinicians can experience and convey clinical empathy within 90 seconds of listening to and observing a patient in-person (Langewitz et al., 2002). The cognitive effort required of a human to do this is nonetheless complex and irreducible to specific logics that may be assumed to be operationalized under AI models (Montemayor et al., 2021). A chatbot, even if evolved to be a virtual embodied presence that could recognize non-verbal emotional cues, cannot be programmed to account for this reciprocal human experience of trust, social understanding and validation.

At a logistical level, clinical empathy is also an inherently *improvised* element to caregiving that requires a shared embodiment of emotional experiences (Montemayor et al., 2021). This is not to deny that chatbots, serving as a kind of "smart journal" may elicit a sense of emotional investment from the user towards the bot, and even encourage self-care on the part of the user (Lee et al., 2019). This may be very helpful for people who are motivated to improve their health but need more ongoing assistance and structure. However, while a chatbot might offer some level of reassurance and 'refer' a human who is expressing obvious levels of distress to see a human professional, a chatbot may not be able to provide the building blocks of empathic interactions that ultimately encourage individuals whose mental illness interferes with motivation to accept and trust human support when it is most needed. These building blocks grow through relationships between human beings; AI is inherently limited in its ability to relate to a human through its own internal experience (Montemayor et al., 2021).

To be clear, if operating between two humans – rather than between a chatbot and human – electronic health interfaces can result in comparable outcomes in mental healthcare (Fann et al., 2015). Therapeutic alliances appear to be sustainable through telehealth or 'videotherapy' options now put to the test during the pandemic. Yet this requires creating both interpersonal boundaries and 'therapeutic presence,' which inherently rely on human openness (Simpson et al., 2021). The feeling of being accepted within a shared human world is vital because this feeling can challenge social isolation and some of the origins of mental distress.

From an ethical standpoint, clinical empathy should be maximized in every medical caregiving interaction. The principle of beneficence, which is a cornerstone of the moral integrity of caregiving, involves tailoring care depending on an individual's circumstances, which remains a key challenge for chatbots (Zhang et al., 2020). Further, being in a physical space with another human can enhance a vulnerable person's motivation through the more personalized experience, where a sense of interpersonal warmth is more readily available (Loree et al., 2019). Closely related to clinical empathy is the significance of the clinical space itself.

3. Therapeutic spaces as social opportunities

Beyond the relationship with the therapist (or chatbot), attachment to the other people one sees when one goes to a regular clinic space plays an *indirect* but important therapeutic role. Especially for those with chronic mental illness, healing dynamics are not just about individual relationships, assertiveness, or formal 'therapy' (Brown, 2020). Outpatient mental health clinics can offer inadvertent opportunities for communication, social connection and empowerment that are not available elsewhere (Brown, 2020). We (first author, Julia Brown) learned about the power of in-person clinic visits through ethnographic research in UK and Australian clozapine clinics, where patients attend regularly because the antipsychotic medication clozapine requires regular physiological monitoring to manage co-morbid risks. In this context, the surrounding support of a whole clinical team, while not intending to provide psychological 'therapy' per se, can foster social connection and respect (Brown, 2020).

First, the sociality budding in waiting rooms and clinical activities is firmly planted in the physical space and monitoring circuit itself; it would not work virtually because multiple humans need to be present. Waiting rooms can either exacerbate or alleviate feelings of stigma and disempowerment, depending on the extent of social neutrality available (Liddicoat, 2020). If patients feel surveilled in a waiting room, it can damage their therapeutic relationship with their clinician whose approach becomes symbolized by the overarching clinical space (Liddicoat, 2020). Clinics constitute an overarching apparatus of caregiving that are not reducible to any particular focus of care.

Even physical health checks, which may be overlooked as part of *mental* healthcare, can promote social and mental well-being by proxy of offering mundane and equitable human connection. In-person health monitoring can become a collaborative enterprise, translating to a feeling of what one Australian clozapine client in Brown's study described as "being social" and a UK client described as benefiting him because of the "human contact" (Brown, 2020). Another client reported about having his health checked at the clinic, "people are concerned about me, so it makes me feel better straight away" (Brown, 2020). Clozapine clients notice when clinical caregivers are receptive to their body language (such as if they turn away as blood is being drawn) and their own interpretations of what is happening with their health (such as non-clinical, experiential evidence of how exercising before a blood draw can influence a white blood cell count reading) (Brown, 2020). The degree of flexibility and relational, empathic curiosity involved on the part of any clinical caregiver cannot be trained within a chatbot because this caregiving is not captured by directives about explicit clinical goals (Main et al., 2017).

Particularly for individuals who might find it hard to trust others, having a reliable routine – which may be partly executed by AI models – is important, however there needs to be room for gentle, non-clinical social interactions too. At one level, the sociality budding in a clinical setting is planted firmly within regular appointments, clear expectations and predictable social cues, which in turn provides a sense of accountability and engagement in treatment (Brown, 2020). At a more subtle level, social participations within clinical spaces can make individuals

feel like social beings rather than patients. It may be the conversations that happen in between clinical questioning that can make incremental differences to well-being. There are social boundaries provided by virtue of interactions with caregivers and other clients happening while in clinical space, which can give individuals a sense of control over their social life. For instance, one clozapine client described how he found it manageable to socialize with fellow clients in the waiting room but not outside of the clinic (Brown, 2020).

Ethically, clinical spaces with human personnel should be available to everyone, and particularly those unable to advocate for themselves, as a matter of justice. For those who are most socially isolated in conjunction with their mental health struggles, it may only be through in-person clinical contact that social reintegration can begin to take place. The hallucinatory voice heard by one young clozapine client kept quiet while he was inside the clozapine clinic because, he explained, "she's not around when I'm with people" (Brown, 2020). Being with a chatbot is not the same as being with people, plural, in clinical spaces that are also safe, human, social spaces. During the pandemic, this social safety may be more complicated due to social distancing measures and fear of coronavirus contagion, however once new clinical routines are familiar and trustworthy, attending the clinic would likely still be preferable to total social isolation with digital monitoring substitutes.

4. A chatbot's role in mental healthcare

The proposition that chatbots can serve as gatekeepers for in-person therapy might therefore have the issues and solutions the wrong way around. Just as social exclusion exacerbates psychiatric illness (Anglin et al., 2021), there need to be opportunities for clinical empathy and social belonging as part of the beginnings of mental health recovery. It is a mistake to assume that people experiencing mental distress will have the motivation or social agency to express their social needs to the chatbot. Social reintegration may not happen unless there are opportunities for human interaction that provide clinical empathy, curiosity and connection. To rely on chatbots to motivate and build the kind of deep therapeutic alliance that enables change puts people with depression, panic disorder, and other common mental health problems that involve risks of self-harm, at risk. If a person in distress relies on a chatbot for therapeutic alliance and triage, they might be waiting indefinitely or with grave consequences – with those who are most vulnerable continuing to miss out on the most intuitive kind of quality care. Moreover, for any individuals who are motivated and with resources to consult chatbots for preliminary mental healthcare, they will nonetheless be limited to the diagnostic and treatment decisions made by the chatbot, which, when subjectively decided by a human being, is more amenable to open debate (and respect for differences in opinion).

It is feasible that chatbots can instead serve an important role in mental healthcare for people who are already looped into an agreeable human-led mental healthcare system. An existing and trustworthy therapeutic relationship may even be enhanced by AI tools that serve to provide additional rather than replacement clinical services – for example, by adding in opportunities for patients to conduct real-time monitoring of symptoms and medication side effects in between human clinical follow up (Torous & Hsin, 2018). For the veterans with PTSD, virtual reality war settings have been shown to help desensitization and may be used as an adjunct to in-person therapy groups (Rizzo et al., 2011). Users can also benefit from transparency about what chatbots can and cannot do; appreciating them as robotic interfaces rather than "humanoid" (Darcy et al., 2021). In the push for patient-centered-care and equitable care, though, we must not lose sight of how current shortfalls in mental healthcare access come down to fundamental challenges in fulfilling different social and structural needs that require human-to-human trust to begin with.

At the heart of medical ethics is the question about how to promote respect for patients as persons and social inclusion especially for the most vulnerable. AI interfaces and their chatbots cannot be expected to provide the feelings of respect and subtle constellations of interpersonal supports necessary for a sense of social agency, inclusion and equity. Returning to our opening question, the future of mental healthcare may be less promising for those who currently fall through the gaps in terms of their implicit, unspoken needs for social connection and inclusion. Moving forward, AI mental healthcare solutions will need to address how individuals struggling with mental distress become both socially isolated and unable to advocate for themselves – and the role that clinical space and human empathy can play in helping people find the social connection necessary for improving mental health. Human interactions should be available at the outset and when most needed, even if not expressly requested.

Declaration of competing interest

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