

Ethical Viewpoint Paper

The Ethical Dilemma of using Robotics in Psychotherapy

Pragya Lodha

Research Assistant and Clinical Psychologist, Desousa Foundation, Mumbai.

Corresponding Author : Pragya Lodha

E-mail: pragya6lodha@gmail.com

INTRODUCTION

Psychotherapy, as a model of psychological practice, has witnessed a diversity of change. From the traditional talk therapy, it has moved to a plethora of models maintaining its psychotherapeutic essence, like arts-based, dance movement, music therapy, play therapy and several others. It was for the first time in 1966, when technology was synchronized with psychotherapy. ELIZA was the first computer software that carried out the fundamental commands of a therapist through the medium of computers [1]. With technology, psychotherapy has seen a changed media of communication, through telephones, SMS, emails, internet-based therapy, online forums, smartphone applications, chatbots and the most recent robots. The surge in technological revolution with the aid of human intelligence, we are in an age where human created bots can substitute for human task actions- and this is reflective in the psychotherapeutic settings as well. It was the 1990s that saw the rise of artificial intelligence in the practice of psychotherapy. Under artificial intelligence, there are several media that assist therapy, such as, internet assisted therapy, computerized therapy interactions, smartphone supported mental health applications, virtual reality, video games assisted therapy, chatbots and robots.

The paradigm shift has been from robotics through robopsychology and robotherapy to robot-based psychotherapy. This article is focused on discussing robot assisted therapy which includes robots being used as therapists and robots being used for therapy along with the human interface.

What is a Robot

Robot is an artificial intelligence system that can display intelligent and human-like behaviour in an automated, semi-automated or remotely controlled manner. Thus, so to conclude, this intelligent system can achieve human like tasks. The exploration of AI's potential in psychotherapy emerged from the idea that there are some people who may find it easier to connect with robots than with humans because the robots are less likely to judge them [2]. This emergence also addressed the crisis of lack of trained professionals in the mental health field; thus, humanoid robots came to bridge the mental health gap in a way, by being available to assist therapy for children, adolescents, adults and the elderly. Humanoid robots also ensure the availability round the clock as opposed to limited operational hours of psychotherapists. A further added advantage of robots is that they are perceived to be less threatening by individuals as opposed to the human counterparts. Additionally, what has also been reported is that robotherapy is less expensive and thus financially benefitting for people.

Types of Role of Robots in Psychotherapy

Operationally, robots can be used in two natures, as assistive or interactive. Assistive robots are merely machines that output the command instructions via machine screens and are non-ambulatory. Whereas interactive robots are modelled to look like humans and sometimes animals. Interactive robots have an anthropomorphized look and also called as social robots as they engage in human interaction, one of the purposes being for therapeutic assistance. Interactive/social robots are a success when used for a therapeutic purpose because they display human-like

behaviours and may also have other social interaction capacities. They alternatively also referred to as socially assistive robots [3-4]. Robototherapy was proposed as “a framework of human-robotic creature interactions aimed at the reconstruction of a person’s negative experiences through the development of coping strategies, mediated by technological tools” [5]. There has been the development of care robots, robotic burses, surgical robots and then robot therapists (socially interactive robots) [6-8]. Robototherapy has demonstrated marked improvement in behavioural concerns seen in individuals, however the overall efficacy of the same remains questionable. The cognitive and emotional intervention using robototherapy has still not gained vast applications.

Research literature marks a pragmatic explanation of robototherapy or robot-assisted psychotherapy (robot-enhanced therapy) where it involves the (humanoid) robots in interaction as therapists with individuals who present with cognitive / behavioural (and / or emotional) concerns along with the human interface. It is the psychotherapist who controls the interaction mechanisms and input data of these robots. In robototherapy, there are three types of interactions that take place [1-2]:

1. Robots can completely substitute the psychotherapist in situations when the psychotherapist is not available due to reasons like high costs, shortage of service providers or the inability of psychotherapists to respond to patients all of the time.
2. Robots can also act as mediators where they don’t facilitate therapy but accelerate it by acting like a catalyst, by mediating interaction between the clients and therapists.
3. Robots can also be used by psychotherapists during their interventions to augment, facilitate and optimize their classical techniques in therapy.

Robot assisted therapy has been used with children and adolescents suffering from neurodevelopmental disorders like Attention Deficit Hyperactivity Disorder (ADHD), Autism Spectrum Disorder (ASD) and learning disorders (especially, motor disabilities) [9-10]; youngsters and adults with ASD and social anxiety and phobia have also benefitted from robot assisted therapy. Geriatric and elderly with dementia and depression have also benefitted with robot-assisted psychotherapy. Cognitive Behavioural Therapy (CBT) is the most used / coded programming for robot assisted psychotherapy [11]. As part of CBT, REBT has also been used for psychotherapy. It has been exceptionally rare that non-directive therapy has been implemented with robot-assisted therapy [12]. Symptomatically, robot-assisted therapy targets three domains- cognitive, behavioural and subjective / emotional. Single studies and meta-analyses that compared two groups- robot assisted therapy group and non-robot assisted therapy group-have shown that robot assisted therapy has the best and maximum effects on behavioural symptoms as compared to the other two [13].

The overall effect of robot-enhanced therapy, including the three levels (cognitive, behavioural and subjective) as not been found to be significantly different or better when compared to the non-robot-assisted therapy groups. Robot assisted therapy has worked well with behavioural concerns seen in ASD, to an extent, however, the cognitive and emotional domains haven’t seen improvement in particular.

ETHICAL DILEMMAS

Innovative research in the area of healthcare robotics has grown significantly in the last 2 decades, and so have the ethical considerations garnered attention. Ethicists have been concerned with with the prospect of intelligent, autonomous humanoid robots that take care of individuals across the age-spectrum, especially so since they deem to be the future of healthcare. Apart from the usage of robotics in mental health care, it is quintessential to address the ethical dilemmas that have prevailed to question the future use of robots. Researchers have raised questions like: Will robots replace the nurses and other care givers, leaving the ill and elderly in the hands of machines? Could robots deliver the same quality of care? Can machines give the “warm”, “human” care we seem to expect from human care givers? Do robots used in care deceive vulnerable persons when they (the robots) “pretend” to be something else than they are, for example when they appear as pets [14]. Some of the crucial ethical concerns and related considerations associated with healthcare robotics are discussed below:

The Dilemma of Human Replacement

It is undoubted and demonstrated that robotic care is appropriate, precise and effective (to an extent). These findings create a scope of improvement in the future robotic healthcare. The efficacy of robots in psychotherapy has made researchers and practitioners questions if robots are a soon to-be replacement to humans [15]. Though robots can be programmed (by humans) to lead to successful outcomes in variable contexts of mental health care (ASD, ADHD, geriatric care-assisting loneliness and dementia), they cannot be a replacement for human care. The future of health care is secure if robots work complementarily to human care. Robots can be used to assist therapy and not carry out therapy entirely. To date, it has been applauded that robotics can serve as a new medium of delivering psychotherapy but not a new form of psychotherapy. Reiterating, “robot-assisted psychotherapy” assumes that robots can be seen as technological tools that can merely help the psychotherapists working in a personalized evidence-based psychotherapy framework. Thus, robots can be a temporary substitute in situations where the psychotherapist may not be available twenty-four hours, there may be a unique time requirement, robots can sometimes be a relative cost-effective measure.

The fear of ‘cold’ care

As addressed above, one of the biggest fears harboured by practitioners is if robocare will completely replace the human care in the coming future. What must be held is accountable is that robots are incapable of producing the warmth and empathy that a human can [16]. Though a bleak research possibility did come up with the possibility of robots producing emotions in robots, it is impossible till date for robots to communicate with emotional flexibility [17]. Robots are not capable of a “human” kind of attention and care; humans have various social and emotional needs, which cannot be met by giving them a robot.

Addressing the diversity of problems

Robot assisted therapy has gathered appreciation and success in treatment domains of ASD, ADHD and dementia, specifically. Alternatively, AI-based therapies like virtual reality and technology assisted psychotherapy have been used for other mental health concerns (neurotic and psychotic disorders) as well. However, the efficacy has been restricted. When we address the same for robot assisted psychotherapy, the effects are highly limited to not just disorder but also with the success in betterment of a limited domain of symptoms (behavioural symptoms have shown relatively better success as opposed to cognitive and emotional / subjective symptoms). Thus, robocare in mental healthcare has not reached to the wider concerns that equally require as much attention to the disorders that robot assisted psychotherapy has addressed till date.

The question of crisis care

One of the most impressive and much required aspect of mental health care is crisis care. Though robots have been said to be available across the clock and in the absence of psychotherapists (when they may have other clinical engagements), robots are not trained and effective when it comes to crisis care situations like addressing suicidal ideation, violence or trauma. These are situations that demand the immediate empathy, attention and sensitive care from a psychotherapist, who is / can be well trained in handling such situations with efficacy [18].

Individualized context

The psychotherapist is dynamic in approach towards every individual. It is important to remember that psychotherapy though may have limited therapeutic models of practice and a certain nature of illnesses addressed in therapy, the matrix of individual context demands for highly specialised and focused care. Easily explained with an example, a therapist may be seeing ten patients presenting with symptoms of depression but the presentation of symptoms, manifestation of depression, underling socio-cultural framework and personality organisation for every patient is different. It requires a blend of emotional and psychological warmth, empathy, sensitivity, awareness of cultural factors along with sense of personality organisation to choose which therapy works best for which patient. This is a human function which is extremely difficult to encrypt in a

robot. Robots have not achieved this till date and therefore robot assisted therapy will always require the function of a human psychotherapist.

The challenge of eclectic psychotherapy practice

There are several psychotherapists that focus on some specific psychotherapeutic practice/s when it comes to choosing a school of therapy. Robots till date have focused only on cognitive behavioural therapy (CBT / REBT) model of practice. Identifying the patient's personality organisation to select a school of therapy is one of the most important elements of psychotherapy. This aspect is an inability of performance by a robot. Robocare can merely assist psychotherapists to carry out certain techniques in particular schools of psychotherapy but cannot themselves carry out the process of psychotherapy.

The challenge of building and maintain rapport

Robots can come across to be friendly and less threatening for children and adults suffering from ASD or can also be a of great care when it comes to dementia or alleviating loneliness in geriatric care, however, in several disorders and day to day adjustment problems, robots may not be a consideration for future psychotherapy care as they may come across to be mechanical to a majority of population of patients suffering from problems like depression, anxiety, eating disorders and other mental health problems. One of the questions also raised is that of confidentiality of information, data protection, risk of damage to storage of data that remains to seek a concrete solution.

Psychological and moral responsibility

One of the greater challenges with robots carrying out psychotherapy is the lack of ability of robots to maintain responsibility of determining actions and the course of psychotherapy, establishing and maintaining trust in the therapist-patient relationship, the moral agency of dealing with ethically problematic situations, dealing with psycho-medico-legal problems in therapy and dealing with the issue of being a deceptive social companion to patients in care [19].

CONCLUSIONS

Robotherapy / robot-assisted therapy / robot-based therapy are a helpful component of psychotherapy with explored benefits in the last two decades. Robocare has proven to be beneficial to behavioural symptoms in disorders like autism spectrum disorder, attention deficit hyperactivity disorder in children and adults as well as in geriatric care for dementia. The success of robocare is limited and non-significant while working on cognitive and emotional / subjective symptoms in psychotherapy. The efficacy of robocare has remained to be non-significant in overall health care however, there is scope for improvement in the coming future.

In practices like that of psychotherapy that require not only a therapeutic model to assist in care for mental health problems but also psychological warmth, empathy, cultural sensitivity and crisis action, robots may not seem promising in sole action. The essence of psychotherapy may enhance with robots being used as a medium for carrying out certain psychotherapeutic techniques. Individual approach psychotherapy for varied reasons- from adjustment problems to severe mental illness- which requires a dynamic approach to practice and necessitates the presence of human therapist for effective outcomes. Simple to acknowledge that robots are a creation of humankind and humans outshine the capacity of being humane, undoubtedly. The human-machine collaboration is a promising tool for effective mental health care in the future with the assistance, guidance and direction of human intelligence.

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