THE POTENTIAL USE OF ARTIFICIAL INTELLIGENCE IN TREATING BORDERLINE PERSONALITY DISORDER WITH NARRATIVE THERAPY

1. INTRODUCTION

Borderline personality disorder is a psychiatric condition that constitutes one of the greatest pratical challenges to psychotherapists. Apart from the diversity of its manifestations, what makes BPD especially hard to manage therapeutically is patients’ difficulties in interpersonal functioning, due to which they tend to resist therapy, mistrust therapists’ motivations, and sabotage treatment. Therefore, dropout rates are extremely high.[[1]](#endnote-1) Since pharmacological treatment and hospitalization are inadequate by themselves in BPD, therapy should be tweaked to accommodate patients’ motivations and preferences in the long-term management of this condition.

The idea to be proposed in this paper is that AI-supported therapy could help avoid interpersonal difficulties experienced with human therapists while preserving the most important features of therapeutic effort, thus potentially significantly improving prospects of recovery. A type of therapy that could be relatively smoothly supported by artificial intelligence is narrative therapy, which is also one of the more successful methods of treatment available.[[2]](#endnote-2) The suggestion is that AI using natural language processing and generation (also, increasingly, causal reasoning), could help patients re-author their self-narratives into more coherent and meaningful sequences, in which they view themselves more like agents and less as subject to external locus of control as well as assign more consistent roles to others.

1. SELF-NARRATIVES IN BORDERLINE PERSONALITY DISORDER

2.1. ACCOUNTS OF THE NATURE OF BPD

Borderline personality disorder is characterized by disturbed identity and self-image; impaired interpersonal functioning and unstable relationships; feelings of emptiness and abandonment; inappropriate and extreme emotional reactions (most typically, fits of rage) and impulsivity (often substance abuse or erratic sexual behavior). Several accounts of the character and aetiology of BDP have been put forward; I’ll briefly present some of the most prominent ones.

Borderline, and, more generally, cluster B personality disorders—which all involve interpersonal and emotion regulation deficiencies—are sometimes given a moral interpretation,[[3]](#footnote-1) that is, are considered „moral rather than clinical.” Louis Charland argues for this conclusion on the basis of the observation that successful treatment requires moral education and is associated with a change in moral character.[[4]](#endnote-3) This is more plausibly a consequence rather than the essence of recovery, however. Marks of progress such as reframing narratives of personal relationships in less antagonistic ways, achieving a better integration of goals, and improving self-image, all tend to make moral behavior more likely.

Other theorists (most notably, Linehan[[5]](#endnote-4)) have suggested that BPD is best understood as a disorder of emotional dysregulation.[[6]](#footnote-2) Here, the idea is that the child’s genetically given emotional vulnerability and early environmental input characterized by invalidating reactions that minimize, trivialize, or punish the child’s negative affect are responsible for the emerging dysfunctional affective, cognitive, and behavioral patterns. Difficulties in social functioning are a result of this vulnerability combined with dysfunctional coping patterns in efforts to alleviate interpersonal distress.

Another theory focuses on the hedonic aspect.[[7]](#endnote-5) According to this view, borderline personality disorder has two key features. One is a chronic, intense pain or suffering associated with dysphoric affects and cognitions (e.g., the sense of complete insignificance or impending doom). The second distinguishing feature is the way in which patients “both hide this pain and […] express it”.5 (p 507) The “awkward” ways of expressing include self-harming, substance abuse, promiscuity, and maladaptive interpersonal behavior (such as manipulation and demandingness).

There also seems to be good reason to give BPD a cognitive account, based on the dysfunctional and rigid beliefs that come from negative experiences in early development[[8]](#endnote-6) and inform the way patients experience themselves and others.[[9]](#endnote-7)(p504) Borderline patients have also been found to be especially prone to some cognitive biases, such as dichotomous (black-and-white) thinking and to tend to interpret neutral interpersonal interactions in a negative way.[[10]](#endnote-8)

Wherever we place the emphasis in accounting for BDP, patients’ interpersonal relations stand out as underlying and, through feedback loops,[[11]](#endnote-9) aggravating their condition. A fragmented experience of identity corresponds to incoherent self-narratives and ones that manifest poor mentalizing and tend to assign inconsistent roles to others. In the following, I will look at the characteristics of BDP patients’ fragmented identities, self-narratives, and therapeutic efforts intended to help patients rework those narratives.

* 1. IDENTITY DISTURBANCE AND SELF-NARRATIVES OF SUBJECTS WITH BPD[[12]](#footnote-3)

A diagnostic criterion of borderline personality disorder in DSM-5 is identity disturbance, described as “markedly and persistently unstable self-image or sense of self”.[[13]](#endnote-10)(p663) This can have several different aspects: a continued commitment to self-defining values, relationships, self-representations and self-standards, some sort of world view and recognition of one’s place by others ideally all make it into a more or less coherent self-concept and an open set of overlapping self-narratives.[[14]](#endnote-11) While the fact of impairment of self-functioning in BPD is widely recognized, its source and nature are a matter of controversy.

According to a recent interpretation, the kind of identity disturbance that borderline patients experience is that of *agency*.[[15]](#endnote-12) The idea is that borderline patients don’t sufficiently consider themselves agents, who set goals and act in pursuit of projects. Gold and Kyratsous argue against what they take to be the major alternative, víz. focusing on disturbed *narrative* identity, partly on the grounds that, as Dan Zahavi pointed out, the narrative self presupposes a minimal one.[[16]](#endnote-13) This can be granted; still, identity disturbance could be related to either, and incoherent self-narratives could leave the minimal self intact. The authors also build on Galen Strawson’ criticism of a universal narrative self.[[17]](#endnote-14) Strawson points out that some of us are not the narrative self type and have only episodic selves. I find Strawson’s reasoning a bit of a red herring. While there does not have to be a single overarching narrative, we surely all make sense of our lives and mental states in a narrative form at least sometimes. (Strawson does too, when describing his own episodic character.) So I am not going to defend the idea of narrative identity, for—understood in a sufficiently minimal way—it can be taken for granted and so can be the possibility of its disturbance.[[18]](#footnote-4)

A positive argument for the agentic approach is that what tends to improve in patients’ life stories with improvement in their condition is their perceptions of themselves in the agentic role.[[19]](#endnote-15) So it would seem that it is not the narrative but perceived agency that makes a difference. This could be convincing if it weren’t true of more or less *all* psychopathologie.[[20]](#endnote-16) Agency is a dimension of mental health, and increase in agency may be a mere consequence of recovery. Thus, without denying the significance of the perception of agency, we should look for borderline identity disturbance in the alternative dismissed by Gold and Kyratsous as well, i.e., self-narratives.

What are borderline self-narratives like? How do BPD disturbed self-narratives come about, what maintains them and what are the obstacles in the way of rewriting those self-narratives? Interestingly, what used to be believed about borderline patients, viz. that they lack self-knowledge, that is, don’t have sufficient insight into their own (individual) mental states, does not seem to be the case.[[21]](#endnote-17) What seems deficient is the *integration* of mental states in narratives. Patients would tell stories in which a person close to them appears in a very positive and then a very negative light. In other cases, subjects have unclear and contradictory views of their preferences.

Why are borderline narratives less coherent? Part of the explanation may be dissociation, due to childhood attachment traumas that are very likely to figure in the patient’s history.[[22]](#endnote-18),[[23]](#endnote-19) But dissociation occurs in many other mental disorders as well (not only, say, posttraumatic stress disorder and dissociative identity disorder, but also major depressive disorder). Early attachment traumas, a troubled relationship with caregivers may also influence the coherence of self-narratives. To develop more or less positive, coherent self-narratives takes a validating environment and one in which other perspectives can be taken. The child learns to make sense of her own experience, and also build her own, more or less coherent, self-image and narratives, relying on input from caregivers. This applies not only to content but to structure as well. (One example is that the grain of self-narratives about the past, how concrete they are, much depends on whether the parent had a general tendency to jointly retelling autobiographical stories.)

Early attachment traumas or troubled relationships with caregivers can lead to problems with perspective-taking and to being closed to alternative viewpoints. The patient doesn’t exhibit sufficient cognitive flexibility: he has a hard time adapting to new information. (This is sometimes labelled a state of “epistemic petrification” due to “lack of epistemic trust”.[[24]](#endnote-20)) External input doesn’t get sufficiently built into self-narratives and there is less opportunity to streamline narratives. Something similar may happen in therapy. The patient can slip into what has been labelled “psychic equivalence mode” and “only experience his or her own point of view, and it is necessary for the therapist to recognize that alternative viewpoints are unacceptable; any attempt to provide one will simply lead to argument or complaints from the patient that the therapist does not understand”.[[25]](#endnote-21) (p192)

Apart from lacking sufficient coherence, narratives of persons with borderline personality disorder also tend to be deficient in the following ways. When narrating interpersonal experiences, patients may fail to make the connection between their own and other people’s verbal and non-verbal behavior, especially in affectively intense situations. They may fail to see what triggered their frustrated or depressive states, or may not be able to support their negative judgment of an encounter by details.[[26]](#endnote-22) (p10) Another phenomenon, which may also influence narrative coherence, is “embedded badness:”

[…] a deeply embedded and often unconscious self-perception of inherent badness, i.e. evil, defective, worthless, lazy, or ugly. This sense of badness is often not immediately apparent and difficult to measure in research studies since it can be repressed and denied, even to the point that patients can appear grandiose with an inflated self-appraisal for much of the time. The badness can also be projected onto others, such that BPD patients can become mistrustful, avoidant, or denigrating of others as a way to protect against feelings of shame.22(p7)

Due to their cognitive rigidity and epistemic mistrust, BPD patients are easily stuck with the kind of narratives characterized above. When these narratives do change, they may change for the worse in terms of coherence, as patients have been shown to assimilate negative feedback to a greater degree than controls.[[27]](#endnote-23) (Negative self-narratives (a big sub-genre of which is „contamination stories,” where things go from better to worse) tend to be less coherent than positive ones.)

Narrative therapy in BPD aims at making patients re-author their narratives, produce a more coherent, meaningful and less negative understanding of their experiences and learn to distinguish themselves from their condition (externalization). Patients are helped to find connections between their different mental states and follow those in their sequence. Therapists also assist patients in focusing on the important aspects of their narratives, eliminate inconsistencies, clarify the roles of characters and their reciprocal emotional positions.16 (p40)

1. THE POTENTIAL USE OF ARTIFICIAL INTELLIGENCE IN BPD THERAPY

As we have seen, perhaps the greatest challenge for the patient in borderline psychotherapy is dealing with fellow humans. Interpersonal dysfunction is central to BPD[[28]](#endnote-24); there is also increased sensitivity to interpersonal stressors, mistrust of others’ intentions, including those of the therapist, and a perception of therapy aimed at changing thought and behavioral patterns as invalidating.4 The therapeutic relationship may itself activate attachment-related neural patterns that hinder metacognitive functioning, undermining therapy.1,[[29]](#endnote-25) An obvious suggestion seems to be the elimination of the element of human interaction and attachment from therapy.

Digitally assisted psychotherapy services are an expanding industry. Many of the techniques of traditional narrative therapy could be adapted to AI-supported systems in the treatment of BPD as well. Natural language processing-based AI devices could ask targeted questions and process the tone and coherence of answers. Such “digital therapists” could use semantic clues to help streamline the subject’s narrative by spotting inconsistencies between self-attributions of mental states and between contradictory judgements concerning others, leading conversations towards revealing those inconsistencies. Word choices could be monitored for clues of agency and internal control (whether the patient attributes events, especially with positive outcomes, to their own agency) and assistance could be provided with reframing narratives involving other persons and the subject’s relation to those others. The emotional tone (positive and negative affective content) of the narrative could be tracked.

Cognitive therapy techniques like the “continuum method” could be adapted to AI, prompting the patient to identify more possibilities on the continuum between two (“black” and “white”) extremes, in an effort to attenuate the black-and-white character of their thinking. Externalization, aimed at inducing patients to come to regard problematic attitudes and behavior as external to themselves, rather than belonging to the „core” of their personalities, could be boosted by targeted questions. Here, labeling and framing are essential and could be improved in dialogues that are not necessarily human-to-human. Similarly, the method of “deconstruction” could be used to reduce overgeneralization and to pin down problems more concretely. This again can be achieved by asking targeted question to help patients zero in on the central aspects of their problems.

The above functions could be performed by devices applying natural language processing and generation; technical solutions could vary. Progress could be monitored in terms of the coherence and emotional arc of narratives, word choices regarding relationship with others, agency and control. In addition, emotion recognition could be used to monitor patients’ progress regarding mood swings.

It may seem that current AI developments, however impressive, might be unfit for the kind of narrative with which borderline patients need help. The problems with BPD narratives partly have to do with the *causal* characteristics of those narratives. This appears to be very blindspot of AI as we know it, repeatedly emphasized by Judea Pearl.[[30]](#endnote-26) Judea Pearl’s cutting-edge line of research, along with other efforts, are precisely intended to make up for this blindspot, by building AI systems capable of causal reasoning in addition to discovering correlations. The expectation is that AI with causal reasoning will be coming in the near future. In the meantime, headway could be made on several fronts with digital therapy of BPD: patients could be helped to reduce semantic inconsistencies, negative and antagonistic framing; to identify more important and secondary aspects of emotion-laden issues; to externalize problematic attitudes and behavior; to detect and work on assumptions of embedded badness.

4. PROS AND CAVEATS OF AI USE IN BPD THERAPY

As we have seen, mistrust of others on the part of BPD patients, including therapists, seems to be so profound that it constitutes a serious obstacle to the therapeutic process. With the use of AI solutions, this problem could be set aside, as the necessity of overcoming mistrust of humans would not arise. This would also include the patient not perceiving the end of the therapeutic process as abandonment.[[31]](#endnote-27)

Some features would be shared with human-to-human therapy. Since the patient re-authors, thus actively shapes her own narrative, there should be no sense of invalidation through pressure.4 There is no call for change of behaviour, which the subject might resent and resist.

Other advantages are specific to digital therapy. It can be expected that more information would be revealed to non-human devices than to human therapists. Lucas and co-authors have found that, in clinical interviews, patients are willing to disclose information to “virtual humans” perceived as suppotive and safe.[[32]](#endnote-28) Apparently, even the awareness of revealed information being later shared with psychiatrists does not keep patients from telling more than in a human-to-human interview. Borderline patients, who tend to experience problems with disclosing information about themselves to others, could also be anticipated to find it easier in such circumstances.

The absence of interpersonal complications presupposes that the patient does not perceive the AI device as a person or agent with its own intentions and agenda. It should be regarded, at least in initial stages of development, as a domain specific therapeutic tool and should be carefully re-evaluated before it assumes an agentic role, should this become an option in the future. For, apart from rasising questions of autonomy, this could undermine and jeopardize the success of the therapeutic process due to mistrust analogous to that of a human therapist. (Raising awareness about this is in line with the European Commission’s Higher-Level Expert Group Guidelines:

Human beings should always know if they are directly interacting with another human being or a machine, and it is the responsibility of AI practitioners that this is reliably achieved. AI practitioners should therefore ensure that humans are made aware of – or able to request and validate the fact that – they interact with an AI system (for instance, by issuing clear and transparent disclaimers). It should be borne in mind that the confusion between humans and machines could have multiple consequences such as attachment, influence, or reduction of the value of being human.[[33]](#endnote-29)(p34))

One BPD-specific question left open with regard to AI use in therapy is whether it is trust in the context of an attachment relationship that is necessary for therapy, or merely overcoming mistrust. Is it sufficient to get over antagonistic feelings and suspicions of incompetence and believe in methods rather than the person who presents them? Or do persons with BPD need to build an actual attachment relationship that will serve as a paradigm for functioning relationships for them? Can reliance on the self be gradually developed without reliance on the therapist? 4(p172-3)

There is some indication that for persons with BPD developing “trust” means expecting positive *results* rather than positive reactions. In a “virtual trust game,” in which persons’ behavior varied in terms of fairness and facial cues of trust, borderline patients were found to adjust their own behavior to the fairness of their partners, whereas nonpatients adjusted to facial cues and disregarded fairness.[[34]](#endnote-30) This indicates that, for a BPD patient, a trusting relationship is not necessarily one in which the accustomed emotional manifestations of trust are present; rather, the right outcomes generated in a reliable way seems to be adequate.

Second, the relationship between BPD features and appraisals of untrustworthiness has been found to be mediated by rejection sensitivity.[[35]](#endnote-31) This also points towards the possibility of interpreting standards of trust in a relatively pragmatic way. Since with the AI devices we are considering rejection is out of question, a minimalistic, result-oriented understanding appears to be sufficient.

1. CONCLUSION

As we have seen, digitalization of BPD psychotherapy holds out the promise of avoiding one the most serious pitfalls in the treatment of this condition: reproducing the interpersonal difficulties experienced in other human relationships. The greatest obstacle in the way of successful therapy is the Catch 22 situation that patients would need to have a different attitude in the therapeutic situation to be able to make progress in their interpersonal attitudes and thinking. This is the situation AI-based therapy, working with similar tools as human-to-human ones apart from the involvement of interaction and attachment, is proposed to remedy. According to the present suggestion--due to the complexity of this condition and the level of vulnerability of patients--artificial intelligence would operate with human oversight and with non-agentic properties; with further advances in technology (such as in-built causal reasoning) this could be reconsidered.

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3. The moral or easily moralizable aspect of personality disorders may be part of the explanation of high dropout rates. People with borderline personality disorder are often found manipulative, uncooperative, hard to get along with, even aggressive. With some exaggeration, it is sometimes said that in personality disorders, it’s not the patient who suffers but everyone else around them. It can be hard for the patient to see why they need help for being manipulative, uncooperative, or impulsive. [↑](#footnote-ref-1)
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6. One-factor explanations of mental disorders (a disorder of x or y) are not being endorsed here. Biomedical, psychological and socio-environmental factors can equally contribute to mental disorder, and in most cases none of these is explanatory by itself. Also, different aspects of mental life can be disturbed in a particular condition. Asking the question whether borderline personality disorder is say, an emotional or a cognitive dysfunction, is setting up a false dichotomy. You cannot understand or explain BPD either without the characteristic beliefs or without the characteristic emotions of BPD patients, and neither can be simply derived from the other. We should charitably understands these accounts as emphasizing certain aspects of BPD over others rather than reducing it to particular states or processes. [↑](#footnote-ref-2)
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12. Narratives can be relevant to the understanding of different psychopathologies at least in two ways. The first is that characteristic narratives can *reveal* the presence of different psychopathologies. If someone has a very conflicted relationship to others, extremely low self-esteem, or perception of themselves as worthless or rejected, these will appear in their self-narratives. Lack of coherence in one’s self-narrative can also be an indicator of psychopathology. The second possibility is that self-narratives are a causal factor in, or even partly constitute, mental pathologies. BPD could also be understood in this second way: an integral part of BPD is identity disturbance, and the identity in point is—at least in part—narrative. Thus, I take it that narratives are relevant to the understanding and explanation of BPD in both ways: narrative disturbance is both constitutive and symptomatic of BPD. [↑](#footnote-ref-3)
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