


Improving Research Practice for Studying Borderline Personality Disorder: Lessons From the Clinic

Chronic Stress
Volume 4: 1–10
© The Author(s) 2020
Article reuse guidelines:
sagepub.com/journals-permissions
DOI: 10.1177/2470547020912504
journals.sagepub.com/home/css


Khushwant Dhaliwal¹, Ayala Danzig¹, and Sarah K. Fineberg¹ 

Abstract

Borderline personality disorder is an often misunderstood and underdiagnosed mental illness characterized in part by affective lability. Clinicians' unique understanding of the disorder has allowed them to develop disorder-specific approaches to treatment. In this review, we highlight how borderline personality disorder research can benefit from greater engagement with key disorder-specific features, including symptom variability and interpersonal sensitivity. In addition, we propose that research which employs interactive tasks will be more reflective of the kinds of volatility found in the real-life situations. Finally, we discuss how mixed-methodology can serve as a way for recovery-oriented research to practice the very ideals and recommendations it suggests. We use a patient case to contextualize each section. As interest in borderline personality disorder continues to grow, an intentional emphasis on a person-centered, recovery-focused, and disorder-specific approach to research is needed.

Keywords

borderline personality disorder, mood lability, social cognition, recovery, mixed methodology

Received 28 January 2020; accepted 23 February 2020

Introduction

There has been increased interest in the biological mechanisms of borderline personality disorder (BPD) over the past decade and also increased recognition of its significant co-morbidity and symptomatic/etiologic overlap with trauma-related and affective disorders. Major not for profit mental health funding organizations (e.g., Brain and Behavior Research Foundation, American Foundation for Suicide Prevention) have increased focus on BPD, and community and scientific advocates have lobbied the National Institutes of Health to consider BPD as a serious mental illness. As neuroscience and cognitive psychology projects work to define the paths to BPD onset, maintenance, and recovery, it will be important for projects to define outcome measures with an eye to disorder-specific features.

BPD is a mental illness that occurs frequently in the community. Estimates of prevalence over time have been 0.5%–6%¹; a recent meta-analysis estimated worldwide prevalence at 1.8%, though heterogeneity across studies was quite high and frequency was higher in high-income than in low-income areas.² Frequency is even higher in mental health clinics (10%–20%).^{3,4} BPD is associated

with significant morbidity and mortality,⁵ including markedly increased risk of suicide.^{6–8} People with BPD experience both affective lability (the most sensitive single-item criterion⁹) and chronic mood symptoms.¹⁰ Interpersonal problems are prominent with fears of abandonment, alternating idealization and devaluation, dependence and/or counter-dependence, and stormy relationships.^{11,12} Chronic suicidal ideation and behavior are common symptoms and can co-occur with impulsive suicidal statements that serve interpersonal functions (e.g., to communicate overwhelming emotions or to keep a social partner engaged). In addition to interpersonal instability, moment-to-moment shifts can also occur in one's sense of self. Symptoms can also include impulsivity, anger (felt and/or displayed), dissociation,

¹Department of Psychiatry, Yale School of Medicine, Yale University, New Haven, CT, USA

Corresponding Author:

Sarah K. Fineberg, Connecticut Mental Health Center, Room 528, 34 Park Street, New Haven, CT 06519, USA.

Email: sarah.fineberg@yale.edu



and quasi-psychotic experiences (e.g., transient hallucinations, ideas of reference, and paranoia).

The specific challenges faced by people with BPD have led clinicians to work out disorder-specific approaches in order to increase treatment-related benefits.^{12,13} For example, psychoanalytically-inspired treaters have adapted their techniques to include more eye contact and more concrete, active interventions, leaving less room for the people in their care to feel confused about interpersonal cues and overwhelmed by experiences of abandonment and threat (transference-focused psychotherapy¹⁴ and mentalization-based treatment¹⁵). Behavioral clinicians and supportive therapists working with people with BPD have shifted toward focus on psychoeducation, especially about the intensity and variability of emotion and behavior (dialectical behavior therapy¹⁶ and good psychiatric management¹⁷).

We suggest here that research in BPD can also benefit from increased attention to disorder-specific features. These considerations will be relevant to researchers focused on BPD, as well as to those focused on populations with significant BPD pathology, including post-traumatic stress disorder (PTSD), substance use

disorders, and transdiagnostic groups with high impulsivity and/or affective lability.

We begin by introducing a case, which is a composition of patients we have encountered in our clinical work. We suggest several specific approaches (summarized in Table 1), including engaging symptom variance in outcome measurement (see Symptom Variability section), increasing interactive approaches in studies of social cognition (see Need for Interactive Tasks section), paying particular attention to the interpersonal aspects of research interactions (see Interpersonal Sensitivity section), and considering recovery-focused outcome measures (see Recovery-Focused Methodology section). Each approach is contextualized with respect to the presented case example.

Case

Nora* is a 24-year-old single woman with three children. She has a history of BPD, one prior episode of postpartum depression, and hypertension. She presents for outpatient psychiatric treatment due to intense depression and anxiety with frequent thoughts about suicide as well as episodic anger. She is distressed that so many bad

Table 1. Ideas for improving clinical research with BPD and related populations.

Recommendation	Problem addressed	Possible approaches
Focus on symptom variability.	Measurement of means may obscure difficulties that are due to frequent changes in the measured domains.	<ul style="list-style-type: none"> • Ask about changes. • Shorter, more frequent assessments (e.g., EMA). • Include variance as an outcome.
Focus on how interactive social experiences impact behavior.	Symptoms and behaviors may change or be perceived differently by participants with BPD, especially depending on current emotional state and recent social interactions. Also, some problems may only be apparent in interactive, tasks.	<ul style="list-style-type: none"> • Measurement of responses to interactive social and non-social cues. • Include manipulations of social context, e.g., social stressor as preface to task. • Measure (and consider correcting for) current emotional state before other assessments. • Consider using relaxation or grounding exercises to reduce state activation.
Focus on study structure and interactions with staff.	People with BPD may be more likely to respond to perceived interpersonal aspects of the researcher–participant relationship, leading to efforts to please the researcher, efforts to communicate distress with extreme responses, and strong negative responses to perceived slights or non-help.	<ul style="list-style-type: none"> • Clear transparent communication, especially about expectations and extent of potential benefits. • Measured validation and expression of gratitude for participation. • Social interventions by study staff, such as expressions of validation, should be carefully considered and potentially even standardized and quantified. • Use of self-report scales and other methods to separate data collection from relational concerns.
Focus on recovery orientation.	Traditional self-reports may engage domains more relevant to clinician-defined rather than patient-valued outcomes.	<ul style="list-style-type: none"> • Mixed-methods approaches. • Quantitative tracking of participant-defined goals.

BPD: borderline personality disorder; EMA: ecologic momentary assessment.

Note: *This case is based on a series of adults with BPD with whom we have worked. It does not reflect the specific experiences of any particular individual.

things keep happening to her and feels that her mental illness causes her to act in ways that are out of character. Nora's sister is in outpatient treatment for schizophrenia with good benefit from medications, and Nora is hopeful that she can find a medication to help her just as much. Over the past several years, Nora had been prescribed antidepressant, mood stabilizing, and antipsychotic medications, and while she initially felt some benefit from each one, the benefits were short-lived.

Nora had recently done well without individual treatment while enrolled in an intensely supportive parenting program outside of the clinic. She returns now, shortly after the conclusion of that program. She is distressed by her frequent conflicts in romantic relationships, with her family, and at work when she has a job. The tipping point came when she got into a physical fight in public which led to arrest. Her probation officer encouraged her to return to treatment after she said that extended time on parole might lead her to kill herself.

While initially hesitant to commit to meeting at regular intervals for psychotherapy, Nora did agree to start with two assessment sessions. She was eager for the therapist to explain her diagnosis to friends and family and to help her work toward solving problems.

How BPD Research Can Better Engage BPD-Specific Features

Symptom Variability

Nora's therapist initially assessed anxiety and depressive symptoms with self-report scales, which query average mood over one to two weeks. Her therapist found that this approach was not sensitive to the intense mood fluctuations Nora experienced on a day to day basis. While her anxiety and depression were chronic, Nora described "suddenly flying off the handle" or "blacking out with anxiety" when her children misbehaved or her boyfriend was not responsive. By contrast, she often felt and behaved calmly in the hours leading up to these incidents. Nora's social experience was also rapidly shifting. For example, at one session, she reported that during an argument, she had pinched her boyfriend's arm hard enough to leave a bruise. She was furious, feeling that he is constantly disrespectful and that she would break off the relationship. In the following session, she spoke of him in markedly different terms, describing him as supportive, loving, and a source of stability and comfort. Nora said that her mood changes were unpredictable and inexplicable. Nora and her therapist began to name mood fluctuations as a specific treatment target. Now, simple statements like "I see that things are up and down again" are used to re-focus from the emotions in the moment to the larger pattern of mood and relational variance.

Clinical research projects often define outcomes as mean value or mean change from baseline. This approach makes sense for disorders with symptoms that are relatively steady over time and across contexts. However, in BPD, symptom variability is a core feature of the disorder; fluctuations are expected in multiple symptom domains. Therefore, research outcome measures need to assess symptoms over enough time, across enough contexts, and with enough repeated observations to capture both the extremes of symptom intensity and the frequency of change.¹⁸ Measuring variance as an outcome itself has been done in BPD to good effect,¹⁹ though this approach has thus far been infrequent in the literature.

Symptom fluctuations in BPD are thought to intensify in the context of stress, especially interpersonal stress.¹² Current symptoms and behavior can be placed in context by assessing for recent stressors and measuring current levels of arousal (self-reported and physiologic). Guided imagery has become an important technique in the addiction field to evoke personally relevant stressors in the laboratory.²⁰ These personalized narratives have also been used to test the neurobiologic correlates of self-injurious urges in BPD²¹ and of paroxetine-associated symptom reduction in PTSD.²²

In order to understand variability, it will be important to use outcome measurement tools that are sensitive to change. Research will benefit from increased granularity of data generated by frequent and even passive sampling. For example, ecologic momentary assessment (EMA) can facilitate tracking of emotions and urges throughout the day.^{23,24} One study used EMA to demonstrate a correlation between suicidal ideation and affective instability in people with BPD.²⁵ Another provided real-world support for the hypothesis that non-suicidal self-injury contributed to short-term affect stabilization in people with BPD.²⁶ Furthermore, EMA has been used for the analysis of event-triggered data. For example, one study analyzed real-time responses of people with BPD to conversations, allowing for the close inspection of the effects of proximal social interaction on perceived rejection and mood.²⁷ Passive tracking of smartphone use can offer a great deal of information about real-world social experience with very little participant burden (e.g., text and call frequency, number of individuals contacted, sound features of phone calls, and lexical analyses of content).^{28,29}

Need for Interactive Tasks

Nora experienced frequent and extreme shifts in her feelings about people, and these were often triggered during interactions, or as she later reviewed the interactions in her mind. Making use of the therapist-patient relationship, especially in-the-moment interactions was critical to

helping Nora apply the techniques and understandings she developed in the sessions to her outside life. On one occasion, Nora arrived to a session feeling flustered and insulted by a comment a friend had made about her new hairstyle, though her friend had insisted it was intended as a compliment. Together, she and her therapist discussed interpersonal sensitivity, misreading of social cues, and examples of when this was happening in the interactions between the two of them. Nora was then able to articulate that she often mistook her therapist's concern for anger. They began to explicitly discuss the way each interprets the other's words, gestures, and facial expressions to make sense of emotion and intention.

A great deal of work has examined responses of people with BPD to non-interactive social cues, such as pictures of faces, yielding important information about such processes as attention, response to negative facial expressions, and value judgments (reviewed in Schulze et al.³⁰ and Bertsch et al.³¹). Recent studies have begun to extend this work with experiments in interactive social contexts: this approach will be needed to elucidate the interaction-dependent symptoms that are so prominent in BPD.³²⁻³⁴ Two interesting examples of interactive social work are translation of paradigms between rodent and human models and computational modeling approaches to describing social decisions.

Some research in this area has leveraged direct translation to or from animal models. For example, researchers interested in understanding the substrates of social anxiety in human psychopathology translated the rodent "open field" paradigm to a human scale (football field) and social context (open air market) and used GPS technology to trace naturalistic paths of research participants through these venues.³⁵ To better describe the neurobiology of BPD, two groups have set out to develop animal models of the biology of social exclusion. One of these is in process³⁶; the other has been able to recapitulate several key features of the disorder (including diminished inter-individual trust).³⁷

Formal modeling of decisions and learning in interactive behavioral tasks has also yielded advances in our understanding of social dysfunction in BPD. For example, King-Casas et al. published a paper in 2008 describing neuroeconomic behavior in BPD.³⁸ In a computer-based "Trust Game," they found that people with BPD failed to cooperate with a partner toward a shared goal, and when the partner "defected," they failed to "coax" the partner back to play. This appeared to fit canonical clinical perspectives: that people with BPD are mistrustful and antagonistic in interactions, perhaps due to poor emotion regulation or high interpersonal sensitivity. However, the application of a formal computational model to these data allowed the scientists to test more specific propositions about mechanism.³⁹ Data from this model allow us to

arbitrate between two very different mechanisms of poor cooperation: a model of ignorance (failing to notice cues from a partner that signal social discord) and a model of antagonism (expecting conflict and being on the offense). The modeling results suggest that people with BPD are much more likely to be ignorant of partner irritability than are control participants. These data also fit with recent data from our group showing that people with BPD are less responsive than controls to rapidly changing reward probabilities in a reinforcement learning task.⁴⁰ This finding held for both social and non-social cues, suggesting that the social interactive symptoms in BPD may be explained by a more general difficulty in learning from a changing environment.⁴⁰

These two selected examples are far from an exhaustive examination of the approaches to social interactive work, in general or even in BPD, but serve to illustrate the value of innovation.

Interpersonal Sensitivity

When Nora was presented with standardized measures such as the Patient Health Questionnaire (PHQ-9) or Generalized Anxiety Disorder 7-item scale (GAD-7) she would consistently check the boxes that indicated maximum symptoms of depression and anxiety. Not having the capacity to express her feelings verbally, Nora seemed to feel this was the most effective way to express the intensity of her suffering. She also worried that if she did not appear ill enough she might not receive the treatment and help that she craved.

Interpersonal hypersensitivity is a key feature of BPD. As occurred in the case above, the exquisite responsiveness of people with BPD to perceived social cues may lead to biased responses both in the clinic and in research settings. Participants with BPD may be quite focused on the imagined consequences of their responses in the minds of study staff. Participants may be sensitive to how their responses affect study inclusion versus exclusion decisions, which can be perceived as a social validation or rejection. Also, in follow-up visits, a participant with intense psychological distress may be reluctant to say that some symptoms have improved for fear that she will be misunderstood to mean that everything is now okay. She may also be reluctant to say that things have worsened, as she wishes to please the study staff and continue to feel warmly included in the study cohort.

Attention to the quality of interactions that occur between research staff and research participants may help to decrease bias in reported symptoms. Participants may adhere to study procedures more closely due to perceived warmth in the laboratory experience. However, for completion of study outcome measures, it may be helpful to think explicitly about how to reduce response bias that could arise from both positive and negative experiences

with study staff. It has been demonstrated that, in clinical settings, therapist-offered validating comments can decrease self-reported negative affect.⁴¹ This is consistent with the core principles of dialectical behavior therapy and may suggest a relevant technique for clinical researchers working with people who have BPD.¹⁶ One approach, therefore, may be to demonstrate interest in all experiences, positive or negative, and/or to separate neutral study raters from the warmer support staff in the lab. Another approach may be to speak very explicitly to participants about the value we see in all responses and how much we value their time, effort, and accuracy, thereby shifting perceived social success from content to process. Social interventions by study staff, such as validating statements to participants, time spent with participants, and inter-session contacts between staff and participants, should be carefully considered and potentially quantified.

Lush et al. have recently explored conscious and unconscious biases in research responses, such as social desirability, demand characteristics, and hypnotizability, and they have examined the implications of these biases for psychological experiments.⁴² They coin the term “phenomenological control” to describe the involuntary responses that people have in order to align their experiences in psychological tasks with their prior expectations of experience. For example, in the rubber hand illusion, people with a greater degree of phenomenological control are more susceptible to the illusion that the rubber hand is part of their body. The illusion allows experience to fit with the prior expectation that what you see and what you feel should align. And indeed, people with BPD, who are highly influenced by social cues, have increased susceptibility even to the canonically less illusion-inducing asynchronous condition of the rubber hand illusion task.⁴³ Therefore, the hypothesis put forth by Lush et al. that direct measurement of hypnotizability may help to control for the contribution of high phenomenological control in participant responses may also have particular relevance for research in people with BPD. Hypnotizability and other quantified traits may be helpful to assess and understand biased response.

Thus, it is important for BPD researchers to engage in a continual careful consideration of the ways in which the interpersonal hypersensitivity discussed and observed in clinical settings can manifest in measurement of research outcomes.

Recovery-Focused Methodology

Setting goals in treatment were initially a big challenge for Nora. She identified wanting to feel less depressed and less anxious but could only imagine this being accomplished with medication. Here too, orienting around her symptoms was limiting as it reinforced her sense of not having agency in her life. It also unrealistically set the expectation that

medication could be the main treatment for her illness. Shifting focus from reduction of symptoms to the dialectical behavior therapy-inspired idea of a “life worth living” enabled Nora to set goals that included finding employment and improving her self-care with exercise and dietary changes. Even as Nora’s mood fluctuations continued, she could see progress and feel good about actions she took to improve her life.

Over the past two decades, many mental health clinicians have shifted their frameworks of practice to include recovery as a philosophy on an individual and collective scale.⁴⁴⁻⁴⁶ Davidson et al. have described recovery-oriented care as “a set of guiding principles for mental health care and services in support of the person’s own long-term recovery efforts.”⁴⁷ This recovery-orientation often manifests in clinical work as a prioritization of life goals that are meaningful to the person, identification of barriers to achieving those goals (potentially including clinical symptoms), and individual strengths. Increased focus on recovery-oriented practice promotes growth beyond traditional clinical goals. Meaningful changes for individuals may include psychosocial growth (e.g., in personal relationships or forging new social connections), economic progress (e.g., employment and/or financial independence), and lifestyle improvements (e.g., increased occupational engagement that may begin with volunteering or part-time work in areas of personal interest).⁴⁸

Although the recovery model has shown promise and relevance in the clinical setting⁴⁹⁻⁵² and was adopted by the United States’ President’s New Freedom Commission on Mental Health in 2003,⁵³ identifying research outcomes that reflect recovery principles has been a slower process. This may reflect an apparent conflict between the clinical research focus on group-level analysis and the recovery focus on the individual. Although understanding person-centered outcomes is especially important in a clinical encounter, the practice of recovery-relevant methodology and use of meaningful outcome measures is equally important in BPD research. The literature which informs clinical practice should exemplify the very theoretical ideals and practical recommendations it proposes: research can and should adopt a recovery-orientation. Consideration of best methodological practices is especially relevant right now in BPD research given that explicit engagement with recovery-oriented ideas in our field is in its early stages.^{54,55}

From the perspective of methodology, qualitative interview-based practices offer new insights into recovery. Although few studies have directly focused on recovery in BPD, one recent report indicates that narrative accounts are more sensitive to residual BPD symptoms as compared to quantitative reports of improvement.⁵⁵ This longitudinal study at the University of Pittsburgh prospectively followed individuals with BPD for 2 to 31 years (mean

9.94 years, biannual assessments). Among participants with high scores on a measure of baseline function (Global Assessment Scale (GAS) score), 71.8% achieved diagnostic remission. However, the remaining 28.2% also went on to achieve good psychosocial outcomes even without diagnostic remission. Conversely, among participants with lower baseline GAS scores, 35.5% achieved diagnostic remission despite poor psychosocial outcomes. The authors sought to understand the gap between diagnostic remission and psychosocial recovery using qualitative interviews. These interviews found that those who achieved diagnostic remission often struggled with depression and anxiety and had difficulty in maintaining employment and good interpersonal relationships. For those participants who achieved diagnostic remission, residual BPD symptoms increased the occurrence of co-morbid psychiatric disorders, economic dependence, and poor-quality relationships. This work adds a new level of understanding to previously reported results describing the time-course and relationships of remission and recovery in BPD.^{56,57}

Recent qualitative studies indicate that definitions of recovery are multidimensional and may not align with providers' definitions. One study found that people receiving services in two recovery-oriented programs of the National Health Service in the UK believed that interpersonal support outside of the clinical team, employment, and everyday activities such as walking and reading books were critical for recovery.⁵⁸ Another qualitative study found that conceptualizing seemingly small steps to recovery as valuable progress was key to cultivating the self-compassion necessary for BPD recovery.⁵⁹ In addition, another interview-based study found that participants with BPD indicated that there was a mismatch between the focus of their treatment, especially in structured group therapy programs such as dialectical behavior therapy, and their personal recovery aspirations, which included such varied goals as dealing with eating problems and managing traumatic experiences from their pasts.⁶⁰ However, the qualitative interviews with people staying in inpatient units made evident that patient definitions of recovery are strongly influenced by their providers' focus on the biomedical model. For example, participants saw factors such as medication adherence as key to demonstrating to their psychiatrists that they were ready for discharge and on a path to recovery. Many clinicians will relate to the difficulty convincing "experienced" patients that we are at all interested in hearing about life beyond whether a person took her medication and if she feels suicidal.

Considering such promising qualitative research on recovery, qualitative methodology may seem to be the way forward. This view is supported by evidence that the process of completing the traditional clinical-trial approach of self-report measures may not be empowering mental health recovery. In one study, participants

were interviewed about their experience of completing a set of self-report symptom scales.⁶¹ Although participants refused external help from the researcher in reading aloud and explaining the items while completing the self-report measures, they noted afterwards that they had difficulty understanding the professional and unclear language in the measures and that they were frustrated by the process. When conducting research with people experiencing mental health issues, and especially for people with BPD who can experience high levels of shame,^{62,63} researchers would do well to structure participant experience to avoid disempowering people on their journey to recovery.

At the same time, qualitative research is not without its own shortcomings. In their research, Stuart et al. found that overly optimistic views of recovery in qualitative research may homogenize individuals' journeys.⁶⁴ Also, these views may place unintentional blame on participants when interviewers shy away from asking participants about the difficulties in their recovery journey, perhaps suggesting that having difficulties is unique to the person being interviewed, and not a common part of the bumpy recovery road.⁶⁴ Thus, mixed-methodology that seeks to marry "subjective" narrative qualitative measures with "objective" quantitative validated domain-specific survey-based measures may be the best approach for researching symptom outcomes not only in BPD but also in mental illness more broadly.^{65,66}

In addition to the unique benefits of using mixed-methods to define recovery through research, mixed-methodology may also be useful in other aspects of recovery-oriented research. Multiple groups have now argued that a mixed-methods approach also be used at the development and validation stages for novel tools measuring recovery as an outcome.⁶⁷⁻⁶⁹ Keetharuth et al. were able to develop a new recovery survey assessing quality of life titled the Recovery Quality of Life (ReQoL), after using mixed-methods to understand key evidence from both patients and clinicians.⁶⁷ Their final ReQoL measure assesses themes including activity, belonging and relationships, hope, self-perception, well-being, and choice, control, and autonomy. Mixed methods studies like this one indicate that, as recovery-oriented research evolves, new guidelines for quantitative surveys and qualitative interview questions should incorporate individual-defined goals. That is to say, scales or interviews should seek to understand a participant's progress toward their personally defined goals. Myers et al. used the "meaningful day" construct as a person-centered outcome to understand the recovery of people receiving services at the Opening Doors to Recovery program in Georgia over the course of a year.⁶⁵ Notably, the authors of this paper reflected on

how the use of mixed-methods allowed them to discern non-overlapping aspects of personalized recovery.

As research follows clinical care in increasing in recovery orientation, the practices of research methodology must also evolve to reflect these changing definitions. Mixed-methodology is one example of how this change be facilitated. We suggest that studies could also include recovery-relevant measures (such as individual strengths) as variables in analyses, and that outcome measures that report on quality of life and life satisfaction can help to increase focus on variables other than those of the traditional medical model (e.g., symptoms, treatment adherence, and emergency visits).

Summary and Future Directions

In this paper, we have argued that the clinical approach to BPD has insights to offer to research practice. In particular, we suggest that researchers increase attention to symptom variance, interactive context, interpersonal sensitivity, and recovery-based research practices and outcome measures. Although in some settings, symptom-focused and recovery-oriented approaches may be seen as orthogonal, we see them as complementary in thinking about clinical and research best practices.

We imagine that future work can extend these ideas by considering the experience and structure of the research enterprise on both an individual and group level. On an individual level, researchers may be able to learn from recovery-oriented clinical practices to understand how it feels to be a patient-participant, including feeling empowered or, by contrast, disheartened. This issue speaks to ethical and clinical concerns about research practice and also to practical concerns around the accuracy of research data. We want to ensure that participants with BPD feel able to report accurately on their difficult and rapidly shifting experiences.

We also see potential for extending this proposal in light of ideas on structural competency and systems-level viewpoints. A rich and growing body of work initiated and developed by Metzl and Hansen⁷⁰ among others urges increased focus on the ways that institutional systems, cultures, and histories influence clinical outcomes and people's experiences in therapeutic and research settings. System- and group-level frameworks for conceptualizing pathology in BPD will be important additions to the focus we have urged here on individual-level factors. For BPD in particular, stigma prevents people from seeking care and providers from offering appropriate diagnosis and treatment.^{71–73} This is particularly true for men, as there is a misconception that BPD is significantly more frequent in women despite data to

the contrary,⁷⁴ and therefore clinicians may focus on the more-prominent anger symptoms in men.⁷⁵

Researchers increasingly include people with lived experience of BPD on advisory councils and even in day-to-day lab work. Collaborative engagement with stakeholders can serve as an example to mental health researchers on the ways in which research can be a positive experience for research participants and can significantly increase researcher appreciation of the nuances of living with the condition. Inclusion of people with lived experiences on research teams will also bring novel and rich perspectives to data analysis and interpretation.

In sum, engagement with clinical knowledge about BPD can help shift researchers toward better engagement of research participants with BPD and BPD-related disorders, and the collection of more accurate clinical research data. Best practices can include a wide range of methods to fit research questions, but these practices are united by their consideration of the specific symptomatology of BPD.

Acknowledgements

We are very grateful to our clinical and research participants for all we learn from them as we work together on these complicated concerns. We would like to thank Paula Tusiani-Eng and Jillian Papa for recent conversations on the meaning and implications of recovery in BPD. We also thank Rebecca Miller and Eli Neustadter for comments on manuscript drafts.


Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This work was supported by Cohen Public Service Fellowship (to K. D.), by American Foundation for Suicide Prevention Young Investigator Grant No. YIG-1-045-16 (to S. K. F.), and by the Department of Mental Health and Addiction Services, State of Connecticut. This publication does not express the views of the Department of Mental Health and Addiction Services or the State of Connecticut. The views and opinions expressed are those of the authors.

ORCID iD

Sarah K. Fineberg  <https://orcid.org/0000-0001-6024-6721>

References

1. Lenzenweger MF, Lane MC, Loranger AW, Kessler RC. DSM-IV personality disorders in the National Comorbidity Survey Replication. *Biol Psychiatry*. 2007; 62: 553–564.
2. Winsper C, Bilgin A, Thompson A, et al. The prevalence of personality disorders in the community: a global systematic review and meta-analysis. *Br J Psychiatry*. 2020; 216: 69–78.
3. Ellison WD, Rosenstein LK, Morgan TA, Zimmerman M. Community and clinical epidemiology of borderline personality disorder. *Psychiatr Clin North Am*. 2018; 41: 561–573.
4. Zimmerman M, Rothschild L, Chelminski I. The prevalence of DSM-IV personality disorders in psychiatric outpatients. *Am J Psychiatry*. 2005; 162: 1911–1918.
5. Zanarini MC, Frankenburg FR, Hennen J, Reich DB, Silk KR. The McLean Study of Adult Development (MSAD): overview and implications of the first six years of prospective follow-up. *J Pers Disord*. 2005; 19: 505–523.
6. Paris J. Managing suicidality in patients with borderline personality disorder. *Psychiatric Times*. 2006; 23(8): 34.
7. Black DW, Blum N, Pfohl B, Hale N. Suicidal behavior in borderline personality disorder: prevalence, risk factors, prediction, and prevention. *J Pers Disord*. 2004; 18: 226–239.
8. McGirr A, Paris J, Lesage A, Renaud J, Turecki G. Risk factors for suicide completion in borderline personality disorder: a case-control study of cluster B comorbidity and impulsive aggression. *J Clin Psychiatry*. 2007; 68: 721–729.
9. Zimmerman M, Multach MD, Dalrymple K, Chelminski I. Clinically useful screen for borderline personality disorder in psychiatric outpatients. *Br J Psychiatry*. 2017; 210(2): 165–166.
10. Yoshimatsu K, Palmer B. Depression in patients with borderline personality disorder. *Harv Rev Psychiatry*. 2014; 22: 266–273.
11. Gunderson J, Masland S, Choi-Kain L. Good psychiatric management: a review. *Curr Opin Psychol*. 2018; 21: 127–131.
12. Gunderson JG, Herpertz SC, Skodol AE, Torgersen S, Zanarini MC. Borderline personality disorder. *Nat Rev Dis Primers*. 2018; 4: 18029.
13. Choi-Kain LW, Finch EF, Masland SR, Jenkins JA, Unruh BT. What works in the treatment of borderline personality disorder. *Curr Behav Neurosci Rep*. 2017; 4: 21–30.
14. Yeomans FE, Clarkin JF, Kernberg OF. *A Primer on Transference-Focused Psychotherapy for the Borderline Patient*. Northvale, NJ: Jason Aronson; 2002: xiii, 283 pp.
15. Bateman A, Fonagy P. *Mentalization-Based Treatment for Borderline Personality Disorder: A Practical Guide*. Oxford, England: Oxford University Press; 2006: xv, 188 pp.
16. Linehan M. *Cognitive-Behavioral Treatment of Borderline Personality Disorder*. New York, NY: Guilford Press; 1993: xvii, 558 pp.
17. Gunderson JG, Links PS, American Psychiatric Publishing. *Handbook of Good Psychiatric Management for Borderline Personality Disorder*. 1st ed. Washington, DC: American Psychiatric Publishing; 2014: xii, 168 pp.
18. Fineberg SK. Keep the change: embracing variability as a path to richer theoretical models of borderline personality disorder. *Biol Psychiatry*. 2019; 86: 879–880.
19. Zaehring J, Ende G, Santangelo P, et al. Improved emotion regulation after neurofeedback: a single-arm trial in patients with borderline personality disorder. *Neuroimage-Clin*. 2019; 24: 102032.
20. Sinha R. Modeling stress and drug craving in the laboratory: implications for addiction treatment development. *Addict Biol*. 2009; 14: 84–98.
21. Kraus A, Valerius G, Seifritz E, et al. Script-driven imagery of self-injurious behavior in patients with borderline personality disorder: a pilot fMRI study. *Acta Psychiatr Scand*. 2010; 121: 41–51.
22. Fani N, Ashraf A, Afzal N, et al. Increased neural response to trauma scripts in posttraumatic stress disorder following paroxetine treatment: a pilot study. *Neurosci Lett*. 2011; 491: 196–201.
23. Trull TJ. Ambulatory assessment of borderline personality disorder. *Psychopathology*. 2018; 51: 137–140.
24. Hua JPY, Trull TJ, Merrill AM, McCarty RM, Straub KT, Kerns JG. Daily-life affective instability in emotional distress disorders is associated with function and structure of posterior parietal cortex. *Psychiatry Res Neuroimaging*. 2019; 296: 111028.
25. Rizk MM, Choo TH, Galfalvy H, et al. Variability in suicidal ideation is associated with affective instability in suicide attempters with borderline personality disorder. *Psychiatry*. 2019; 82: 173–178.
26. Vansteelandt K, Houben M, Claes L, et al. The affect stabilization function of nonsuicidal self injury in borderline personality disorder: an ecological momentary assessment study. *Behav Res Ther*. 2017; 92: 41–50.
27. Lazarus SA, Scott LN, Beeney JE, Wright AGC, Stepp SD, Pilkonis PA. Borderline personality disorder symptoms and affective responding to perceptions of rejection and acceptance from romantic versus nonromantic partners. *Personal Disord*. 2018; 9: 197–206.
28. Mehl MR, Pennebaker JW, Crow DM, Dabbs J, Price JH. The electronically activated recorder (EAR): a device for sampling naturalistic daily activities and conversations. *Behav Res Methods Instrum Comp*. 2001; 33: 517–523.
29. Harari GM, Lane ND, Wang R, Crosier BS, Campbell AT, Gosling SD. Using smartphones to collect behavioral data in psychological science: opportunities, practical considerations, and challenges. *Perspect Psychol Sci*. 2016; 11: 838–854.
30. Schulze L, Schmahl C, Niedtfeld I. Neural correlates of disturbed emotion processing in borderline personality disorder: a multimodal meta-analysis. *Biol Psychiatry*. 2016; 79: 97–106.
31. Bertsch K, Hillmann K, Herpertz SC. Behavioral and neurobiological correlates of disturbed emotion processing in borderline personality disorder. *Psychopathology*. 2018; 51: 76–82.
32. Schilbach L. Towards a second-person neuropsychiatry. *Philos Trans R Soc Lond B Biol Sci*. 2016; 371: 20150081.

33. Fineberg SK, Stahl DS, Corlett PR. Computational psychiatry in borderline personality disorder. *Curr Behav Neurosci Rep.* 2017; 4: 31–40.
34. Fineberg SK, Steinfeld M, Brewer JA, Corlett PR. A computational account of borderline personality disorder: impaired predictive learning about self and others through bodily simulation. *Front Psychiatry.* 2014; 5: 111.
35. Walz N, Muhlberger A, Pauli P. A human open field test reveals thigmotaxis related to agoraphobic fear. *Biol Psychiatry.* 2016; 80(5): 390–397.
36. Corniquel MB, Koenigsberg HW, Likhtik E. Toward an animal model of borderline personality disorder. *Psychopharmacology.* 2019; 236: 2485–2500.
37. Schneider P, Bindila L, Schmahl C, et al. Adverse social experiences in adolescent rats result in enduring effects on social competence, pain sensitivity, and endocannabinoid signaling. *Front Behav Neurosci.* 2016; 10: 203.
38. King-Casas B, Sharp C, Lomax-Bream L, Lohrenz T, Fonagy P, Montague PR. The rupture and repair of cooperation in borderline personality disorder. *Science.* 2008; 321: 806–810.
39. Hula A, Vilares I, Lohrenz T, Dayan P, Montague PR. A model of risk and mental state shifts during social interaction. *PLoS Comput Biol.* 2018; 14(2): e1005935.
40. Fineberg SK, Leavitt J, Stahl DS, et al. Differential valuation and learning from social and nonsocial cues in borderline personality disorder. *Biol Psychiatry.* 2018; 84(11): 838–845.
41. Benitez C, Southward MW, Altenburger EM, Howard KP, Cheavens JS. The within-person effects of validation and invalidation on in-session changes in affect. *Pers Disord.* 2019; 10: 406–415.
42. Lush P, Botan V, Scott RB, Seth AK, Ward J, Dienes Z. Phenomenological control: response to imaginative suggestion predicts measures of mirror touch synaesthesia, vicarious pain and the rubber hand illusion. *PsyArXiv.* 2019.
43. Neustadter ES, Fineberg SK, Leavitt J, Carr MM, Corlett PR. Induced illusory body ownership in borderline personality disorder. *Neurosci Conscious.* 2019; 2019: niz017.
44. Chester P, Ehrlich C, Warburton L, Baker D, Kendall E, Crompton D. “What is the work of Recovery Oriented Practice? A systematic literature review”. *Int J Ment Health Nurs.* 2016; 25: 270–285.
45. Slade M, Longden E. Empirical evidence about recovery and mental health. *BMC Psychiatry.* 2015; 15: 285.
46. Waldemar AK, Arnfred SM, Petersen L, Korsbek L. Recovery-oriented practice in mental health inpatient settings: a literature review. *Psychiatr Serv.* 2016; 67: 596–602.
47. Davidson L, Rowe M, Tondora J, O’Connell MJ, Lawless MS. *A Practical Guide to Recovery-Oriented Practice: Tools for Transforming Mental Health Care.* New York, NY: Oxford University Press; 2009: xviii, 249 pp.
48. Ng FYY, Carter PE, Bourke ME, Grenyer BFS. What do individuals with borderline personality disorder want from treatment? A study of self-generated treatment and recovery goals. *J Psychiatr Pract.* 2019; 25: 148–155.
49. Coffey M, Hannigan B, Meudell A, Jones M, Hunt J, Fitzsimmons D. Quality of life, recovery and decision-making: a mixed methods study of mental health recovery in social care. *Soc Psychiatry Psychiatr Epidemiol.* 2019; 54: 715–723.
50. Coffey M, Hannigan B, Barlow S, et al. Recovery-focused mental health care planning and co-ordination in acute inpatient mental health settings: a cross national comparative mixed methods study. *BMC Psychiatry.* 2019; 19: 115.
51. Khoury E. Recovery attitudes and recovery practices have an impact on psychosocial outreach interventions in community mental health care. *Front Psychiatry.* 2019; 10: 560.
52. Daley S, Slade M, Dewey M, Banerjee S. A feasibility study of the effects of implementing a staff-level recovery-oriented training intervention in older people’s mental health services. *Aging Ment Health.* 2019; 23: 1–9.
53. United States. President’s New Freedom Commission on Mental Health. *Achieving the Promise: Transforming Mental Health Care in America: Final Report.* Rockville, MD: President’s New Freedom Commission on Mental Health; 2003.
54. Ng FYY, Townsend ML, Miller CE, Jewell M, Grenyer BFS. The lived experience of recovery in borderline personality disorder: a qualitative study. *Border Pers Disord Emot Dysregul.* 2019; 6: 10.
55. Soloff PH. Bridging the gap between remission and recovery in BPD: qualitative versus quantitative perspectives [published online ahead of print]. *J Pers Disord.* 2019; 1–20.
56. Zanarini MC, Frankenburg FR, Reich DB, Fitzmaurice G. Attainment and stability of sustained symptomatic remission and recovery among patients with borderline personality disorder and axis II comparison subjects: a 16-year prospective follow-up study. *Am J Psychiatry.* 2012; 169: 476–483.
57. Zanarini MC, Frankenburg FR, Reich DB, Wedig MM, Conkey LC, Fitzmaurice GM. Prediction of time-to-attainment of recovery for borderline patients followed prospectively for 16 years. *Acta Psychiatr Scand.* 2014; 130: 205–213.
58. McCabe R, Whittington R, Cramond L, Perkins E. Contested understandings of recovery in mental health. *J Ment Health.* 2018; 27: 475–481.
59. Kverme B, Natvik E, Veseth M, Moltu C. Moving toward connectedness—a qualitative study of recovery processes for people with borderline personality disorder. *Front Psychol.* 2019; 10: 430.
60. Katsakou C, Marougka S, Barnicot K, et al. Recovery in borderline personality disorder (BPD): a qualitative study of service users’ perspectives. *PLoS One.* 2012; 7: e36517.
61. Bibb J, McFerran KS. The challenges of using self-report measures with people with severe mental illness: four participants’ experiences of the research process. *Community Ment Health J.* 2017; 53: 747–754.
62. Unoka Z, Vizin G. To see in a mirror dimly. The looking glass self is self-shaming in borderline personality disorder. *Psychiatry Res.* 2017; 258: 322–329.
63. Cameron AY, Erisman S, Palm Reed K. The relationship among shame, nonsuicidal self-injury, and suicidal

- behaviors in borderline personality disorder [published online ahead of print]. *Psychol Rep.* 2019; 33294118818091.
64. Stuart SR, Tansey L, Quayle E. What we talk about when we talk about recovery: a systematic review and best-fit framework synthesis of qualitative literature. *J Ment Health.* 2017; 26: 291–304.
 65. Myers NA, Smith K, Pope A, et al. A mixed-methods study of the recovery concept, “a meaningful day,” in community mental health services for individuals with serious mental illnesses. *Community Ment Health J.* 2016; 52: 747–756.
 66. Milbourn BT, McNamara BA, Buchanan AJ. Do the everyday experiences of people with severe mental illness who are “hard to engage” reflect a journey of personal recovery? *J Ment Health.* 2014; 23: 241–245.
 67. Keetharuth AD, Taylor Buck E, Acquadro C, et al. Integrating qualitative and quantitative data in the development of outcome measures: the case of the recovering quality of life (ReQoL) measures in mental health populations. *Int J Environ Res Public Health.* 2018; 15: 1342–1356.
 68. Andresen R, Caputi P, Oades LG. Do clinical outcome measures assess consumer-defined recovery? *Psychiatry Res.* 2010; 177: 309–317.
 69. Hasson-Ohayon I, Roe D, Yanos PT, Lysaker PH. The trees and the forest: mixed methods in the assessment of recovery based interventions’ processes and outcomes in mental health. *J Ment Health.* 2016; 25: 543–549.
 70. Metzl JM, Hansen H. Structural competency: theorizing a new medical engagement with stigma and inequality. *Soc Sci Med.* 2014; 103: 126–133.
 71. Sansone RA, Sansone LA. Responses of mental health clinicians to patients with borderline personality disorder. *Innov Clin Neurosci.* 2013; 10: 39–43.
 72. Tusiani-Eng P, Yeomans F. Borderline personality disorder: barriers to borderline personality disorder treatment and opportunities for advocacy. *Psychiatr Clin North Am.* 2018; 41: 695–709.
 73. Ring D, Lawn S. Stigma perpetuation at the interface of mental health care: a review to compare patient and clinician perspectives of stigma and borderline personality disorder [published online ahead of print]. *J Ment Health.* 2019: 1–21.
 74. Grant BF, Chou SP, Goldstein RB, et al. Prevalence, correlates, disability, and comorbidity of DSM-IV borderline personality disorder: results from the Wave 2 National Epidemiologic Survey on Alcohol and Related Conditions. *J Clin Psychiatry.* 2008; 69: 533–545.
 75. Sansone RA, Sansone LA. Gender patterns in borderline personality disorder. *Innov Clin Neurosci.* 2011; 8: 16–20.