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The Experiences of Women with a Diagnosis of Borderline Personality Disorder (BPD) Using Sensory Modulation Approaches in an Inpatient Mental Health Rehabilitation Setting

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ABSTRACT

Sensory approaches are being used increasingly within inpatient mental health, however, few published studies into the service user perspective exist. This interpretative phenomenological study used semi-structured interviews with four women with a diagnosis of borderline personality disorder (BPD) to provide insight into the benefits and applicability of sensory strategies in a mental health rehabilitation setting and their part in the recovery process. Four superordinate themes were identified: barriers to using sensory strategies; emotion regulation; impact of the environment; and empowerment. While preliminary in nature this study highlighted the need for an individualized approach and transferability of strategies into the community.

KEYWORDS

Sensory modulation; mental health; rehabilitation

Introduction

Sensory modulation approaches have seen increasing attention within adult mental health in recent years, particularly within in-patient services (Moore, 2016; Scanlan & Novak, 2015). The process of sensory modulation has been defined as “the capacity to regulate and organize the degree, intensity and nature of responses to sensory input in a graded and adaptive manner” (Miller et al., 2001, p. 57). As an approach it entails the regulation of arousal levels using sensory inputs provided by items, activities or different environments (Champagne et al., 2010). A description that perhaps best describes its use within mental health settings is as “a ‘bottom up’ approach to self-regulation” in which sensory inputs are used to support more adaptive methods of self-management (Hollands et al., 2015, p. 4).

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The use of sensory modulation approaches, or sensory strategies, within inpatient mental health settings has tended to focus on the use of sensory rooms including equipment designed to provide regulating sensory inputs such as rocking or glider chairs, weighted items, music, visuals such as projection or nature scenes, and aromatherapy products (Dorn et al., 2020; Forsyth & Trevarrow, 2018; Lindberg et al., 2019; Smith & Jones, 2014). Sutton and Nicholson (2011) suggest that a sensory room can be helpful place to base sensory modulation intervention, however, many studies have narrowed focus to a sensory room alone (Björkdahl et al., 2016; Dorn et al., 2020; Forsyth & Trevarrow, 2018; Lindberg et al., 2019; Novak et al., 2012) or a specific piece of equipment such as a weighted blanket (Becklund et al., 2021; Champagne et al., 2015; Novak et al., 2012), offering only a limited insight into potential uses and benefits of the approach and most likely failing to reflect the individuality of the approach from person to person. In some studies access to specific sensory tools has been limited due to risk (Wiglesworth & Farnworth, 2016), and effectiveness has often been based on each singular use of a sensory room rather than detailed analysis of continued use by the same people (Champagne & Sayer, 2003; Dorn et al., 2020; Gardner, 2016; Wiglesworth & Farnworth, 2016).

Many studies into sensory approaches have evaluated factors such as arousal levels or reduction in the use of restrictive practices such as physical restraint and seclusion. A number of these studies suggested positive results in relation to reduction of the need for restrictive measures and improved arousal levels (Andersen et al., 2017; Cummings et al., 2010; Gardner, 2016) with the study by Dorn et al. (2020) showing a significant reduction in arousal ($p < 0.001$). An early study into seclusion rates by Champagne and Stromberg (2004) showed as high as a 54% reduction following introduction of a sensory room and Lloyd et al. (2014) reported a statistically significant reduction in the use of physical restraint on the test unit in their study ($p < 0.001$). However most other studies had varying results with some seeing no change or an increase (Novak et al., 2012; Sivak, 2012; Smith & Jones, 2014). Provision of in-house staff training has been suggested to be an important factor in the studies where there were positive results in relation to use of restrictive practices (Craswell et al., 2021; Scanlan & Novak, 2015).

Perhaps due to the nature of the client groups used within these studies, focus tends to be on symptom management rather than consideration of the wider impact the use of such approaches could have, with chosen outcome measures evaluating self-rated distress or levels of seclusion or restraint (Scanlan & Novak, 2015; Dorn et al., 2020). The majority of previous studies have been completed within settings with acutely unwell clients (Chalmers et al., 2012; Forsyth & Trevarrow, 2018, Gardner, 2016; Lee et

al., 2010; Lindberg et al., 2019; Lloyd et al., 2014; Smith & Jones, 2014) and forensic services (Wiglesworth & Farnworth, 2016) and a limitation of that has been the impact of symptomology on ability to engage with the approach (Gardner, 2016). Despite sensory modulation being an approach that developed within occupational therapy it is often evaluated medically with a focus on management of symptoms. A focus is needed on the occupational gains and how these strategies can support increased engagement within the broader context of an individual's life.

While some of the wider benefits have been reported by clinicians in previous studies such as increase in activity engagement, improved interpersonal skills, engagement with other healthcare professionals and management of arousal levels (Björkdahl et al., 2016; Brown et al., 2009; Dorn et al., 2020; Moore, 2016; Scanlan & Novak, 2015), there is a need for studies from the service user's perspective (Craswell et al., 2021; Scanlan & Novak, 2015). Most qualitative studies on the use of sensory modulation have often been in the context of a mixed method approach (Smith & Jones, 2014; Wiglesworth & Farnworth, 2016) or combined staff and service user interviews (Smith & Jones, 2014; Sutton & Nicholson, 2011), rather than providing an in-depth qualitative analysis of themes and insight into service user perceived benefits. Aspects such as the relational nature of the approach (Sutton & Nicholson, 2011) and self-management of distress (Scanlan & Novak, 2015) in particular could not be fully evaluated without increased focus on service user experience. A recent study by Lindberg et al. (2019) has begun to redress this focus using service user interviews to gain a more detailed insight into the specific benefits and found that use of a sensory room increased both bodily and emotional calm as well as supporting empowerment. However, the focus of this study did not allow analysis of long-term benefits or transferability of strategies due to the focus remaining solely on sensory room use within a short term acute mental health setting.

Scanlan and Novak (2015) highlight that use of sensory approaches has been higher within female mental health, therefore, this study was designed to focus on the experiences of sensory approaches within a female population and in a longer-term setting, using interpretative phenomenological research methodology. Although recruitment was not limited to individuals with a diagnosis of borderline personality disorder (BPD), all participants who agreed to participate in this study had a diagnosis of BPD. There is limited evidence into the use of sensory approaches with this specific population, however preliminary studies have found sensory modulation to be impaired in the BPD population including increased level of hyper-responsivity as well as altered neurological thresholds and deficient habituation to sensory stimulation by the amygdala (Bilek et al., 2019; Brown et al., 2009).

Previous studies within an inpatient setting have retained a broad focus in relation to diagnosis often evaluating the use of the approach with the overall mental health population within a certain setting (Forsyth & Trevarrow, 2018; Gardner, 2016; Wiglesworth & Farnworth, 2016) or focused on those with a diagnosis of schizophrenia (Cheng et al., 2017, Machingura et al., 2018). With emotional instability being a diagnostic criterion for BPD identified in the DSM-V (American Psychiatric Association, 2013) there would be reason to believe that an approach which has been found to have positive effects on emotion regulation, management of harmful behaviors such as self-harm and as a result improved engagement in occupations (Craswell et al., 2021; Scanlan & Novak, 2015) would be beneficial for this client group.

Aim & objectives

The primary aim of this small-scale study was to gain an understanding of the benefits of using sensory strategies from the perspective of female mental health service users in a long-term rehabilitation setting.

The study objectives were:

- To explore the sensory strategies used by female service users including how and when they are used.
- To identify the place of sensory strategies within a service user's overall recovery program.
- To provide recommendations for health professionals in developing use of sensory strategies as part of client centered care and services.

Method

Ethics

Ethical approval was obtained from the North West - Preston Research Ethics Committee (Reference no: 19/NW/0480). In addition, the study was given approval by the Research and Development Board at Cygnet Healthcare, and they provided research governance throughout the process.

Setting

Due to evidence of their efficacy from broader fields of mental health (Brown et al., 2009; Chalmers et al., 2012), sensory strategies were introduced approximately six years ago in the private healthcare company where the primary researcher worked at the time of this study, as an approach within female adult mental health long-term rehabilitation units. Average

length of stay in these units is 12–18 months which allows the potential to explore the effects of sensory based approaches over a longer time. Service users have a range of conditions including schizophrenia, bipolar disorder, schizo-affective disorder and borderline personality disorder (BPD).

Sensory modulation approaches were introduced through the installation of a sensory room within each unit, featuring equipment identified to provide input in each of the sensory systems. This included a rocking chair, projector, aromatherapy items, stereo, weighted blankets, and “fidget” tools. The occupational therapists in these units all underwent a series of introductory training days ran by qualified sensory integration practitioners from within the organization. These included an overview of sensory processing and arousal levels as well as ways to support service users in developing and using sensory based strategies including delivery of a sensory strategies program designed to develop awareness of their sensory preferences and trial a range of strategies in relation to each of the senses. Next, a sensory plan is developed to support use of strategies and they may also devise a sensory box containing items they have identified as helpful or prompt cards to use specific strategies. Access to the sensory room is facilitated on an as-needed basis and could be either supervised by staff or unsupervised dependent on factors such as individual risks. The primary researcher worked within the company at the time of the study but was not working directly with any of the participants at the time of interview.

Procedure

To obtain the detailed level of insight desired into individual experiences of sensory modulation approaches, an interpretative phenomenological analysis (IPA) research design was chosen due to the focus of this approach on personal experience and perception (Smith & Osborn, 2007). IPA acknowledges the impact of a researcher’s prior experience and interpretation and rather than seeking to bracket this and enables this to be consciously utilized in interpretation (Pietkiewicz & Smith, 2014; Willig, 2013). As the primary researcher is involved in overseeing delivery of sensory modulation approaches within mental health units in this organization, this approach was deemed the most open and best suited to the study.

Semi-structured interviews were selected to gain the depth of insight required for an IPA study as they allow greater flexibility to pursue further detail of everyone’s experience and perceptions. Interviews are also more suited to providing any additional support that may be needed if sensitive topics arise, such as pausing the interview or allocation of one-to-one time for debriefing as needed, which is especially important with this client group. Consideration was given to using focus group methodology,

however, while the peer interactions that take place within focus groups can provide rich data, they are unlikely to provide the same depth of insight into the individual experience and could also complicate the issue of confidentiality with a vulnerable client group. An interview schedule was prepared following guidelines by Smith et al. (2009) with open-ended questions such as “Can you tell me about your experience of using sensory strategies since being here at the hospital?” and additional potential prompts to be used as needed. The schedule was then reviewed by a service user from another hospital site within the organization following which it was further amended for clarity. The semi-structured nature of the interviews allowed for additional probes into relevant areas at pertinent points to enhance richness of data, which is of greater concern within IPA than volume of data.

Interviews were led by the primary researcher and were conducted at the participants’ hospitals to minimize the demands on them and so that participation was not limited to those who would have been able to travel to another location. They were digitally recorded to enable transcription verbatim and facilitate the required depth of analysis for IPA (Smith & Osborn, 2007). Each participant was interviewed once. Interviews were completed over a period of four weeks and lasted between 10 and 20 minutes each.

Sample

Purposive sampling of participants with experience of using sensory strategies was used to identify the required homogeneous sample for an IPA study (Smith & Osborn, 2007). IPA has a focus on in-depth analysis which Smith and Osborn (2007) suggest can be compromised by larger sample sizes, especially for a novice in this method. A sample size of 5 participants was identified in view of the recommendations provided by Smith et al. (2009) for a student-led IPA project which suggest 3–6 participants, with the lead researcher being a part-time masters level student. A total of eight potential participants were approached with five successfully recruited and consenting to take part in the study, however, one was subsequently unable to take part in the interview within the available time slot due to unrelated physical health circumstances, therefore the final sample included four participants all of whom had a diagnosis of BPD.

To meet the study inclusion criteria participants needed to be resident at a female mental health long-term rehabilitation unit; have completed initial sensory strategies work with a member of the occupational therapy team and were required to have been using the approach for a period of at least three months. Participants also needed to have the capacity to consent to

taking part in the study. Individuals with comorbid diagnoses of autism or learning disability were excluded due to the potential for these to significantly increase the heterogeneity of the sample. Any clients currently receiving direct clinical input from the primary researcher were also excluded to prevent the potential for coercion or influence of this on the data.

Potential participants were initially identified by an occupational therapist on the unit, acting in the role of gatekeeper, as meeting all study criteria. They were then approached by a Therapy Coordinator (equivalent of a Therapy Assistant) from their unit and provided with a participant information sheet. A cooling off period of one week was allowed prior to written consent being taken to allow consideration and time to seek support from other sources such as advocacy if desired. Verbal consent was also obtained prior to the interview and each participant was given an opportunity to ask additional questions or seek clarification. Participants were made aware that participation was entirely voluntary and their right to withdraw from the study at any time, however, they were asked for consent for use of data obtained up until that point for the study being made aware that it would not be possible to remove any data already collected from the analysis. All participants verified their consent to this on the written consent form. Each participant was invited to participate in a debriefing following the interview.

Data analysis

Data analysis was completed by the primary researcher and first author (RM) following IPA guidelines as detailed by Pietkiewicz and Smith (2014). Transcription was completed by the primary researcher, with repeated re-readings following this, helping to develop a high level of familiarity with the data prior to commencing analysis. Accuracy of transcription of all interviews was independently verified by another member of the research team and coauthor (MS). Initial notes were then made on the transcripts in relation to observations and reflections on language used, the context or 'lived world' of the participant and early interpretative or reflexive comments. Emergent themes were then drawn from researcher interpretations and checked against the participant's own account to ensure they were rooted in the data. These stages of analysis allow the level of immersion in the data and richness of analysis that is central to achieving the depth required within an IPA (Smith et al., 2009). Rather than data saturation, which has been considered incongruent within IPA (Saunders et al., 2018), importance is given to an analytical focus in relation to personal experience.

Connections were made between the emerging themes to produce clusters, each of which was given a descriptive label, and some of the emerging themes were discarded at this point due to insufficient evidence from the transcripts for these as separate distinct themes. Over-arching themes were then identified and again checked against participants' words, to establish their validity and ensure that they were grounded in the data. This process was repeated for each transcript. Patterns or connections between the different participants guided identification of shared concepts, captured in super-ordinate themes, as well as those particular to each participant. While member checking is often considered to enhance the validity of a study, it is incongruent with IPA due to the interpretative nature of the approach and therefore was not used (Larkin & Thompson, 2012). However, a careful recording of thought processes during analysis and the keeping of a reflexive journal both during the interview and the analysis process were used to support the validity of the interpretation as well as identifying any impact of the researcher's own bias (Smith et al., 2009).

Trustworthiness

The aim of an IPA study is not to be generalizable but should allow the reader to make links between the analysis and their experience in a personal or professional context (Smith et al., 2009). A reflexive journal was kept throughout the process to remain aware of any bias that may impact on the researcher's interpretation of the data. While member checking is often considered to enhance the validity of a study, it is incongruent with IPA due to the interpretative nature of the approach (Larkin & Thompson, 2012). Records of all stages of the process including proposal preparation and review, development of documents such as the interview schedule and draft reports, transcripts, records of analysis, were retained, dated, and organized to allow for potential audit if required (Smith et al., 2009) to ensure accountability in the research process.

Findings

Through the analysis four superordinate themes were apparent: barriers to using sensory strategies; emotion regulation; impact of the environment; and empowerment. Within each of these are subthemes that further illustrate aspects of the participants' lived experiences and are supported below by participant quotes. Pseudonyms are used throughout to protect confidentiality.

Barriers to using sensory strategies

Three of the participants described a reluctance in beginning to trial sensory strategies that is reflected by three subthemes: preconceptions: changing habits: and developing self-awareness.

Preconceptions

The initial response to sensory strategies could be dismissive in nature, often based on experiences of observing others using strategies in a way they never would, or a belief it wouldn't work for them. This contrasted with later feelings about strategies following personal experience:

It was like dark and they had like music on and stuff, I don't like it ... and people had their eyes closed and I thought it was really cringey ... so I wouldn't do it (Anna)

At first I thought it wasn't gonna be for me ... and then I kind of use it [the sensory room] every day now when I'm struggling (Elen)

Within this was also the preconceptions others may hold and a fear of judgment connected with this. Sensory items could be perceived as child-like, being described by most participants as "toys" at some point during their interview. For most this was in the context of the items functioning as a diversion but for one participant, Clare, this connected to the impression others may gain from the items:

It makes you feel a bit like there's something wrong with you ... Yeh ... like look at me I've got this toy and I carry it round ... like no one normal does that (Clare)

Changing habits

Two of the participants described a resistance to changing how they respond at times of crisis and breaking away from more harmful strategies. It was possible to forget or rebel at times and there needed to be a conscious choice to move away from other options, such as self-harm, a choice which can be hard to make in the moment. Changing habits requires an element of acceptance and a determination to alter those automatic responses that were well established even once they had found strategies that were helpful:

If my mind is set ... on self-harming or whatever and that's what I want to do then probably more than likely I'm going to do that (Anna)

I'm a bit like willful and I don't really want to use it ... even though I could (Clare)

Developing self-awareness

Three of the participants described a need to develop their sense of when strategies would help and how they could use them. Initially as Elen

describes this is more reliant on support from others to identify signs of difficulty and redirect. It takes time and effort to build the self-awareness needed to develop effective use of strategies, as each individual may use the same items in different ways and the same sensory strategy may meet a different need for different people.

Most of the time staff will come up to me and say like ... you are struggling and I'll be like I don't realize I'm struggling (Elen)

I think you've got to kind of, work on finding what's, what works and what doesn't for you (Anna)

To move past these initial barriers to engaging with the approach there needed to be both a willingness and awareness on the part of the participant and those supporting them in learning the approach. Without this the effectiveness and use of the strategies was limited.

Emotion regulation

For all four participants sensory strategies were an important part of emotion regulation; helping to manage difficult times or experiences. The subthemes within this were an alternative to self-harm, the need for physically active strategies and not always the answer; acknowledging that there are times when sensory strategies, as any approach, may not be effective.

Alternative to self-harm

One of the main scenarios in which sensory strategies were described related to emotions, symptomology, or experiences that lead to self-harm. Sensory strategies allowed time to choose an alternative way of coping through diverting attention from urges and allowing pause for consideration:

You slow yourself down don't you and you've got more time to think (Anna)

When I'm ... having flashbacks and stuff it's more [pause] like I do want to hurt myself so I do use the sensory toys (Elen)

They could also be directly paired to meet a specific sensory need in connection with self-harm, allowing participants to experience the release they would normally receive from self-harming but without any injury. This was different for each individual depending on their usual method of self-harm as suggested by Clare:

My bracelet, what I bite ... gives me the impression that I'm like biting something but without ... actually hurting myself (Clare)

The need for physically active strategies

For two participants sensory strategies met the urge for a physical or bodily outlet in response to anger or anxiety. Use of more physical strategies tended to increase with experience of certain emotions, such as anger or anxiety in contrast to the more passive strategies that may be used when sad.

I lob this bottle at the wall and it makes a really loud noise and the act of throwing it really helps ... it just gets anger out (Clare)

I think when I'm like angry or like nervous they're more useful cos I feel like I need to be doing something with my hands (Anna)

These more physical strategies ranged from “fidget” items to items that could be thrown to let out frustration and manage the intensity of emotions they were experiencing.

Not always the answer

Three participants identified that sensory strategies, while helpful in managing emotions, were not always the best approach at that particular time. Where participants used sensory strategies in response to sadness these tended to be those that required lower levels of active engagement such as listening to music or watching the projector images on the wall of swirling color or images such as clouds. It was also possible for arousal levels to increase beyond the point where an individual could access their sensory strategies successfully:

I don't find them necessarily helpful if I'm just sad about something ... I just tend to go to sleep (Anna)

There's times where I've been, like, gone past sensory stuff ... and sitting in a quiet room with lights, it's got to that point where I'm probably most of the time angry and in restraint (Elen)

While some described anger as one of the main emotions benefitting from a sensory strategy, for Elen this was not possible. Timing of strategies was a significant factor but also the need to identify a broader range of strategies that could be used dependent on the experience.

The connection between sensory strategies and emotion regulation was clear for all participants, with variation dependent on the emotion experienced and the timing of use. The clearest connection was with self-harm where strategies could help to divert thought processes or provide a physical sensation as an alternative.

Impact of the environment

For all participants there were factors within their environment that could support or hinder their ability to use a sensory approach. These are

captured in three subthemes of staff support, accessibility of strategies and the sensory room as a safe space.

Staff support

Redirection or encouragement from staff supported use of sensory strategies, identification of when they are helpful, and continued development of strategies over time. Staff can assist individuals to understand their sensory needs, personalize strategies and prompt the use of sensory strategies and the sensory room when struggling and unable to divert themselves. This was especially important for participants like Elen and Jen who were newer to using the approach:

They give you more encouragement ... in my last unit they never did so (Elen)
Somebody come and said look, you know the best place for you right now is, the sensory room (Jen)

Staff responses could also be a limiting factor due to a lack of understanding of the benefits of certain sensory items for an individual. Clare described how she had previously used a squeaky ball until staff removed the squeaker due to the noise it made, and that after this the item did not meet the same need for her:

They took the squeaker out of it and it doesn't have the same effect so I can't like use that anymore (Clare)

Accessibility of strategies

Three participants described the immediacy of access to strategies as important, particularly for those newer to using sensory strategies and dependent on the sensory room. While the room being used was seen by participants as positive, this changed when it was for unrelated purposes or closed delaying access. Access at night also presented increased difficulty:

Just when people are there, other people are in there [the sensory room] really (Jen)

At nighttime so I'm kind of left in me room, with like thoughts racing ... not being really able to distract meself as much as I would in the daytime (Elen)

A delay in being able to access the room could lead to making a different choice and coping in a less helpful way. While the accessibility of the sensory room was less of a feature for those who were further along in developing their use of sensory strategies, there continued to be an element of benefit from having a dedicated space.

Sensory room as a safe space

The sensory room acted as a "safe space" for three of the participants. The environmental cue of going into the sensory room prompted consideration of other choices:

My room's like where I self-harm ... and stuff quite a lot and like the sensory room is just like a totally different place it's like a change of scenery ... it's a change of atmosphere, and I think like my brain sees it as somewhere that's like, quite calm and relaxed (Anna)

If I'm really distressed that's my place to go (Jen)

The physical space of the sensory room facilitates a sense of calm and space from other people, in contrast to the wider hospital environment. The room provided an escape from difficult feelings and opportunity to regain a sense of control.

Both physical and social aspects of the environment held importance particularly when learning to use sensory strategies. Having a dedicated space to support this as well as verbal redirection from staff members were key.

Empowerment

All four participants connected sensory strategies with a sense of empowerment, putting them more in charge of their own recovery. This is captured by two subthemes: increasing independence and self-management.

Increasing independence

Participants described how using sensory strategies helped them to lessen their dependence on others and increase their sense of responsibility and control over their recovery through:

It's like teaching you the independence that you need to live in the community ... cos like without my sensory box I don't think I'd be independent enough to leave at the moment (Clare)

Sensory strategies were described as contrasting to other approaches as they weren't reliant on the schedules of others. Participants learned how to take control over the approach with time and required less direction. They expressed a sense of ownership over the sensory strategies that worked for them and valued the ability to alter them to meet their needs.

y'ere not structured ... Y' can do what you want, what pleases you [pause] what, um, makes you feel better (Jen)

I think, as I've stayed here a bit longer, I can, I'll do it in my own way (Anna)

Self-management

Sensory strategies provided a form of self-management that was described as more proactive than other strategies such as additional medication. They helped to increase a sense of self-sufficiency and independent coping, with

part of their value being the element of privacy to cope without the need for staff support.

I try and use the sensory room more than getting up and straight away being like, right I need PRN (Elen)

sensory stuff can be quite private you don't have to swan about with y'sensory toys and telling everyone ... you can do it yourself do you know what I mean (Clare)

While staff support was an important factor in supporting initial strategy use and developing individualized strategies, most participants valued being able to move beyond this and use sensory strategies to increase their sense of self-sufficiency.

Sensory strategies provided a self-directed approach that with time allowed decreased dependence on staff support and medication, both of which helped to prepare for transition away from in-patient services and increased sense of empowerment.

Discussion

The primary aim of this study was to gain insight into the benefits of using sensory strategies in the lived experience of female mental health service users in a long-term rehabilitation setting. While not the original intention of this study the final sample consisted solely of individuals with a BPD diagnosis. Previous studies have often been in more acute short-term settings and focused solely on sensory room use or a singular piece of equipment (Gardner, 2016; Lindberg et al., 2019; Lloyd et al., 2014; Smith & Jones, 2014). The application of IPA in this study provided for a more in-depth analysis of the specifics of the service user experience of sensory strategies that has been called for in reviews such as that by Scanlan and Novak (2015). While this study is small scale in nature it provides insight into the potential benefits of sensory modulation approaches for this client group and areas for further development.

There was a clear transitional process for most participants from an initial more negative response to identifying the unique part sensory strategies played within their recovery when individualized to them. While similar to the theme of unexpected effects noted by Lindberg et al. (2019), increased acknowledgement of the benefits of sensory strategies with time is perhaps more apparent in this study due to the long-term nature of the setting allowing for greater retrospective review.

One of the main themes was the role of sensory strategies in emotion regulation, a connection well documented in the sensory integration literature for a variety of populations and therefore is perhaps no surprise (Engel-Yeger & Dunn, 2011; Engel-Yeger et al., 2016; Serafini et al., 2017). This has also been identified in previous studies into the use of sensory

strategies within mental health (Dorn et al., 2020; Smith & Jones, 2014; Sutton et al., 2013). Therefore, an approach that utilizes regulating sensory inputs could be assumed to positively impact ability to tolerate difficult emotions.

Strategies helped participants to deal with difficult experiences and emotions with strategies varying dependent on symptoms or emotions. While sensory strategies have been promoted as more accessible at times of distress than cognitive strategies (Sutton et al., 2013), this study found it was possible for arousal levels to increase beyond the point where strategies could be effective. This is perhaps why studies on the use of sensory approaches to reduce rates of restraint and seclusion have been of varying success, in some cases making no impact (Chalmers et al., 2012; Cummings et al., 2010; Smith & Jones, 2014). Without staff and service user education to increase awareness of when to implement strategies, and ability of staff to spot warning signs or triggers, sensory strategies are unlikely to meet this need effectively.

Physically active sensory strategies in particular were connected to resisting self-harm, and management of anger or anxiety, and it is of interest that the one participant who mentioned going past the point where the strategies they had could be helpful, did not identify having any such strategies. Movement strategies have received limited attention in earlier studies other than more passive movement strategies such as rocking chairs (Scanlan & Novak, 2015). Increased practitioner attention needs to be given to the part physically active strategies play in supporting self-management in mental health due to the benefits of proprioceptive input for self-regulation (Champagne et al., 2010). There has been a call in the literature for more “bottom up” approaches to support regulation (Perry, 2006; Porges, 2009; Van der Kolk, 2015) and the use of sensory strategies could be an important contribution to this field, with the direct influence of proprioception on the brain stem making it best matched to support regulation of arousal (Blanche & Schaaf, 2001). Occupational therapists with their focus on therapeutic use of occupation and skills in activity analysis are well placed to provide this increased focus on activities for sensory modulation that entail active engagement in strategies.

While this study broadened the focus of previous studies beyond a sensory room alone, most participants placed a strong emphasis on the sensory room as key in strategy use and improving the overall hospital experience, as suggested by previous studies (Scanlan & Novak, 2015; Sutton & Nicholson, 2011). Reliance on the sensory room decreased as use of strategies become more automatic yet there continued to be a need for the room itself as a cue to use strategies, limiting potential transferability. However, participants may be more likely to require use of such a space

within an environment such as a hospital which entails increased unpredictability in sensory experiences.

There is preliminary evidence in this study that as strategy use developed, participants became more able to use them outside of a dedicated space, and with decreased staff support, thereby increasing self-management and control, a theme apparent in previous qualitative studies (Hollands et al., 2015; Lindberg et al., 2019; Sutton et al., 2013). An apparent incongruence is that some participants reported strategy use as being dependent on staff support due to management of risk factors, an unfortunate barrier within mental health settings not unique to this study (Dorn et al., 2020; Wiglesworth & Farnworth, 2016). This calls on occupational therapists to be creative in finding ways to help clients meet their sensory needs while balancing the need for risk management.

The importance of individualization of strategies was clear as for each participant there were differences not just in the specific strategies they chose, but also in the way they used the same items. While studies such as that by Brown et al. (2009) suggest common variations of sensory processing in individuals with BPD, particularly higher levels of sensory sensitivity and avoiding, there is a difference in each individual's response to sensory inputs and therefore it cannot be assumed that the same sensory strategies will be effective for each person and the impact of their sensory processing patterns need to be considered to enable them to both manage their arousal levels and to effectively engage with their environment and occupations (Brown, 2002; Craswell et al., 2021).

Education for both the participants and staff of how strategies meet a need plays an important part in both longer-term use of strategies but also expansion of strategies to identify different ways to meet their sensory needs. While the importance of staff education has been raised in previous studies, the importance of educating service users themselves was not mentioned (Chalmers et al., 2012; Scanlan & Novak, 2015) which is paradoxical considering one of the positive features of this approach is its ability to be led by service users. Sensory modulation is an approach that developed within occupational therapy and has been connected to improved engagement in occupation (Champagne et al., 2015, Craswell et al., 2021). Emotion regulation in particular has been suggested to be a barrier to engagement in valued occupations for individuals with BPD due to the impact on areas such as motivation, routines and self-efficacy as well as resultant behaviors such as self-harm (Lee & Harris, 2010) therefore an approach with the potential to increase capacity for self-regulation is an important area of concern for occupational therapists. The concern of occupational therapists with an individual's environment makes them best placed to support transition of the approach beyond a set space and to

consider the therapeutic benefits of occupations, such as physical activities, to meet an individual's sensory needs and support self-regulation.

Limitations

While the findings of this study could not be considered generalizable, and this is not the intention of IPA, they are helpful in terms of increasing insight into the value of sensory strategies as an approach for individuals with a diagnosis of BPD in an inpatient setting. All of those in the sample had BPD as a primary diagnosis, however IPA values homogeneity as allowing increased analysis of “convergence and divergence” of experience among a specific group (Smith et al., 2009) and therefore this is not necessarily a limitation. This study can only be considered preliminary in nature due to the small sample size, however this reached an acceptable level for an IPA study. Due to the nature of the study population chosen, interviews were shorter than usual for IPA and therefore did not produce as large a quantity of data as may be desirable to provide a detailed insight into the individual experience. Due to the in-depth nature of the approach an interview would often be around an hour in length (Pietkiewicz & Smith, 2014; Smith et al., 2009). While this is less of a concern in IPA where the focus is on the level of interpretation rather than volume of data, it may have impacted on the strength of identified themes and applicability of the results needs to be considered within this context.

Another factor that may have impacted on the study is the use of audio-recording which, while it allowed for detailed transcribing, may have impacted the study sample, deterring some potential participants from taking part. In future studies involving service users it would be worthwhile identifying alternative ways to gather data, such as the additional method used by Lindberg et al. (2019) of questionnaires with space for free text, to decrease the risk of sample bias.

Conclusion

The themes identified through this study offer insight into the role of sensory strategies within the recovery of women diagnosed with BPD in long-term mental health rehabilitation settings and hold important implications for how their use within such settings could be improved. The study findings suggest that sensory strategies potentially have an important part to play in the treatment pathway in relation to emotion regulation and empowerment, with benefits of the approach increasing over time as an individual understands how they work for them and is able to personalize the strategies they use to meet their sensory needs. There is a danger of falling into a “one size fits all” approach that does not consider individual

sensory processing patterns, potentially limiting ongoing use. Therapists also need to be aware of the connotation sensory strategies may have for service users due to being an approach most frequently used with child client groups, and support development of alternative strategies if they are to be comfortable transferring use of strategies into community settings.

An important role of occupational therapists is helping service users to consider how to transition use of strategies beyond the hospital environment both in the context of their daily occupations and wider environmental context. While a dedicated safe space to support sensory strategy use in an inpatient setting is a tangible cue to use strategies, it is important that attention is given to transitioning strategies outside of the room particularly in preparing for discharge into the community. Occupational therapists with their focus on activity analysis and promoting independence are best placed to support service users in maximizing the potential of sensory modulation approaches.

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