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Staffs' Perceptions of Sensory-based Interventions at an Inpatient Hospital: A Case Study

In 2003, the New Freedom Commission on Mental Health launched an initiative to eliminate the use of restraints and seclusion, promoting a recovery-focused model of care. This initiative sought to assist transforming mental health care in the United States. Historically, mental health facilities used restraints and seclusion to deescalate crises and reduce aggressive incidents. Nowadays, sensory approaches are often seen as a strategy that promotes more positive, person-centered approaches to recovery, an alternative to restraints and seclusion (Forsyth & Trevarrow, 2018).

Starting in the 1960s and increasing in the 1990s, sensory rooms continued to be a relatively new and understudied modality in psychiatric inpatient care, particularly in the United States (Bjorkdahl et al., 2016). Minimal research illuminated the efficacy of sensory rooms as an intervention that decreases stress and promotes recovery (Forsyth & Trevarrow, 2018; Wigleworth & Farnworth, 2016). However, Chalmers et al. (2012) explored the lack of awareness related to sensory needs or stress responses for individuals with a trauma history or mental illness. The researchers concluded with recommendations for mental health providers using sensory rooms, including being mindful of space, cost, time, and staff education and training. Additional researchers encouraged the use of sensory-based approaches in mental health practice, highlighting the need for supporting evidence of these approaches (Champagne & Koomar, 2012; Lloyd et al., 2014; Scanlan & Novak, 2015). Most recently, Forsyth and Trevarrow (2018) found a need for additional qualitative studies to explore the experiences and perceptions of sensory interventions in adult acute mental health inpatient settings. Most closely related, Smith and Jones (2014) explored the impact of sensory rooms on seclusion rates and recovery.

With a focus on client-centered recovery, sensory rooms and sensory-based strategies seek to teach self-coping and self-management skills (Chalmers et al., 2012; Wiglesworth & Farnworth, 2016). Sensory tools are useful to help service users become calmer or reduce their anxiety or depression (Machingura & Lloyd, 2017). Bjorkdahl et al. (2016) explored the experiences of staff with sensory rooms and reported more positive outcomes related to calmer and more relaxed clients. Sensory modulation may be a planned or 'as needed' intervention to support the recovery of individuals in a mental health inpatient unit (Machingura & Lloyd, 2017). Some examples of sensory tools are audio equipment, soft or pleasant feeling materials, pleasant aromas, and electronic massage chairs (Machingura & Lloyd, 2017). Additionally, some items that can be used in sensory rooms to provide sensory input are stress balls, weighted blankets, and rocking chairs (Wiglesworth & Farnworth, 2016).

In 2018, a mental health inpatient facility on the west coast of the United States underwent an extensive physical renovation and expansion, with a focus on the inclusion of additional sensory interventions. The renovation began with acquisition of the second half of the same building. The newly acquired wing was thoroughly renovated to incorporate sensory design features, at which point all guests and staff were transferred from the existing section to the redesigned section, with no confounding changes to location/neighborhood, little if any disruption due to construction work, and minimal disruption due to the relocation process. These sensory design features included four distinct sensory room models: a *welcoming room* for newly admitted guests; a *comfort room* with mellow music, video fish tanks, and rocking chairs; *serenity rooms* with mellow music, adjustable lighting, and soft/relaxed seating; a *living room* with soft/relaxed seating and rocking recliners; and *open sitting areas* with video fish tanks and comfortable seating. In addition to the sensory room models, the renovation included tactile wall

tiles intended to support wayfinding and emotional self-regulation (e.g., Dischinger & Filho, 2012), the latter function of which has not been previously addressed in the research literature. The overall approach to sensory design taken at this facility has not been addressed in the existing literature, and is distinctive in several respects that make it worthy of investigation.

Purpose of the Study

The purpose of this phenomenological case study was to explore the impact of renovations that included an increase in sensory interventions in a single facility on the west coast of the United States. Providing additional information on the impact of sensory interventions on people with a mental illness will address the current gap in the literature and bring a heightened awareness of this intervention modality. Understanding the impact of sensory interventions on the services and treatment of individuals with a mental illness will help future treatment facilities examine their current environment and include appropriate sensory interventions to support recovery.

Methods

The researchers grounded this project by using a phenomenological case study approach. A phenomenological approach focuses on an individual's experience of the phenomenon with an attempt to deduce the experience (Creswell & Poth, 2018; Kafle, 2011). Additionally, a case study can be a single entity such as a program, a group, or even a specific policy (Yazan, 2015). For this study, researchers used a phenomenological case study approach to understand the experiences of staff providing services at an inpatient hospital by illuminating the specific case of a renovation project that focused on various sensory interventions.

Sampling

The researchers used a purposeful sampling method, with a criterion sampling strategy (Creswell & Poth, 2018). Purposeful sampling allows qualitative researchers to obtain a sample of participants who all have experienced the specific phenomenon being studied (Patton, 2015). Participation was limited to staff members employed at the facility at least two months prior to the renovation and who were still employed at the facility at the time of the study, eight months after the renovation. The purpose of these criteria were to allow staff the ability to reflect on and speak to the experiences of care before and after the renovation.

Sample Size

Qualitative research focuses on achieving a depth of information, rather than achieving a degree of statistical power generated by a specific number of participants (Creswell & Poth, 2018). By focusing on the connections between ideas and evidence in the research, qualitative researchers explore different representations and a range of opinions related to an issue. With this in mind, qualitative researchers aim to reach thematic saturation within the target group (Creswell & Poth, 2018). Since the emphasis is on the depth of data, the sample size varies with researchers estimating anywhere from 3 to 24 participants (Creswell & Poth, 2018). For this study, the researchers referenced the work of Boddy (2016), who reported that sample groups of 12 may commonly achieve saturation in a homogenous population. Given the intrinsic uncertainty in all estimates and conclusions regarding saturation, the researchers increased this estimated sample size by 25% and collected data from 15 participants. The authors conferred daily after the interviewing process, agreeing that no significant new material had emerged during the final day that would call for expanding beyond the 15 planned participants. Basic demographic information about the sample can be found in Appendix A.

Data Collection

This study used a phenomenological approach suitable to explore staff members'

subjective experiences of a therapeutically informed renovation of an inpatient treatment facility. The authors conducted one-time, individual, semi-structured interviews over a four-day period at the facility. A semi-structured interview allows the researcher to ask probing and follow up questions to obtain an in-depth understanding of the phenomenon (Brown & Danaher, 2019). Three of the authors (AZ, FB, and AL) conducted interviews and discussed the informed consents with participants before the interview. Consent procedures and interviews were conducted individually in private rooms. Study participants were assured that participation in the study was voluntary and in no way would impact their position as an employee, whether they decided to take part in the study or not. The researchers collected the signed consent form from each study participant.

Interviews lasted an average of 47 minutes. Each interview began with a simple demographic questionnaire. The demographic questionnaire included a short set of seven basic descriptive questions relevant to the setting that allowed the researchers to provide a snapshot of the participant group. Additionally, the researchers developed an interview protocol for consistency among the research team. Each interview protocol contained ten core questions designed to explore how the participants' experience of the facility was impacted by the renovation, and how they viewed the impact on patients. Interviews opened with a very broad question designed to establish rapport and help orient participants to the current study. This was followed by a second question with four subparts, still quite broad, but specifically addressing the study's focus. A second set of six questions, each with two subparts, elicited further comments on elements of specific interest. The final two questions allowed the participants an opportunity to share any recollections prompted by or reflections generated during the course of the interview (see Appendix B).

Interviews were audio-recorded using smart phones and additional time-stamped notes were written by the researchers. Participant names were not used during the recorded interviews. Audio recordings were decoupled from demographic questionnaires and neither of these were linked to signed consents or any other identifying information. Audio files were transferred daily to a password-protected computer, then securely uploaded to a third-party vendor for professional transcription. When the transcripts were received back from the vendor, they were checked for and purged of potentially identifying information. Researchers' notes were then inserted at appropriate points in the transcripts, and finally the audio files were deleted to ensure that participants could not be identified by voice.

Data Analysis

Two of the three researchers (AZ and FB) were the primary individuals during the data analysis process. The two researchers started the data analysis process by discussing and developing a clear process to follow that was grounded in a basic thematic analysis framework: read the transcript to become immersed in the text; conduct a line-by-line coding process to develop nodes; follow this process with additional interviews, building on the list of nodes; begin to group nodes based on commonality; and develop themes based on the grouping of nodes (Creswell & Poth, 2018). The two authors independently coded all interview transcripts following the same analysis process and used NVivo 12 data software to organize nodes. NVivo uses the term 'node' to represent a specific data point.

To enhance the credibility of the data analysis, the researchers utilized investigator triangulation (Korstjens & Moser, 2018). Investigator triangulation is concerned with using two or more researchers to make coding, analysis, and interpretation decisions (Korstjens & Moser, 2018). After the individual researchers coded the first two interviews, they met to discuss the

process to ensure consistency. There were no changes in the process, so the individual researchers conducted analysis of the following 13 interviews. The first two authors then independently analyzed codes to develop categories and themes. These researchers discussed the process of categories and themes to develop a final list. Once themes were developed the third researcher (AL) reviewed codes, categories, and themes, and consensus was reached by all three researchers.

Trustworthiness

The researchers focused on credibility, dependability, confirmability, reflexivity, and transferability, all important aspects focused on the trustworthiness of a qualitative study (Korstjens & Moser, 2018). At its core, trustworthiness simply describes the extent to which the findings could be trusted (Korstjens & Moser, 2018). Credibility of this study began with the initial questions during data collection, which focused on building a good relationship with the participants. As discussed, the researchers enhanced credibility through the investigator triangulation during data analysis. This investigator triangulation also leads to an increase in dependability and confirmability. Additionally, having a clear analysis process and transparency also supports these two aspects of trustworthiness. Reflexivity was highlighted to examine the researchers' conceptual lens and its potential impact on the study. Lastly, providing rich, thick descriptions in the results sections may help increase the transferability of this study.

Results

The results of this study seek to illuminate the impact of renovations that included an increase in sensory interventions at a single facility on the west coast of the United States through the experiences of the staff. With a dearth of research on sensory interventions on inpatient mental health treatment facilities in the United States, it is important to assess specific benefits of these interventions. Among the participants, there appeared to be two major themes: enhanced services for clients, and improvement in the delivery of services and staff self-care. Additionally, there were four sub-themes associated with the first theme: homelike environment that promotes happiness and recovery; increased ability to utilize coping skills and self-soothe; more space leads to fewer altercations; and more opportunities for interpersonal communication and group engagement/activities. These themes and sub-themes are discussed, with direct quotes from participants to elucidate their experiences and perceptions.

Theme 1: Enhanced Services for Clients

Throughout the 15 interviews, participants commented about the renovation and emphasized the sensory interventions. Positive comments were made about all areas of the facility: comfort room, living room, welcome room, serenity room, and textured wall tiles. Overall, four sub-themes emerged in this section that connect to the enhanced services for clients.

Sub-theme 1. Homelike Environment Promotes Happiness and Recovery

There are various stages of care within the mental health system, with the goal of transitioning a client from a higher level of care to a lower level of care, and ultimately back into the community to create a home. Within this renovation project, focusing on sensory interventions promoted a more homelike environment. One participant commented:

> I enjoy the home-like feel, the home-like environment of the facility. It's definitely unique compared to some of the locked facilities, so I think it has a good benefit for our residents that live here. They feel like they're at home and feel, regardless of that locked setting, that they're in right now and it truly helps their recovery.

With attention to detail and carefully picked fresh colors of the walls that decrease the institutional feel of the facility, coupled with a lack of signs on door and open access to the sensory interventions, the renovations support a home like atmosphere. For example, clients were able to use the various rooms independently and for various purposes, just like at home. One participant noted:

> I mean, I think that's one of the things that you – it's one of the nicest places – it's home. You know, home atmosphere. You know, you got clients listening to their music and engaging in others. They have a place to socialize.

As clients continued to have greater autonomy, they were able to develop skills that would support their recovery. As clients move from those higher levels of care to the lower levels of care, they must acquire skills to successfully manage the new environment. Within this home like setting, one participant commented:

> I think they feel like they have less restrictions here if they think it's more home-like they're able to, at some point, go on walks and step out. And, you know, they're able to do their own laundry. You know, try to have as many independent skills as possible to feel that they can go to the next level of care. And, I think that's critical. To be able to integrate back into society and then to the community. We try to offer as many skills and – and create those coping tools for them. Help them create their own coping tools and interventions so that they can succeed as much as possible.

This homelike environment is just one way the renovation, with its focus on sensory interventions, enhanced the services for clients, which was evident throughout the facility and conversations with the participants.

Sub-theme 2. Increase Ability to Utilize Coping Skills and Self-soothe

As discussed, developing and enhancing skills is important for one’s recovery, especially coping skills that may allow clients to self-soothe during increased times of stress or anxiety. With the renovation project, the participants in this study found clients utilizing the different rooms and textured wall tiles to practice coping skills and self-soothe. For example, one participant reflected on many incidents of observing clients using the textured wall tiles commenting:

> Just for sensory. When you walk down the hall and you have your hands on the wall and you feel the different texture and then all of a sudden you feel the difference of the tiles that’s on the wall. Some are warm, some are cold, and then you’re just able to, you know that, that feels different. So I see a lot of clients actually playing with the textiles and I have noticed a sense of calm.

The textured wall tiles continued to be a strategy that many staff felt brought a sense of calm to clients, oftentimes without clients even consciously thinking about it. Another staff discussed:

> And at times, I see clients putting their hands and feeling the stuff like that. So I think it is a way to soothe. It just grounds them. It – it grounds [them] for that moment. You know. They feel peace, and I find some, without thinking, touching it.

Having more options and sensory interventions to help individuals practice coping skills independently is a significant enhancement to the services for the clients. These opportunities are not just based on the textured wall tiles, but can be found in some of the sensory rooms. For example, one participant commented on both the comfort rooms and serenity rooms and indicated:

> I have seen clients go in [the comfort and serenity rooms]. You know, they lay down there with – with the blanket and it seems like they enjoy that. They’re happy. It brings

> them happiness and the ability to self-soothe. And then, having that peacefulness and the quiet place to retreat to.

Moments of happiness and an ability to self-soothe are protective factors for everyone, but for clients living in an inpatient mental health facility may enhance their recovery and support their transition to a lower level of care.

Sub-theme 3. More Space Leads to Fewer Altercations

The opportunities to practice coping skills and independently self-soothe during stressful or anxious moments, not only enhance the services for the clients, but may be part of the anecdotal evidence for fewer altercations. According to staff, another factor leading to fewer altercations was the pure size of the new space. For example, one participant commented:

> I know that a lot of the clients, like they're not as on edge with each other, just because they have so many different spaces to go to. They're not right on top of each other. They can find some areas where literally no one will be, as opposed to before. Like they couldn't get alone time unless it was in their room and things like that.

The openness and larger area afford clients with more opportunity to practice the skills and decrease distractions and stimuli. Additionally, having more personal space may lead to feeling a greater sense of safety and security. One participant discussed:

> So, the bigger area allows for more personal space, which then cuts down on altercations. It creates a safe space they feel safe. They're not going to want to harm others. They're not going to feel threatened. They're going to basically have a peaceful time there. They're going to be able to live and go to a place where they felt they're not being held against their will.

With more space leading to an increase in client's feelings safer, this facility saw a decrease in altercations. In this setting, less altercations allows clients to feel safer and more secure, leading to more progress on their recovery.

Sub-theme 4. More Opportunities for Interpersonal Communication and Group Engagement/Activities

With the larger space and focus on sensory interventions, there were more opportunities for interpersonal communication and group activities. Participants discussed this in relation to the open sitting areas and living rooms. Interpersonal skills, like coping skills and independent living skills, are essential for one's recovery (Pratt et al., 2016). Sometimes for many clients, the ability to start a conversation and remain engaged may be difficult. However, with changes to the space, one participant highlighted:

> It's a positive thing. I see [the clients] engage with staff and clients while sitting down on the couches and trying to watch whatever, just minding their own business and hanging out. Another social area, I will see staff not even have to say anything, but just sit and listen. Clients are becoming more social.

As clients practice socialization, staff see them socializing more regularly and informally. For example, one participant stated, "it's just public meeting areas where people sit down and then they strike up a conversation or something like that." As clients begin to socialize more, staff are seeing some increase in informal groups. One participant asserted:

> And they're all sitting next to each other and, you know, participating in actual groups. And like a group I do, I just get them to, you know, talk and participate or just that type of thing, where they're encouraged to talk – instead of sit next to each other. And I – I think that's critical, because when they [are discharged], learning to get along with others is a human condition too – as important in learning how to handle conflict.

Communicating with others and developing a sense of community is another protective factor to cope with mental illness. Through the renovation process, client services were enhanced to support the client's recovery and the ability to teach transferrable skills that clients will be able to use when they move to a lower level of care.

Theme 2: Improvement in the Delivery of Services and Staff Self-Care

With its emphasis on sensory interventions, enhancing the quality of services for the clients, there was also an impact for the staff. There was a shift in mindset for staff on how to interact and support the clients. For instance, one participant commented:

> So when I first got [to the new facility] it was actually kind of a culture shock for me because I was like, I didn't realize how much I had been influenced and had some of these thoughts and perceptions of the clients that they shouldn't be trusted alone. And, it's like, we, we need to give them some space to even maybe make a mistake or screw up so that then we have a teaching moment. Because once they get discharged, they will need to know.

As staff began to change their perspectives and views, they were better able to meet clients where they were at in their recovery journey. For those clients that were a little further along, staff were better suited to provide a different type of support that would increase their success in the community. For instance, one staff noted, "I am able to get those deeper needs met with the people that can." Services began to be more individualized and intentional as staff were able to recognize differences in skill level.

Additionally, many staff attributed the change in mindset and service delivery to the ability to use these rooms for their own self-care strategies. The sensory interventions were also a part of the staff routine to support staff wellness. One participant asserted:

> Staff know that part of their focus is on their wellness. [They realize they] can just walk away, go to a room or go even take a walk. I need to care for me now so that I can be productive for the rest of the night. I need to take that 10 minutes, drink some water. Maybe lay down, close my eyes. Just, you know, decompress. And do what I have to, to take care of myself. It's very comforting and soothing.

As staff continue to use the sensory interventions to support their wellness, they will be able to provide more effective services, hopefully leading to more progress on clients' recovery and transition to a lower level of care.

Discussion/Implications for Practice

As previous research in other parts of the world has highlighted, the sensory interventions included at this inpatient hospital provided some positive outcomes for the clients. People working in the mental health system hope to see progress and changes for their clients. One strategy to promote progress is to evaluate the services that are provided. As the evidence in this study demonstrated, including additional sensory interventions may be a helpful addition to promote progress. Services that promote a homelike atmosphere, fewer altercations, utilization of coping skills, and opportunities for interpersonal communication are positive trends to support one's recovery. Recovery, which is unique and tailored to the individual, is the cornerstone of treatment for many people with a mental illness (Pratt et al., 2014). Sensory-based interventions allow client to self-soothe and feel safer. When clients feel safer and more secure they are able to build better relationships with staff. A safe and trusting relationship with staff is the foundation for change in any mental health setting (Connors et al., 2016).

Just as the interventions themselves are important, the staff delivering the interventions are also important. A key element of change is the relationship between staff and client, a

relationship grounded in trust, empathy, and compassion. If staff can focus on better self-care strategies, they will be better equipped to handle the day to day rigor of working at an inpatient hospital. Self-care is an important component in preventing burnout and compassion fatigue (Coaston, 2017). Collectively, healthier staff and enhanced services will see positive changes and more progress on an individual's recovery journey.

Though most of the responses were positive, it is important to highlight some unintended consequences of the renovation and emphasis on sensory interventions. With a larger space and more rooms, some participants discussed having a greater sense of feeling overwhelmed. As facilities look at their space and attempt to include additional sensory interventions, a focus on proximity and overall size needs to be accounted for. Safety needs to be at the forefront of decision making include additional sensory interventions. Though different textures can help individuals self-soothe, there needs to be careful considerations of the types of textures and safety concerns for individual clients.

Although there was some discussion about areas for improvement and things that staff were not happy with, the overriding responses were very favorable. One possible reason for this may be the location where the semi-structured interviews took place. Although the researchers did inform the staff that all their information would be kept confidential and there were many safeguards in place to ensure confidentiality, one can assume that speaking about their experiences in a private office at the facility may have biased their responses.

Limitations

One limitation of this study is the focus on the staff members' perception of these sensory interventions and not on the clients' direct experience. Initially, the researchers were hoping to compare the experiences of staff with the experiences of clients. However, this ultimately was not possible due to regulatory complications. Nevertheless, based on the rigor in the methodology and development of the semi-structured interview protocol, the staff were able to immerse themselves in the environment and discuss their experiences with great depth.

Lastly, the role of the researchers in this study may be a potential limitation to the study. Having three different researchers, all living in the north east part of the United States, interview the participants, may have been limiting to the study. For example, throughout the interviews, the staff referred to specific issues related to the mental health system in their area that the researchers needed to clarify. Therefore, the participants in the study may have felt less strongly connected to the researchers, limiting their responses and not providing as much data in their responses. Finally, each researcher had their own style when conducting the interviews. Although the researchers used the same interview protocol, their differing styles may have elicited different responses.

Plans for Future Investigation

Ultimately, continuing to understand sensory interventions and its impact on mental health recovery is important. As more and more research is conducted, researchers can continue to highlight specific sensory interventions for specific populations, increasing the ability to individualize treatment. As the needs of our mental health service recipients change, service providers need to continue to adapt their interventions, interventions that are grounded in empirical evidence. Combining additional qualitative data with quantitative data will help support future mental health facility on their journey to include additional sensory interventions.

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Appendix A – Demographic Information of Research Participants

	n	%
Gender		
Male	5	33.33
Female	10	66.67
Race/Ethnicity		
White	4	26.67
African American	4	26.67
Pacific Islander	2	13.33
Mixed	2	13.33
Other	3	20.00
Peer Provider		
Yes	1	6.67
No	14	93.33

Appendix B – Interview Protocol

Introduction: Hi, thank you for meeting with me! I'm _________, from XXX. XXX has asked us to interview some of the guests and staff members here to help get a better sense of how people experience the program. XXX is paying XXX to do this, but I don't work for XXX, and nobody outside of XXX research team will ever know who said what in these interviews. If you absolutely love the place, we want to hear about it, and if you absolutely hate it, we want to hear about that just as much. Good or bad, all we care about is hearing the trust of your experience here. Your participation is completely voluntary and you can stop for any reason at any point during the interview.

First of all, I'd like you to fill out this page of basic information. It won't have your name on it, and it won't be connected to your interview, so it's completely confidential. We'll just use it to describe the group of people we interviewed, as a whole [COMPLETE STAFF DEMOGRAPHIC].

Okay, great. Thank you. I'm going to record this interview so I can pay attention to what you're saying and not miss anything. I won't use your name on the recording, and when it's done, I'll send it to a separate transcribing company to get it typed up confidentially. Nobody outside the XXX research team will ever read those original transcripts and before we share any information with XXX or anyone else, we will check carefully to make sure that nobody (not even an insider) can tell who made any particular comment. So it's safe to speak freely, and you don't need to worry about how anyone might react to what you say. Before we get started, do you have any questions about any of this? I'm happy to answer anything you want to ask.

Interview:
Okay. I'm going to turn on the recorder and start the interview. Here we go…

Questions

1. So, first of all, what do you think of this place, just in general?
2. Back in early October of last year, XXX finished a renovation here to try to make it more comfortable and healing environment.
    a. What do you think of the new setup?
    b. Has anything felt different to you here, since the change?
    c. What do you like best about the new setup?
    d. What do you like least about the new setup?

The renovation included service different pieces about which we'd especially like to get your feedback:

3. The welcoming room, with tables and chairs, and love chairs:
    a. What do you think of the welcoming room?
    b. Has it made any difference to your experience here?
4. The comfort room, with video 'fish tanks', mellow music, and rocking chairs:
    a. What do you think of the welcoming room?
    b. Has it made any difference to your experience here?
5. The serenity rooms, with mellow music, adjustable lighting, chaise lounges, and bean bag chairs:
    a. What do you think of the welcoming room?
    b. Has it made any difference to your experience here?
6. The living room, with sofas, love seats, and rocking recliners:
    a. What do you think of the welcoming room?
    b. Has it made any difference to your experience here?
7. The open sitting areas with soft seating and video 'fish tanks':
    a. What do you think of the welcoming room?
    b. Has it made any difference to your experience here?
8. The textured wall tiles:
    a. What do you think of the welcoming room?
    b. Has it made any difference to your experience here?
9. What else would you like to share with me about the renovation?
10. What else would you like to share with me about the program here, in general?

Thank you so much for your time and participation! As I said before we started, no identifying information will be included in anything we write about this interview, and no one at XXX will know what you said during the interview. Thanks again for helping us learn about guests' experiences at XXX.