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The Importance of Perceived Safety in Clinician Workspaces Post-COVID 19

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Abstract The study presents the struggles healthcare workers went through during the outbreak of the COVID-19 pandemic. Many providers themselves were immuno-compromised, immune-deficient, and taking medications. In addition to these genuine concerns about their physical safety, they were simultaneously worried about inadvertently infecting family members and the long-term mental health effects of watching patients suffer and, in some cases, die from COVID-19. Their traumas are associated with soldiers returning home from far-flung battlefields. A quantitative method was used in this study. The data was collected through an anonymous survey. The study findings revealed that healthcare workers prefer flexible furniture design with a larger space that allows for emotional distance and efficiency; safety protocol must be included that shows the organization's care for their employees, accessible and enough resources available for the workers. Employees should place safety first to retain qualified staff, and perceived safety must be taken into consideration. Perception of safety has proven to be critical in the shape of the environments that medical staff occupy and can affect the clinical team's ability to provide quality care for patients.

Keywords COVID-19, Safety, Healthcare, Wellness, PTSD

1. Introduction

"My frustration is that I have never felt like my safety is important…When I'm going to work, I could endanger myself and my family, and I feel like my institution doesn't care." Scott [29].

"I'm never going to be the same after going through this experience, and I don't believe anybody in healthcare in 2020 will be the same after this," said Eric Wei, vice president and chief quality officer for NYC Health + Hospitals and an emergency room doctor in the New York City borough of Brooklyn [5].

"Everyone is on edge, waiting for the wave's crest to crash." Scott [30].

COVID-19 has ravaged the globe in a way few events in recent memory have. Perhaps more troubling than the physical manifestations of the virus have been how it has threatened our perception of safety in everyday life—the ways we live, eat, shop, and work have all been dramatically affected. Nowhere is this more apparent than in clinical workplaces, which have become a sort of "ground zero" for the fight against COVID-19. While the importance of physical mitigation measures cannot be understated, how the virus affects our perception of safety in the workplace is equally important. Furthermore, the perception of safety from physicians' perspective is critical as they are the gateway to treatment and recovery not only from COVID-19 but also from future disasters.

There are countless examples of this playing out in healthcare systems across the United States. In one case, a primary care doctor in Wisconsin would take his mask and place it in a Tupperware container overnight, unsure if he would be able to get a new cover the next day [35]. While rightly portrayed as heroes during COVID-19, physicians do not have immunity to this disease, and suffer from the same types of pre-existing conditions that make segments of the general population more susceptible. Many providers are themselves immuno-compromised, immune-deficient, taking medications. In addition to these genuine concerns about their physical safety, they're simultaneously worried aboutinadvertently infecting family members and the long-term mental health effects of watching patients suffer and, in some cases, die from COVID-19, Borter [5].

Thousands of healthcare workers across the United States are "grappling with psychological trauma that mental health professionals say are more commonly associated with soldiers returning home from far-flung battlefields," Borter [5]. As the disease claims more than 100,000 lives, physicians and medical workers are struggling to maintain mental wellness after watching patients die from COVID-19, Borter [5] notes that psychiatrists have predicted that "between 25% - 40% of frontline healthcare workers and first responders in the United States may have post-traumatic stress disorder as a result of their involvement in the outbreak." Additional research conducted in China, whose peak passed before that of the United States, has confirmed depression and high stress prevalent among healthcare workers who oversaw treatment and responses to COVID-19, Scott [30].

Meanwhile, workers who perceive their workplace as safe and supportive respond with increased efficiency and productivity, resulting in organizational "commitment, participation, and loyalty Kaynak [20]. "Employees develop global beliefs concerning the extent to which the organization values their contributions and cares about their well-being" in return for their contribution and interest, Makanjee [24].

Barling and Hutchinson (2000) concluded that commitment-based safety practices improved trust and organizational commitment and indirectly influenced the safety climate. Parker et al. (2001) also underscored the importance of organizational commitment in improving safety performance. In short, corporate interest was shown by acts supporting workplace health and safety.

Similarly, organizational commitment to safety has a positive relationship with job satisfaction and job-related performance, increasing success rates of employee attraction and retention. Furthermore, commitment to safety is also negatively associated with employee withdrawal behaviours and burnout (Michael et al., 2005). Perceptions of the work environment and security of such impact worker attitudes; therefore, a job with perceived safety can induce favourable psychological conditions (Banair & Reisel, 2007), which can mitigate feelings of disconnection or burnout Kaynak [20].

Graban [14] points out that this approach to safety culture "is owned by executive-level administrators and all other leaders in the organization," meaning that cultural approaches and interpretations of safety are ultimately driven from the top down. This informs us that cultural changes for the purpose of safety, or otherwise, must be demonstrated and embraced by leadership to show and embrace cultural differences for safety or otherwise, demonstrate the importance and commitment to employees across the organization.

This begins to form the foundation of why the research proposed here is critical: perceived safety of physicians and the clinical workforce are imperative to maintaining a robust healthcare system in the United States capable of handling future pandemics and other disasters.

1.1. Psychological Needs Post-Covid-19: Wellness and Post-Traumatic Stress Disorder (PTSD)

As previously mentioned, physicians are exposed to risk and trauma as part of their everyday work. Sendler [31] reminds us that "although the view of injured and traumatized patients may appear to be an obvious expectation of the clinician's occupational scenery, in excess, such situations may disrupt medical routine and affect personal life." This is one way PTSD can begin to affect medical workers, and the COVID-19 outbreak has certainly given physicians an up-close look at illness and trauma daily.

Interestingly, both military veterans and emergency respondents often exhibit the symptoms of PTSD, and these professions experience a rate of occurrence that is several times greater than that of the general population. These symptoms are not necessarily immediately apparent—"the symptoms of PTSD may start occurring immediately after the inciting event, or may be delayed for several weeks or even months" Sendler [31]. This means that in the case of COVID-19, we likely do not have a complete picture of how affected our clinical workforce will be based on what they have experienced and witnessed as part of the pandemic response. Previous examples have shown a significant variance, with around 15% of respondents showing PTSD symptoms after the World Trade Center attack. Sendler [31] and a higher percentage of respondents showed PTSD symptoms in the case of physicians who responded to the Omagh, Ireland bombing in 1998, Sendler [31].

1.2. The Role of Furniture in Provider Safety

The furniture providers embody a critical component of the clinical workspace utilized to complete their job's administrative portions. Factors such as ergonomics and space planning can affect physical safety. In contrast, additional factors like clutter and a balance of privacy and

access can affect the perceived safety of the workspace. In other words, the physical factors are not the only determinant in the effectiveness of furnishing a space—functionality must be considered as well. "Functionality consideration encourages people to live and work effectively. The psychological and physical comfort…is linked to the degree of feasibility and flexibility of the design, Mahmoud, [24]. Additionally, as noted by Hughes [17]. "Humans do not always behave clumsily, and humans do not always err, but they are more likely to do so when they work in a badly conceived and designed health care setting." A study by Malone [25] confirms the importance of furniture's role in a clinical work environment, concluding that furniture selection and placement directly affect staff and patient outcomes. "The high-risk healthcare industry demands much from these common objects, ranging from embodying an organization's brand, providing patient comfort and support during stressful times, enabling staff to work efficiently and safely as a team, and perhaps most importantly, not contributing to patient and staff and organizational harm." Malone [25]. Unfortunately, there is a distinct lack of research on how furniture impacts provider safety.

2. Materials and Methods

2.1. Hypothesis

If furniture affects the perception of safety in a provider's workspace can be understood, then furniture selection and placement recommendations can be made to insulate providers from feeling unsafe after the COVID-19 pandemic.

2.2. Research Questions

1. Have providers modified the furniture or furniture layout in the inpatient workspace?
2. What modifications have been made?
3. Do any furniture pieces or furniture layout modifications affect the perception or feeling of safety in the inpatient workspace?

2.3. Research Design/Methodology

Survey: An anonymous survey will be conducted (utilizing Qualtrics) and distributed to clinical nurses around the United States through the Association of Medical and Surgical Nurses (AMSN). Participants were first asked if their clinical workspace has incorporated many changes in furniture placement (such as redistribution or spreading out) or furniture pieces (such as screens or additional sanitization stations) due to COVID-19. After that, participants were asked a series of questions about how these changes impacted their feeling of safety using a Likert scale to rate their response. Participants were also allowed to add thoughts at the end of the survey about what modifications would have impacted their perception of safety.

2.4. Data Collection

An anonymous survey was distributed through the AMSN. An invitation to participate was included in a monthly newsletter and an e-blast. The survey utilized a yes/no, Lichert scale, and short answer questions to gather the widest variety of responses.

1. Have any modifications been made to your workspace as a result of COVID-19? (We are specifically asking about your administrative workspace like a desk or private office, not clinical settings such as exam rooms or patient rooms.)
   - Possible answers: Yes, No, Unsure
   - GOAL: In this question, the goal is to ascertain whether modifications were made to the clinical workplace.

2. Which of the following modifications has taken place? (Select all that apply)
   - Possible answers: De-densification of furniture (spreading desks and seating apart), the addition of plexiglass barriers, the addition of higher panels/screens or separation between individual workspaces, the addition of handwashing or sanitization stations, staggering of employee seating (example: leaving every other seat open, so people remain spread further apart), and other (with room to explain)
   - GOAL: Researchers must understand what modifications were made to the work environment before asking respondents to consider the effects on the perception of safety.

3. Which of these changes (if any) increased your sense of safety in the workplace? (Select all that apply)
   - Possible answers: De-densification of furniture (spreading desks and seating apart), the addition of plexiglass barriers, the addition of higher panels/screens or separation between individual workspaces, the added addition of handwashing or sanitization stations, staggering of employee seating (example: leaving every other seat open, so people remain spread further apart), and other (with room to explain)
   - GOAL: Of the modifications made, it is critical to receive feedback about what made clinicians FEEL safer.

4. Please rate how safe your workplace has FELT (this is about perception, not necessarily actual safety)
   - Possible answers are rated on a Likert scale from 1-5, with one representing very unsafe and five representing very safe.

- Four scenarios were presented: Before the COVID-19 outbreak, my workplace felt…; during the COVID-19 episode, my workplace felt…; if changes were made to my workplace as a result of COVID-19, I felt…; carrying these changes forward after COVID-19 is contained would help me think…
- GOAL: By presenting these four scenarios and getting feedback, a comparison can be drawn between the perception of safety before the COVID-19 pandemic and after any workplace modifications were made.

5. Which modifications that were NOT implemented (if any) would have INCREASED your sense of safety? (Select all that apply)
   - De-densification of furniture (spreading desks and seating apart), the addition of plexiglass barriers, the addition of higher panels/screens or separation between individual workspaces, the addition of handwashing or sanitization stations, staggering of employee seating (example: leaving every other seat open, so people remain spread further apart), and other (with room to explain)
   - GOAL: This question allows clinicians to rate modifications that were not made, allowing us to understand what impact desired changes might have on the perception of safety.

6. Is there anything else that could be done to your workspace that would ensure you feel safe (r) at work?
   - Participants were given space for a short answer.
   - GOAL: Clinicians can provide explanations and ideas that were not initially considered by the research team.

In total, 167 members of AMSN responded to the survey.

3. Results

1. Have any modifications been made to your workspace as a result of COVID-19?
   - 60% of respondents indicated that modifications had been made to their workplace. 33% reported no change, and 7% were unsure.

2. Which of the following modifications has taken place? (Select all that apply)
   - 26% of respondents indicated that their workspace now utilized a staggered seating plan. 23% reported that their workplace has de-densified workstations, 22% saw the addition of handwashing and sanitization stations, 16% saw plexiglass barriers added to the space, and 3% saw higher divisions between individual work points. 9% responded "other." with the following modifications listed: social distancing measures, increased cleaning protocols, isolation of COVID patients, increased distribution of personal protective equipment (PPE), encouraging remote or distributed work, screening patients, and restricting occupancy.

3. Which of these changes (if any) increased your sense of safety in the workplace?
   - There are two areas to consider here. The first is which instituted modifications added to the perception of safety. The second is which possible changes NOT created would have added to the perception of safety.
   - As far as modifications instituted, 28% of respondents said that staggering seating increased their sense of safety, 23% said that the addition of handwashing and sanitization stations increased their percent security safety, and 21% indicated that the de-densification of the furniture helped them feel safer. The addition of plexiglass barriers (14%) and the addition of higher panels or dividers between individual work points (4%) did less to make providers feel safe. 10% of participants responded "other," and those answers included: availability of PPE, increased cleaning protocols, increasing social distancing measures, restricting occupancy, and screening of patients.
   - When asked about modifications that were NOT instituted but would have added to the perception of safety, 22% of respondents stated that the addition of handwashing or sanitization stations would increase their perception of security and safety, and the same number of participants indicated that the addition of higher panels/screens or separation between individual work points would add to the feeling of safety. 17% would like the addition of plexiglass barriers, 16% liked the idea of staggered seating, and 15% would like the de-densification of furniture. 9% responded "other," and answers included the organization, distribution, availability of PPE, and isolation of COVID patients.
   - "Other" included the following: availability of PPE, increased cleaning protocols, increasing social distancing measures, restricting occupancy, and screening of patients.

4. Discussion

4.1. Physician Workplaces are Already Dangerous

Interestingly enough, despite the previous discussion indicating the many dangers associated with clinical workplaces, members of AMSN surveyed in this study

showed that before the outbreak of COVID-19, most felt safe in their workspaces. 75% of respondents chose the response "safe" or "very safe" when asked to respond to the prompt "Before the COVID-19 outbreak, my workplace felt…." This comes as somewhat of a surprise when considering the hazards that medical providers regularly encounter in a clinical setting and the rates of injury associated with a career in medicine. On the opposite end of the spectrum, 7% of nurses surveyed responded that they felt either "unsafe" or "very unsafe.". This response was quite possibly affected by COVID-19—it is undoubtedly easy to reflect on pre-COVID life and assume it was much safer, despite previous research stating otherwise. If this survey had been conducted before COVID was at the top of everyone's minds, it is entirely possible that clinicians would NOT have rated their workplaces as feeling as safe as they do now while looking back. These numbers are significantly affected by the outbreak of COVID-19, demonstrating a shift in the perception of the safety of the clinical workplace. When asked to use the same scale to rate their safety DURING the COVID-19 outbreak, only 46% of participants responded that they felt either "safe" or "very safe," while the percentage of those who felt either "unsafe" or "very unsafe" rose to 28%.

4.2. This is Not a One-time Event

As outlined earlier, there are many instances of similarly stressful and dangerous events happening, illustrating the importance of perceived safety so that clinicians can thoughtfully and carefully respond in a moment of crisis, whether it be artificial, a natural disaster, or the spread of contagion like COVID-19. This will not be the last crisis with long-reaching consequences affecting clinical staff. Incorporating elements into the built environment that enable staff resilience is critical to the ability to cope with future disaster scenarios. Bauer-Wu & Fontaine have clarified that resilience (a term we have heard frequently throughout the pandemic) is defined as the ability "to spring back to one's original shape or to withstand or recover quickly from difficult conditions." Loewy [22]. They relate this to the medical profession: "So rather than bouncing back from isolated instances of adversity, we see resilience in this context as 'being one's best self in the ongoing daily challenges of being a nurse, physician, or another clinician. It means thriving in a way that embodies a sense of wellness, connectedness, joy, and meaning within the everyday work environment." Loewy [22].

Survey results showed that these numbers were buoyed when their workspaces were changed due to the pandemic. 56% of participants responded that they felt either "safe" or "very safe" as a result of the changes made, and only 10% felt "unsafe," with 0% responding that they felt "very unsafe." What is perhaps more important is that if these changes to the workplace were carried forward after the outbreak of COVID-19 is contained, 57% would feel either "safe" or "very safe" as a result of the changes, and only 2% would feel unsafe. Again, 0% responded that they would feel "very unsafe."

5. Conclusions

There are several key takeaways from this study. The following hypothesis was presented in Chapter 1: "If how furniture affects perception of safety in a provider workspace can be understood, then furniture selection and placement recommendations can be made that insulate providers from feeling unsafe after the Covid-19 pandemic." Results have indicated that this is true. Based on the feedback from this survey, the following recommendations for the future design of clinical workplaces can be identified:

- *Flexibility is vital*: Adaptive workspaces allow healthcare facilities to flex to meet ever-changing needs. In the case of COVID-19, healthcare facilities needed to expand clinical work areas to allow for safety protocols like social distancing. Elements such as immovable furniture and architecture prevented this.

Additionally, when these guidelines are eventually lifted and clinicians can safely work nearby again, their workspaces should be able to flex once again and adapt to a mode of work that requires less space.

- *As real estate is shrinking, clinicians want more space*: Healthcare organizations are rapidly consolidating their real estate portfolios. The technology used in clinical workplaces, like computers and monitors, take up less space than in years past. Less paper is required as records are being stored electronically. Despite all of this, the most popular changes that could be made to a clinical workplace to make it feel safer were space allocation issues. In the future design of healthcare facilities, attention must be paid to the balance between the efficiency of space and allowing for personal emotional distance.
- *Safvisiblye visible*: Providers need to see safety protocols to know that they are actively being cared for by the organization that employs them.
- *Equitable access to resources*: Repeatedly in survey results, clinicians cited organized, centralized storage of PPE and hand washing/sanitization stations as criteria for a workplace that feels safe. By ensuring equitable access to resources such as these, feelings of safety are increased significantly.
- *Perceived safety is a key business driver for healthcare organizations*: Ultimately, one of their most significant investments will always be in the people who make up their work in order to protect that investment—perceived safety must be considered. Without it, as illustrated in this body of

research, an organization's ability to retain qualified staff decreases. Simply put, people do not want to work where they do not feel safe.

These design considerations can provide a helpful tool when designing clinical work areas for a post-COVID world. Perception of safety has proven to be critical in the shape of the environments that medical staff oc, cups and can affect the ability of the clinical staff to provide quality care for patients.

REFERENCES

[1] Akazawa, M., Sindelar, J. L., & Paltiel, A. D. (2003). Economic Costs of Influenza-Related Work Absenteeism. Value in Health, 6(2), 107–115. doi: 10.1046/j.1524-4733.2003.00209.x

[2] Ali, M. (2014). The Impact of Safety and Health on Employee's Retention. Management and Administrative Sciences Review, 3(6), 960–967.

[3] Bermudez, J. L., Marcel, A., & Eilan, N. (Eds.) (1995). The body and the self. Cambridge: MIT Press.

[4] Bauer-Wu, S., & Fontaine, D. (2015). Prioritizing Clinician Wellbeing: The University of Virginias Compassionate Care Initiative. Global Advances in Health and Medicine, 4(5), 16–2. doi: 10.7453/gahj. 2015.042

[5] Borter, G., & Cooke, K. (2020, May 8). `I'm never going to be the same': Medics grapple with mental trauma on COVID-19 front line. Retrieved May 10, 2020, from https://www.reuters.com/article/us-health-coronavirus-usa-mental-idUSKBN22K2IZ

[6] Bradford, A. (2017, October 24). The Five (and More) Senses. Retrieved May 16, 2020, from https://www.livescience.com/60752-human-senses.html

[7] Bregman, A. S. (1990). Auditory scene analysis: The perceptual organization of sound. Cambridge, MA: MIT Press.

[8] Cloutier, O., Felusiak, L., Hill, C., & Pemberton-Jones, E. J. (2015). The Importance of Developing Strategies for Employee Retention. Journal of Leadership, Accountability and Ethics, 12(2), 119–129.

[9] Downing, F., Nanda, U., Laiprakobsup, N., & Mohajeri, S. B. (2008). An Embodied Architecture. Enquiry A Journal for Architectural Research, 5(1). doi:10.17831/enq: arc. v5i1.25

[10] Eberhard, J. P. (2009). Applying Neuroscience to Architecture. Neuron, 62(6), 753–756. DOI: 10.1016/j.neuron.2009.06.001

[11] Emamgholi, A. (2011). Flexible paces in Architecture. Khavaran: Higher-education Institute. Floyd, A. H. L., & Floyd, H. L. (2014). The Value of Vulnerability. Professional Safety, 32–37.

[12] Gering, J., & Conner, J. (2002). A Strategic Approach to Employee Retention. Healthcare Financial Management, 40–46.

[13] Goldstein, E. B. (2002). Sensation and perception, Sixth Edition. Pacific Grove, CA: Wadsworth.

[14] Graban, M. (2018). Lean hospitals: improving quality, patient safety, and employee engagement. Boca Raton: CRC Press.

[15] Hekkert, P. (2006). Design aesthetics: principles of pleasure in design. Psychology Science, 48, 157–172.

[16] Hughes, R. (2008). Patient safety and quality: An evidence-based handbook for nurses. Rockville, MD: Agency for Healthcare Research and Quality, U.S. Dept. of Health and Human Services.

[17] Jonathan, G. K., & Mbogo, R. W. (2016). Maintaining Health and Safety at Workplace: Employee and Employer's Role in Ensuring a Safe Working Environment. Journal of Education and Practice, 7(29), 1–7.

[18] Kaynak, R., Toklu, A. T., Elci, M., & Toklu, I. T. (2016). Effects of Occupational Health and Safety Practices on Organizational Commitment, Work Alienation, and Job Performance: Using the PLS-SEM Approach. International Journal of Business and Management, 11(5), 146–166. DOI: 10.5539/ijbm. V11n5p14

[19] Krishna, A. (2012). An integrative review of sensory marketing: Engaging the senses to affect perception, judgment, and behavior. Journal of Consumer Psychology, 22(3), 332–351. DOI: 10.1016/j.jcps.2011.08.003

[20] Loewy, R. (1951) Never Leave Well Enough Alone. New York: Simon and Schuster

[21] Luft, B. J., Schechter, C., Kotov, R., Broihier, J., Reissman, D., Guerrera, K., ... Bromet, E. J. (2012). Exposure, probable PTSD, and lower respiratory illness among world trade center rescue, recovery, and clean-up workers. Psychological Medicine, 42(5), 1069-79. doi: http://dx.doi.org.proxy.bsu.edu/10.1017/S0033291711002 56X

[22] Mahmoud, H. H. (2017). Interior Architectural Elements that Affect Human Psychology and Behavior. The Academic Research Community Publication, 1(1), 10. doi: 10.21625/archive. V1i1.112

[23] Malone, E. B., & Dellinger, B. A. (2011). Furniture Design Features and Healthcare Outcomes. Center for Health Design. Nanda, U. (2005). synthetics: a ross modal approach to our environments' perception and conception. Doctoral dissertation, Texas A&M University. Texas A&M University. Available electronically from HTTP.

[24] Nanda, U., Pati, D., Ghamari, H. & Bajema, R. (2013) Lessons from neuroscience: form follows function, emotions follow form structure, Intelligent Buildings International, 5: sup1, 61-78, DOI: 10.1080/17508975.2013.807767

[25] Nanda, U., Zhu, X., & Jansen, B. H. (2012). Image and Emotion: From Outcomes to Brain Behavior. HERD: Health Environments Research & Design Journal, 5(4), 40-59. doi: 10.1177/193758671200500404

[26] Russell, M. (2018). Why Employees Quit: 20 Stats, Employers Need to Know. Medium. Retrieved March 04, 2021, from https://medium.com/@checkli/why-employees

-quit-20-stats- employers-need-to-know-b921c253f767.

[27] Scott, D., Irfan, U., & Kirby, J. (2020, March 26). The Next Coronavirus Crisis Will Be a Shortage of Doctors and Nurses. Retrieved May 16, 2020, from https://www.vox.com/2020/3/26/21192191/coronavirus-us-new-york

[28] Sendler, D. J., Rutkowska, A., & Makara-Studzinska, M. (2016). How the Exposure to Trauma Has Hindered Physicians' Capacity to Heal: Prevalence of PTSD Among Healthcare Workers. European Journal of Psychiatry, 30(4), 321–334.

[29] Ulrich, B., Barden, C., Cassidy, L., & Varn-Davis, N. (2019). Critical Care Nurse Work Environments 2018: Findings and Implications. Critical Care Nurse, 39(2), 67-84. doi:10.4037/ccn2019605

[30] United States Department of Labor. (n.d.). Safety and Health Topics: Healthcare. Retrieved May 10, 2020, from https://www.osha.gov/SLTC/healthcarefacilities/

[31] What is Wellness? (2019, May 14). Retrieved May 10, 2020, from https://globalwellnessinstitute.org/what-is-wellness/

[32] Yerian, L., & Toussaint, J. (2020, April 28). A Standardized Management System and an Improvement Culture allow for a fast, safe, and efficient responses to Covid-19. Retrieved May 10, 2020, from https://createvalue.org/articles_and_news/standardized-management-system-improvement-culture-allow-fast-safe-efficient-response-covid-19/