ENCLOSED versus OPEN nursing stations in adult acute care psychiatric settings: Does the design affect the therapeutic milieu?

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ABSTRACT

Specific efforts by hospital accreditation organizations encourage renovation of nursing stations, so nurses can better see, attend, and care for their patients. The purpose of this study was to examine the effect of nursing station design on the therapeutic milieu in an adult acute care psychiatric unit. A repeated cross-sectional, pretest-posttest design was used. Data were collected from a convenience sample of 81 patients and 25 nursing staff members who completed the Ward Atmosphere Scale. Pretest data were collected when the unit had an enclosed nursing station, and posttest data were collected after renovations to the unit created an open nursing station. No statistically significant differences were found in patient or staff perceptions of the therapeutic milieu. No increase in aggression toward staff was found, given patients’ ease of access to the nursing station. More research is needed about the impact of unit design in acute care psychiatric settings.

LITERATURE REVIEW

A review of the literature revealed a lack of quantitative research on the effect of nursing station design on the therapeutic milieu in acute inpatient psychiatric units. This review included a comprehensive search of relevant journal articles. The databases searched included CINAHL, MEDLINE via PubMed, PsychInfo, EBSCO Health and Nursing Database Family, and Health Source: Nursing/Academic Edition. Search terms included the following combinations: nursing station, nurses station, nurse-patient interactions, ward design, unit design, hospital design, hospital geography, Ward Atmosphere Scale (WAS), patient interactions, physical environment, psychiatric hospital design, patient experience, psychiatric inpatient environment, and ward regimes. Articles were selected based on the relevance to nurse-patient interactions, overall ward design, the WAS, therapeutic milieu, and patient satisfaction related to nursing interactions. Sixteen articles met the study criteria. Two main themes were evident from these articles: patients’ experiences related to nurse-patient interactions and nurses’ physical presence, and the perceived impact of nursing station design in acute care psychiatric environments.

Perceived Impact of Nursing Station Design in Acute Care Psychiatric Environments

Many standard environmental components in unit design can be unintentionally detrimental to patients and staff. Andes and Shattell (2006) discussed one such design feature in their study of space and place in acute psychiatric settings. An anti-shatter tempered glass-enclosed nursing station is a familiar design often seen in acute psychiatric settings in the United States. This wall encompassing the nursing station not only cuts off a patient’s access to nurses, but also creates a theme of power via the glass barrier, with patients feeling powerless to the divide (Andes & Shattell, 2006). This barrier forces a patient to tap on the glass, wave, and essentially beg for nursing staff attention (Andes & Shattell, 2006). The glass also inflames patients’ feelings of not being cared about, and they report feeling like objects, rather than people (Forchuk & Reynolds, 2001).

Interestingly, patients were not the only ones affected negatively by the glass divide; Shattell, Andes, and Thomas (2008) reported that nurses felt caged in and confined by the glass, and they yearned for more patient interaction. Tyson, Lambert, and Beat-tie (1995) indicated that psychiatric mental health nurses only spend
approximately one third of their days interacting with patients in acute cardiac psychiatric settings. Glass barriers may contribute to staff members’ feelings of isolation and perhaps to less staff-member interaction with patients. Overall, there is a lack of quantitative research on the effect of nursing station design on the therapeutic milieu in acute inpatient psychiatric units. While many studies suggest that patients are dissatisfied, units are poorly designed, and the number of nurse–patient interactions is few, no research could be found that examined the effect of nursing station design on the therapeutic milieu. The study reported in this article fills this gap because our study examined one adult inpatient psychiatric unit when it had an enclosed nursing station and then again later reconstruction and renovation to an open nursing station design, to examine differences in perceptions (patients and nursing staff) of the therapeutic milieu.

METHOD

Design

A repeated cross-sectional study design (one cross-section before the nursing station enclosure was removed and one after) was used for this study. Institutional Review Boards at the hospital and university approved the study.

Setting and Sample

The setting is a public not-for-profit, freestanding, acute psychiatric hospital in a medium-sized city in the southeastern United States. The unit in the staff has access to their break room and also to the nursing station. The staff break room is located and contains a long table and chairs, as well as a refrigerator. The nursing station is a large area centrally located on the unit that has several computers for charting and ample desk space with chairs. During the pretest time period of the study, the nursing station was entirely enclosed by anti-shatter tempered glass with a 4 mil ballistic film. There was a small window (that measured approximately 2 feet by 4 feet) in the middle of the station in front of the unit secretary’s desk (i.e., a window the unit secretary could open to respond to patient requests). The back of the station was the work area for nurses and mental health technicians. During the posttest time period of the study, the nursing station was an open design. The glass had been removed, the unit secretary’s desk had been moved to the back of the nursing station, and the nurses’ and mental health technicians’ areas were moved to the front of the station. Other renovations and upgrades to the station included new cabinets and countertops and freshly painted walls. The total square footage of the nursing station did not change (397 square feet plus a medication room that is 242 square feet). The medication room inside the nursing station is completely enclosed (both before and after renovation); it is embedded within the nursing station. Potential study participants were identified within the acute psychiatric hospital environment or were adult inpatients in the environment. A convenience sample of 81 patients and 25 nurses and mental health technicians was recruited. The patients in the pretest data collection group were different from the patients in the posttest data collection group. Only three staff members completed the WAS both before and after and nursing station renovation. The remainder of the staff participants was different for each data set.

Timing of Construction

The renovation of the nursing station was originally scheduled to begin within 2 months of the preconstruction data collection. The project was expected to take 4 weeks with post-construction data collection beginning 3 months after the renovation was completed. Due to unexpected building repairs that arose during this same time frame, the project was delayed because of budget constraints. As a result, there were 24 months between pretest and posttest data collection.

Staff Changes

During the time between data collection points, there was a change in nursing and physician leadership. Two psychiatrists left the unit with the unit for a number of years left to work in private practice. Both psychiatrists worked well with unit staff members, who were saddened by the psychiatrists’ departures. Staff had to adjust to the styles of the new psychiatrists. Turnover also occurred in the unit director position. The new director implemented necessary changes related to staffing, unit rules, and accountability. Initially, these changes brought about discontent among many staff members.

Measurement

Therapeutic milieu was operationally defined using the WAS (Moos, 1974). The WAS was used to determine nurses’, mental health technicians’, and patients’ perceptions of the therapeutic milieu. The WAS is a 100-item true/false questionnaire that is divided into three dimensions: Relationship Variables, Personal Development, and System Maintenance. The three dimensions can be subdivided into 10 categories (subscales): Involvement, Support, Spontaneity, Autonomy, Practical Orientation, Personal Problem Orientation, Anger and aggression, Order and Organization, Personal Problem Orientation, and Involvement. Total scores from the WAS can be converted into an established standard set of scores to be compared to a normative sample (Corey, Wallace, Harris, & Casey, 1986). WAS category scores were compared before and after removal of the nursing station glass enclosure to determine whether a change in the therapeutic milieu had occurred post renovation. The different percepions of staff units milieu between staff members and patients were also compared.

Data Analysis

The study compared cross-sectional data collected before and after renovation of the nursing station. The goals of the statistical analyses were to describe the sample of patients and staff before (pretest) and after (posttest) removal of the glass enclosure to create an open nursing station, and to identify any differences in the therapeutic milieu for patients and staff from pretest to posttest. To address the first goal, descriptive statistics such as mean and standard deviation (SD) or frequency and percentage were estimated for patients at staff and posttest. Chi-square, Fisher’s exact, or Cochran–Armitage trend tests were performed to test for differences in categorical characteristics, and t-tests or Wilcoxon rank-sum tests were performed to test for differences in continuous characteristics.

To address the second goal, because differences in all 10 subscales of the WAS were of interest, a multivariate
TABLE 2
DIFFERENCES IN WARD ATMOSPHERE SCALE (WAS) SUBSCALE SCORES FROM PRETEST TO POSTTEST FOR STAFF (N = 25)

<table>
<thead>
<tr>
<th>WAS Category</th>
<th>Pretest (n = 12) Mean (SD)</th>
<th>Posttest (n = 13) Mean (SD)</th>
<th>Post – Pre Mean (SD)</th>
<th>t Test p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Involvement</td>
<td>7.08 (2.065)</td>
<td>6.77 (2.455)</td>
<td>-0.31 (2.277)</td>
<td>0.733</td>
</tr>
<tr>
<td>Support</td>
<td>6.58 (1.505)</td>
<td>7.38 (1.557)</td>
<td>0.80 (1.532)</td>
<td>0.204</td>
</tr>
<tr>
<td>Spontaneity</td>
<td>6.25 (0.866)</td>
<td>6.00 (1.354)</td>
<td>-0.25 (1.147)</td>
<td>0.591</td>
</tr>
<tr>
<td>Autonomy</td>
<td>4.75 (1.422)</td>
<td>4.31 (0.830)</td>
<td>-0.44 (0.884)</td>
<td>0.337</td>
</tr>
<tr>
<td>Practical orientation</td>
<td>7.00 (1.206)</td>
<td>7.46 (1.450)</td>
<td>0.46 (1.339)</td>
<td>0.398</td>
</tr>
<tr>
<td>Personal problem orientation</td>
<td>6.75 (1.138)</td>
<td>6.77 (1.092)</td>
<td>0.02 (1.114)</td>
<td>0.966</td>
</tr>
<tr>
<td>Anger and aggression</td>
<td>4.83 (1.899)</td>
<td>4.69 (1.932)</td>
<td>-0.14 (1.916)</td>
<td>0.855</td>
</tr>
<tr>
<td>Order and organization</td>
<td>5.07 (2.060)</td>
<td>5.92 (2.465)</td>
<td>0.26 (2.280)</td>
<td>0.781</td>
</tr>
<tr>
<td>Program clarity</td>
<td>6.00 (1.995)</td>
<td>6.23 (1.217)</td>
<td>0.23 (1.892)</td>
<td>0.763</td>
</tr>
<tr>
<td>Staff control</td>
<td>1.25 (1.138)</td>
<td>2.23 (1.423)</td>
<td>0.98 (1.295)</td>
<td>0.071</td>
</tr>
</tbody>
</table>

Note. Multivariate Hotelling T2 test for any mean differences. F(10,14) = 0.7014; p value = 0.7099.

Differences in WAS from Pre to Post Renovation

No statistically significant differences were found in WAS scores from pretest to posttest. For patients, four of the WAS subscales had KR-20 coefficients above 0.6 at pretest versus three at posttest. For staff, three WAS subscales had KR-20 coefficients above 0.6 at pretest versus four at posttest. This could reflect some problems with reliability of these subscales.

No statistically significant differences were found in WAS scores from pretest to posttest for staff. Again, these differences were not significantly different. These subscale scores may be useful in future studies.

DISCUSSION AND IMPLICATIONS

The study findings showed no statistically significant difference in patient or staff perception of the therapeutic milieu from when the same inpatient psychiatric unit had an enclosed nursing station to an open nursing station. Although we had anticipated we would find an improvement in therapeutic milieu post renovations, it is important to note that patients’ and staff members’ perceptions of the milieu, as measured by the WAS, did not deteriorate or worsen. The open nursing station did not negatively impact perception of unit milieu.

Contrary to our findings, Corey et al. (1986) found statistically significant differences in patient and staff perception of the therapeutic milieu between pretest and posttest. Staff members in our study reported a trend toward decreased patient anger and aggression and better patient control after the renovations that created an open nursing station design. In the current study, these differences were not statistically significant or not statistically significant differences in the milieus pretest and posttest, given the time that had elapsed between the two data collection points. It may be that other factors affected the milieu in the intervening months. In addition, there was a change in nursing unit leadership and physical changes on the unit during the time between pretest and posttest data collection. In a short period of time, the new nursing unit director initiated several changes that a number of staff members had difficulty adjusting to and accepting. Accepting to Mose (1974), deterioration may be noted in the WAS during times of change. In the current study, these unit changes may have negatively affected therapeutic milieu, as measured by the WAS scores, resulting in no statistically significant differences from pretest to posttest.

LIMITATIONS AND SERENDIPITOUS FINDINGS

The study had several limitations, one of which was a smaller than desired convenience sample, and another is the time period between the data collection periods. We anticipated that the renovation to an open nursing station would occur soon after the initial data set (pretest) were collected. However, due to budget constraints, the renovation was delayed for approximately 1 year. Thus, these data may not accurately represent differences in the milieus pretest and posttest, given the time that had elapsed between the two data collection points.

This study had several limitations, another was the convenience sample, and another is the convenience sample. However, despite these limitations, the study findings showed no statistically significant differences in patient or staff perception of the therapeutic milieu when the psychiatric unit became open. As noted by Mose (1974), deterioration may be noted in the WAS during times of change. In the current study, these unit changes may have negatively affected therapeutic milieu, as measured by the WAS scores, resulting in no statistically significant differences from pretest to posttest.

KEYPOINTS

1. This study examined the effect of nursing station design on therapeutic milieu in an adult acute care psychiatric unit.
2. Removal of the physical barrier around the nursing station showed no statistically significant differences in patient or staff perception of the therapeutic milieu.
3. The open nursing station did not negatively impact the milieu and may in fact have benefits that were not captured in this study.

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coefficient would have to be 0.286 or greater for higher KR-20 (≥0.80) coefficients. This could be driven, in part, by the study sample size, so further studies with larger samples could be warranted.

Recommendations from health care sources, as well as the documented importance of the nurse-patient relationship, support the removal of physical barriers in acute care psychiatric nursing stations (Shattell et al., 2008). Further research using a qualitative approach may yield greater insight into the impact of an open nursing station on patients and staff. Suggestions for replication of this study include the involvement of multiple hospital units; decreasing the amount of time between data collection points; having the same staff members complete the WAS both at pretest and posttest so individual differences can be determined; and measuring additional outcomes such as patient satisfaction, work/job satisfaction, seclusion and restraint reports, incident reports, and number and quality of nurse-patient interactions—all of which may be correlated with measures of milieu quality.

Although not part of the original study, anecdotal evidence from nurses and mental health technicians suggest that no significant change in the therapeutic milieu can be viewed as positive, since some of these staff were extremely wary of the proposed renovations at pretest, and many predicted a worsening of the milieu at posttest. Some nurses feared increased aggression toward staff members, given patients’ ease of access to the nursing station. At 12 months post renovations, there has been no increase in patient aggression on the psychiatric unit in this study. In fact, seclusion and restraint rates have dropped 26% from the prior year during the same 12-month period. Although a full review and discussion of unit safety on inpatient psychiatric units is beyond the scope of this article, we agree with Koivisto et al. (2004), who suggested that for everyone—staff members and patients—to feel safer, nurses (and other staff members) need to be with patients more. Open nursing stations may facilitate this.

CONCLUSIONS
This study examined patients’, nurses’, and mental health technicians’ perceptions of the therapeutic milieu in the same unit at two different time points and with two different nursing station configurations (enclosed versus open). Although we anticipated a statistically significant positive change in the milieu, finding that there was no significant negative change in the milieu should not go unnoticed. In this study, an open nursing station did not negatively affect the milieu and may, in fact, have had benefits that the WAS was not able to capture. The renovated nursing station did not result in increased patient aggression or assault on staff members, as some staff had predicted. On the contrary, seclusion and restraint rates dropped during this time period. Psychiatric nurses who work in adult acute care settings with an enclosed nursing station should not necessarily be fearful of working in adult acute care settings that have an open nursing station design.

REFERENCES