



KEY POINT SUMMARY

OBJECTIVES

The objectives of this study were first, to assess nurse satisfaction with ICU layout and workspace, and second, to identify variables impacting satisfaction levels in these two areas.

A study of workspace design characteristics exemplified by nurses' satisfaction within three intensive care units in a university hospital

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Key Concepts/Context

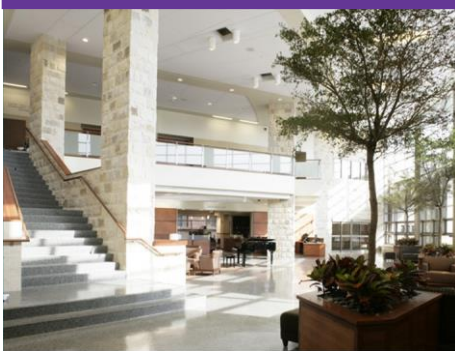
Nursing job satisfaction can be influenced by the healthcare system, organizational factors, job requirements, and individual characteristics. This study focuses on nursing satisfaction within three different ICU layouts in a Jordanian healthcare facility. Nurse satisfaction with overall layout of their respective ICU was highest in a 12-bed, private-room unit with a centralized nursing station. Nurse satisfaction with their primary workspace was significant only in terms of the level auditory privacy the space afforded.

Methods

This was a survey-based assessment of three different intensive care unit layouts from one hospital in Jordan. The authors developed the data collection tool based on a previously published study and it was used to gather information on nurse demographics, nurse satisfaction with the ICU layout, and nurse satisfaction with their primary workspace and nursing station.

The first ICU layout (ICU1) was described as a double-loaded corridor with single-patient rooms and a small nursing station located in the center of the unit. The second ICU (ICU2) was an open ward with a single central corridor that housed a large nursing station designed as two opposing counter areas. The third ICU (ICU3) was another single corridor unit, but this one was an open ward with a central off-center nursing station and a wall preventing nurses from seeing the patients to the right of the nursing station.

The authors proposed that nurse satisfaction would differ based on their respective ICU layout and workspace arrangement and that ICU layout and primary workspace arrangement would, in fact, predict nurse satisfaction.



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In addition to descriptive statistics, a one-way analysis of variance (ANOVA) was used to assess variation in nurse satisfaction across ICUs. Spearman correlation and regression analysis were used to assess the predictive nature of the variables. Twelve nurses in each of the three ICUs completed hardcopy surveys, resulting in 36 completed surveys.

Findings

Across the three ICUs assessed, the only statistically significant finding related to the overall unit layouts was the location of the nursing station and its proximity to patients and supplies. The results indicated that nurses who worked in the ICU1 (with single-patient rooms), where the nursing station was centrally located, were the most satisfied ($F(2,34)=5.054, p=0.012$) with the unit layout. The only statistically significant finding related to the nurses' primary workspace had to do with their ability to have private conversations. The results indicated that nurses who worked in ICU2 (where there was a large, centrally located nursing station) were satisfied with the auditory privacy the nursing station allowed ($F(2,34)=5.054, p=0.019$). Regarding overall unit arrangement, over half of the variation in nurses' satisfaction with the ICU layout had to do with how the layout a) facilitated teamwork ($R^2=.521, p<.001$) and b) how it reduced traffic ($R^2=.525, p<.001$). Finally, over half of the variation in nurses' satisfaction with their workspace had to do with how well the design reduced congestion ($R^2=.572, p<.001$). Across the three different ICUs considered, nurses who worked in the unit with the small centralized nursing station with single-patient rooms and close proximity to supplies were significantly more satisfied with the unit layout, and nurses who worked in a unit with a large centralized nursing station were significantly more satisfied with auditory privacy. The following variables were somewhat predictive of nurse satisfaction: how the unit facilitated teamwork and how the unit reduced traffic and mitigated congestion.

Limitations

There were several limitations of note for this study. First, it was limited to a single facility; second, it only included nurses who worked during daytime hours; and third, the statistical analysis was limited to exploring variation in nurse responses on a limited number of elements. Further research that considers a more diverse population, night shifts, additional detail about unit operations, and a varied set of locations is warranted.

Design Implications

The authors highlight the following ICU design considerations: a) nursing station placement, b) arrangement of rooms in relation to the nursing station, c) placement of medication and supply rooms in relation to patient rooms, d) placement of



informal meeting areas, and e) traffic flow. ICU nursing station recommendations include: a) mitigating congestion and noise, b) comfortable work environment (lighting, heat, and ventilation), c) accommodating personnel and equipment, d) patient monitoring, and e) conversational privacy.

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