



KEY POINT SUMMARY

OBJECTIVES

This study looks to improve the usability and effectiveness of patient room furniture by understanding what features and functions of overbed tables are most used and desired by patients and staff within a rehabilitation hospital.

Examination of Overbed Tables: Healthcare Provider and User Preferences

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Key Concepts/Context

As patient demographics shift, developing design strategies that assist with an aging population become increasingly necessary. Within hospital patient rooms and assisted-living patient rooms, furniture offers an opportunity to facilitate patient/occupant independence by decreasing dependency on staff and increasing patient self-sufficiency. Integrating Universal Design Principles (UPDs) into the design of furniture within these environments creates an intuitive, safe, clean environment for occupants that is barrier free, regardless of ability. The following study is in response to research conducted by Brooks et al., 2012 that studied three mobile nightstand prototypes with retractable trays as a possible furniture solution within institutional settings. Results from that research revealed users and caregivers would prefer overbed tables with increased storage to mobile nightstands

Methods

Prior to conducting the actual research, three prototypes were developed as interactive components to the study. To develop the prototypes, the researchers began with a literature review of overbed tables within institutional and domestic settings. After conducting the literature review, no existing research was found related to overbed table use or design guidelines within either setting. In response to the literature review, the researchers conducted an exploratory study to determine existing overbed table features and functions. This was done through a review of product manufacturer literature to assess current trends and discussions with staff and patients asking for suggestions on improvements for usability and effectiveness. A total of 81 products from 22 manufacturers were assessed. From



DESIGN IMPLICATIONS

This research shows that overbed tables serve an essential role in the quality of a patient's daily life and in reestablishing functional independence, and that they are mostly used while in bed and sitting in a chair.

However, difficulties in operation and movability exist. To increase usability, more intuitive, user-friendly

those, 55 products were used in the initial phase of this study based on usability requirements. From this exploratory study, three prototypes of overbed tables were developed representing three product tiers: entry-level model, mid-range model, and premium model.

For this research, structured interviews, using a mix of forced-choice and open-ended questions, were conducted with patients and staff at a rehabilitation hospital. A total of eight patients and 21 staff volunteered to participate in this study. Staff participants included: doctors, nurses, occupational therapists, physical therapists, housekeeping, and general staff. Data collection during the structured interviews included demonstration and volunteer interaction with the three overbed prototypes. Each table was marked using a separate colored piece of construction paper for identification purposes. The structured interviews consisted of 29 forced-choice questions regarding overbed table features and functions through five categories: (1) usage, (2) mobility, (3) size, (4) design preference, (5) likes/dislikes, etc. Four main sections were used consecutively to facilitate the structured interviews: (1) forced-choice questions (Yes/No) about usage tendencies and the mobility of overbed tables in general, (2) participants offered size preferences for the top surface, extendable tray, and cup holders of the overbed tables, (3) participants compared various features and functions of the three demonstration models and picked which of the three overbed tables best implemented a particular feature or function, (4) participants answered open-ended questions about various aspects of overbed table use and design. Patients were interviewed by researchers one-on-one, and staff were interviewed by the researchers in groups ranging from two to six. During staff group interviews, each staff participant was assigned a research staff note taker to record individual responses, while one researcher acted as facilitator. Participants were encouraged to interact with the prototypes to answer when answering the interview questions.

Three types of analysis were conducted: (1) frequency analysis with cut scores on the usage, mobility, and design preference categories; (2) mean values analysis on the size preferences; (3) content analysis of the likes/dislikes, etc. For frequency analysis, three categories were created ranging from strong positive agreement to strong negative agreement, with weak agreement/disagreement in the middle. Content analysis for the open-ended questions was done through a computer program that was used to count the reoccurrence of key words found in the responses.

Findings

Results from the surveys under the category of usage reported that both staff and patients showed strong positive agreement that patients used the overbed table in bed and while sitting in a chair. However, staff strongly agreed and somewhat agreed that patients use the overbed table as an aid while getting out of bed and for support while walking, respectively, while patients strongly disagreed with both of



the prior statements. Patients and staff strongly agreed that they use the overbed tray and that its operation is problematic. Staff were relatively unaware of the compartments in the table. Of those that were aware of the compartments, the majority believed the patients used them. In contrast, the patients were only slightly more aware of the compartments, and of those aware, only one third of the patients actually used them. Staff perceived the compartments as not easy to use; the one patient who used the compartment reported it as easy to use. The majority of staff who had been unaware of the compartments reported that they would recommend patients to use them, while only one-quarter of the patients who had been unaware of the compartments reported that they would now use them. Most patients and staff were unaware of the interior mirror and vanity area, and the majority reported that they would use that feature in the future.

Results from the surveys under the category of mobility reported that half patients and staff were comfortable with substantial amounts of weight placed on the table. More than half the patients felt comfortable leaning or holding onto the overbed table, while only one-third of staff were comfortable with the same question. None of the staff or patients were concerned with the overbed falling on a patient. However, three-quarters of the staff and half of the patients were concerned with the overbed falling on a patient if it were being adjusted. One-half of the staff and one-eighth of the patients agreed that the table was easy to be raised by one person, while both staff and patients felt it was slightly easier to lower the table by oneself. Less than half the staff and a quarter of the patients reported the table was easy to roll and position the table while in bed.

Results from the surveys under the category of size found that staff and patient preferences for tabletop sizes and extendable trays varied widely. However, the mean recommended sizes for both tabletops and extendable trays correlated strongly with the size of both features in the three prototypes. Both staff and patients reported similar preferences for two cup holders. However, the preferred diameter of the cup holders was unclear among the participants.

Results from the surveys under the category of design preference reported that staff preferred the mechanism of the premium overtop table, while patients reported a preference for the entry-level/mid-level mechanism. Both patients and staff strongly preferred the premium overtop table's raise mechanism. Staff strongly preferred the premium overtop table's lowering mechanism, while patients moderately preferred the overtop table's mechanism. With respect to closing the extendable tray, staff strongly preferred the premium unit's mechanism, whereas the patients had a slight preference for the entry-level/mid-range mechanism. Both groups exhibited a strong preference for how the premium unit rolls. With respect to the top shelf, staff strongly preferred and patients moderately preferred the mid-range model. For the side shelf, staff had a moderate preference for the premium model; patients were split between the mid-level and premium models. With respect to the bottom shelves, staff were split between the mid-level and premium



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models while patients showed a moderate preference for the premium model. Staff and patients strongly preferred the premium model vanity. Staff overwhelmingly preferred the lip around the premium tabletop; patients exhibited no preference.

Content analysis of likes and dislikes revealed that overbed tables are mostly used for meals and that mobility and convenience are highly valued. The primary feature that patients and staff requested to be added to the table was cup holders. Both patients and staff reported deficiencies in the usability of the compartments, extending mechanisms, and difficulty of operating the devices. Frustrations were reported in the positioning and navigation of moving the table under the bed and around the room. Suggestions for ease of movement included making the overbed table as small as possible, which contradicts the above preferred measurements.

Limitations

Limitations to this study are the small sample size, which limits the generalizability of the findings. Also, only three prototypes were tested from the same manufacturer, limiting the participants' options in features and functions. Furthermore, options for cup holder sizes in this study were not based upon standardized measurements of beverage containers found in hospital settings.