



Study on the Functions of Hospital Gowns Based on Patients' Emotions

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Abstract

Hospital gowns come into prolonged contact with patients during medical treatment, which can not only effectively mitigate the impact of environment alternatives on patients but also influence their emotion as well as overall medical experience. Since patients' emotional well-being plays a crucial role in physical rehabilitation treatment, this paper aims to analyze the impact of hospital gown functions on patients' emotions, proposing the design methods of hospital gown functions that cater to patients' emotional experience.

Keywords: Hospital Gown; Function; Emotional experience; Design methods

Introduction

Hospital gowns refer to the apparel worn by patients during their hospitalization, which serve a protective function and facilitate hospital management [1]. Due to the varied social culture, there are many differences in hospital gowns between China and other countries. However, the principle of hospital gown functions design remains consistent, complying with patient-centered approach. Existing research on hospital gown functions mainly categorized into three aspects: studies on the functions of fabric structures, studies on functions of the intelligent wearable technology that assists with medical care, and studies on the practical functions of openings and patterns. For instance, previous study has compared and tested various materials of hospital gowns to find a fabric structure that perfectly produce neutron radiation shields, [2] improving the protection function of hospital gowns. Besides, another study has proposed a special hospital gown that includes a set of sensors based on the actual situation of long-term bedridden patients, which can predict a patient's body position over time, and then collect patients' physical data to assess the risk of pressure ulcers [3]. In addition, some experts have developed a hospital gown

that can both ensure patients' privacy and is easy for inspection, which has been proved to be popular as well [4]. The studies above mainly focus on how to improve the aspects as comfort, convenience, and patient dignity of the hospital gown functions design, and further concentrate on patients in various treatment conditions such as patients with drainage tubes during abdominal surgery, patients with lower limb fracture traction, patients with indwelling catheters, and patients with surgical coma, thus to enhance their compliance and satisfaction with the hospital gowns [5]. Considering that patients have to experience various negative emotions caused by illness and unfamiliar medical environment during medical treatment, some studies also pay attention to patients' emotions in hospital gown functions design. For example, Hwang, et al. developed a two-piece knitted maternity hospital gown with an adjustable waist and a washable nursing breast pad, which avoided the anxiety and embarrassment of misfitting and leaking breast milk after delivery [6]. However, most studies on hospital gown functions design simply explain the way of hospital gowns affect patients' emotions, lacking a systematic analysis

of the comprehensive methods toward hospital gown functions design. Therefore, this study analyzes the requirements of patients for hospital gown functions to obtain the corresponding emotion tendencies of patients and propose a design method for hospital gown functions design that contributes to patients' emotion.

Patients' Requirements for the Functions of Hospital Gowns Based on the Emotions

During the medical treatment, patients need to undergo various examinations and are typically in a lying or sitting position [7]. For most long-term hospitalized patients, they almost live in the hospital, with occasional periods of being alone there. A study surveyed 928 adult patients wearing hospital gowns and found that 72% reported feeling exposed, 60% reported feeling self-conscious, and 57% reported feeling uncomfortable wearing the hospital gowns [8]. Based on these results and additional research with patients, it can be concluded that patients' requirements for hospital gowns mainly include four aspects: functional needs for easy wearing and taking off, functional needs for privacy protection, functional needs for personalized design with opening structure and effective storage, and functional needs for antibacterial protection and comfort.

The easy wearing and taking off function of hospital gowns can affect the patient's patience and anxiety during medical treatment. The previous studies have found that patients wearing their own apparel feel more comfortable and have less anxiety compared to the ones wearing hospital gowns [9]. By observing patients' conditions on the spot, this study has discovered that when patients have trouble wearing and taking off hospital gowns, they are prone to impatience and anxiety, and then remind of their own pain of illness and amplify negative emotions. Therefore, providing patients with hospital gowns with the function of easy wearing and taking off can have a positive impact on their well-being and reduce negative emotions.

The privacy protection function of hospital gowns can affect the patient's sense of helplessness, shame and fear. Multiple studies have shown that the privacy protection of hospital gowns significantly affects the psychological well-being of patients. Patients who wear exposed gowns tend to have lower self-esteem, feel more fragile and uncontrollable, and experience greater levels of pain [10,11]. Vaskooi-Eshkevari, et al. found that customized, high-coverage, surgical-specific gowns for patients with different conditions can make patients feel safe and thus improve their satisfaction [12]. Overall, these studies suggest that hospital gown functions design and privacy protection are important in patients' medical treatment, which can reduce patient discomfort.

The function of personalized design with opening structure and effective storage in hospital gowns can alleviate patients' negative emotions during the medical treatment. Patients will feel relieved and grateful for being understood and taken care for [6]. Through interviews, it was learned that patients are more concerned about the structure of opening for hospital gowns according to their wearing preferences and daily activities. For example, designing pockets at commonly used positions that medical patches and

sprays can be placed may avoid catheter retention, which can lead to the opening with wearing and taking off difficulties. Therefore, the function of hospital gown designed to meet the personalized needs of patients can effectively benefit patients' emotions.

The function of antibacterial protection and comfortable hospital gowns have a significant impact on patients' sense of medical security, anxiety and stress. Through interview, it is indicated that the majority of patients feel more secure when wearing hospital gowns that possess functions for antibacterial protection and comfort, believing that they can effectively prevent external infections. In addition, due to the prolonged contact with hospital gowns in the medical treatment, soft and comfortable hospital gowns can help patients relax and relieve their stress.

Method for Hospital Gown Functions Design Based on the Emotions

According to patients' specific needs and corresponding emotions toward hospital gowns during medical treatment, the following feasible functions design methods of hospital gowns that can cater to patients' emotions have been proposed.

When designing hospital gowns that are suitable for most patients, it is important to promote patients' participation and pay attention to their emotions. The above objective can be achieved by inviting patients in the design of the wearing and taking off function, analyzing their emotional requirements at different stages and applying them into the development of hospital gowns. Specific method can be implemented by behavioral observations and questionnaire surveys of most patients in the early stages of developing new hospital gowns, inviting patients to periodically try on samples at different stages of the development, making multiple improvements based on patients' feedback, and complete the functions of hospital gowns to meet the needs of most patients.

Effective protection of patients' privacy in the hospital gown functions design can be achieved through innovative composite structures. This problem typically arises when patients undergo medical treatment that triggers their sense of shame and privacy concerns. Therefore, when designing hospital gown functions, it is feasible to use the deconstruction design method as a guide, observe common medical processes, and set up composite shielding structures or irregular openings in appropriate locations to meet patients' privacy protection needs, making them feel supported and protected, and providing them with emotional comfort and a sense of security.

When patients need to wear hospital gowns as daily wear for a long period of time during their medical treatment, there may be a need for personalized openings and effective storage functions. Therefore, in terms of the hospital gown functions design, modular design method can be considered as a guide. Through the design of combinable functional transformation structure, personalized needs of some patients can be met, making patients fully feel understood and cared for. For instance, at the openings of the collar, cuffs, hem, placket, and ankles of hospital gowns, buttons or zippers can be used to disassemble the pre-assembled parts and reconnect

them into a new structure to achieve functional transformation of the components. The transformation style and form are flexible and based on the needs of the patients. This method can effectively meet the needs of patients in special departments with certain treatments.

To meet the different functional needs of patients for antibacterial protection and comfort, the effectiveness of hospital gowns can be presented by data indicators and degree divisions, ensuring patients to have the right to choose and know about the hospital gowns with the functions of antibacterial protection and comfort. The solution proposed in this study is to first evaluate the fabric with the best performance of antibacterial, protective, soft, smooth, loose and other fabric function indicators of hospital gowns through technical means. Then, multiple trial experiments will be conducted with patients to set different performance classifications demonstrating the differences in the antibacterial, protective, soft, smooth, loose and other fabric functions of hospital gowns with different function combinations.

Conclusion

Fully considering patients' emotions in the design of hospital gowns is an effective way to improve the design quality and increase practical value. This study analyzed the current studies and the actual needs of patients in the hospital gown functions design as well as their corresponding emotions and summarized the design guide for hospital gowns that meet patients' emotional requirements. On one hand, considering patients' emotions in the hospital gown functions design can help to alleviate the emotions and rehabilitation problems caused by the gowns, thereby helping patients feel more comfortable during the medical treatment. On the other hand, it provides designers with a reference for the design of hospital gowns, endowing the design of hospital gowns with social psychological and humanistic value.

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Conflict of Interest

Authors declare no conflict of interest.

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