

Analysis of Male and Female Nurses' Attitudes toward Nurse Uniforms in South Korea: The Functional, Expressive, and Aesthetic (FEA) Framework

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Abstract The goals are to investigate attitudes toward pantsuit uniforms versus scrubs between male and female nurses, and to analyze nurse uniform design preferences. It is important to thoroughly investigate both male and female nurses' attitudes toward uniform designs. Applying the Functional, Expressive, and Aesthetic conceptual framework serves to understand nurses' attitudes toward uniforms. Five female and six male nurses in South Korea participated in focus group interviews for this study. The participants revealed that male and female nurses hold similar views regarding their functional aspects with respect to comfort, convenience, and infection risk. Concerning the expressive aspects of uniforms, both male and female nurses believe that scrubs enhance their occupational value, status expression, self-control, self-image, and professional image, compared to pantsuits. With respect to aesthetic aspects, however, the male and female nurses in this study report different views of androgyny. While scrubs share both feminine and masculine stylistic traits, the male nurses still view their current uniforms as feminine in design. The FEA framework enhances an understanding of male and female nurses' attitudes toward uniforms by investigating their perspectives. The study implications provide further support for design improvement and research in the field of clothing within the health professions.

Keywords Nurse uniform, Occupational value, Professional identity, FEA model, Self-image

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Introduction

Nursing is a profession overwhelmingly represented by women. Across many cultures, nurses are required to wear uniforms at work. Even though the number of male nurses has rapidly increased in recent times, exceeding 10,000 male nurses for the first time in 2016 and growing annually by 20% in South Korea (Nursing statistics, 2017), nursing is still regarded as a women's profession. In addition, male nurses' professional image is often associated with negative societal

stereotypes such as being effeminate or androgynous in South Korea (Kim & Lee, 2017; Son et al., 2003; Yu et al., 2017). While uniform conveys an essential role in communicating a professional image, identity, and responsibility (Mangum et al., 1991), male nurses wear uniforms that are designed similarly to those of female

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nurses. Specifically, design considerations for male nurses have not been thoroughly investigated or understood (Han et al., 2012; Kim et al., 2011; Son et al., 2003).

Over the past 100 years, nurse uniform designs have changed significantly. The traditional uniform design was a white dress, followed by the skirt-suit type, which later evolved into a pantsuit style. Recently, wearing scrubs has become increasingly prevalent for nurses across many cultures due to their lower cost, easy maintenance, comfort, and practicality for both male and female nurses (Han et al., 2012; Houweling, 2004; Sim et al., 1993). However, both pantsuit- and skirt-style uniforms are still common designs and are simultaneously worn by nurses in South Korea (Han et al., 2012).

To date, studies involving nurses' uniform design have focused on the design preferences (Kim, 2004), functional aspects (Kim, 2002; Lee & Lee, 2014), and effects of nurse uniforms on nurses' self-image (Albert et al., 2008; Mangum et al., 1991). However, these studies have all employed a quantitative approach; as such, they are limited to understanding female nurses and ignore male nurses' attitudes toward uniforms. In particular, studies including male nurses have been limited to understanding male nurses' work experiences in regard to their gender role and identity (Hwang & Kim, 2017; Lee & Kim, 2014). As nurse uniforms designs are shifting from pantsuits to scrubs, it is crucial to understand both male and female nurses' attitudes and perspectives toward uniforms. Therefore, this study aims to investigate male and female nurses' attitudes toward pantsuits versus scrubs and identify design improvements in terms of uniforms' functional, expressive, and aesthetic aspects using focus group interviews.

Literature Review

Nurses' Work Clothes: Traditional Nurse Pantsuits Uniforms versus Scrubs

Today's nurse uniforms come in a variety of colors and shapes. Nurse uniforms evolved to incorporate a simpler skirt, shortened in length to the knee. Afterward, pantsuits first appeared in the 1970s, which gradually began to replace

skirt-suit uniforms. Scrubs were gradually adopted as nurse uniforms in the early 1990s in the U.S, followed by South Korea a few years later (Chung et al., 2011; Han et al., 2012; Houweling, 2004; Sim et al., 1993).

The details of nurse uniforms are illustrated in Fig. 1 and 2. The pantsuit uniform is a tunic-style, which consists of long pants, a sleeved top with buttons or a zipper, and a front-centered jacket or cardigan (as shown in Fig. 1). In addition, uniforms have traditionally emphasized bodily curves or have employed a princess seam (Han et al., 2012; Kim et al., 2011; Lee et al., 2009). Scrubs consist of a pullover top and pants with pockets (as shown in Fig. 2). The pant waist is designed with an elasticated drawstring or a string fastening (without elasticity) for convenience (Kim & Kim, 2014). Scrubs are primarily known for their functionality, in addition to their androgynous style, having both feminine and masculine traits (Albert et al., 2008).

Wearing scrubs emerged as a good alternative to wearing pantsuits because they were more suitable for protecting nurses from bacterial infection risk due to the simple design that incorporates short sleeves and no necktie (Kim & Kim, 2014). However, scrubs are only worn by nurses whose work assignments take place in operating rooms, emergency rooms, and intensive care units in South Korea. Pantsuits are still widespread as a nurse uniform style (Han et al., 2012; Kim & Kim, 2014). Therefore, both pantsuits and scrubs are considered as nurse uniforms. Either type is acceptable, depending on nurses' work responsibilities.

Given that uniforms are worn for patient care, they should protect nurses from infection risk when caring for patients. Unlike other types of uniforms, nurse uniforms have the risk of being contaminated (Han et al., 2012). In particular, scrubs should protect the body from pathogens that can be transmitted from patients; moreover, they should fit the body well so that the design does not interfere with the ability to carry out their duties (Kim & Kim, 2014).

Professional Image of Nurse Uniforms

A few studies have been conducted to identify how nurse uniforms enhance nurses' professional image. Rubinstein (1995) noted that uniforms display authority and signal

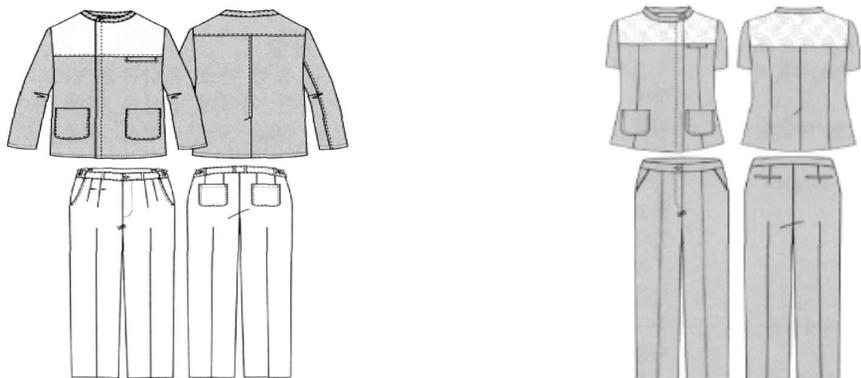


Figure 1. Nurse uniform design (pantsuit), male (left) and female (right). Reprinted from Han et al. (2012) p. 40.

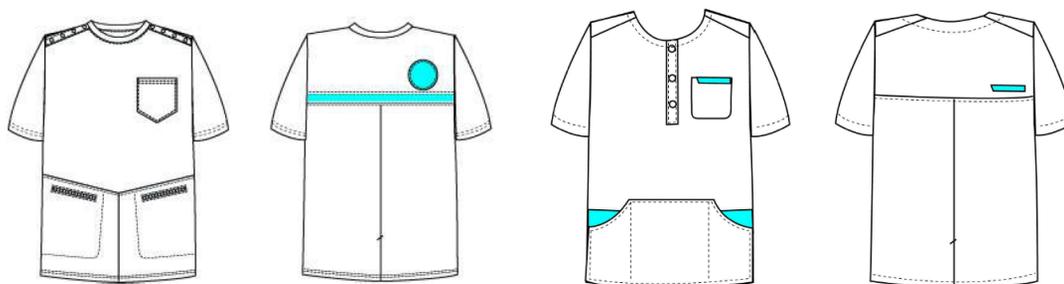


Figure 2. Scrub design, male (left) and female (right). Reprinted from Kim and Kim (2014) p.114.

different social roles for organizations, including the right to enforce organizational policy, the right to have access to areas prohibited without uniforms, and the power to exercise control over others. Mangum et al. (1991) argued that the importance of nurse uniform in establishing nurses' professional image should not be ignored, and identified ten characteristics of nurse images in a study of nurse uniforms. These characteristics include the following attributes: confident, competent, careful, efficient, accessible, caring, professional, reliable, collaborative, and empathetic. Kim et al. (1993) used Mangum et al. (1991)'s Nurse Image Scale to show that nurse uniforms are essential in improving nurses' professional image. A study by Joung and Chi (2001) on the relationship between satisfaction with nurse uniforms and nursing professional self-image suggests that the correlation between uniform satisfaction and professional self-image is statistically significant. Achieving a professional image is the most important element for nurses and patients (Royal

College of Nursing, 2013). The nurse uniform also communicates how patients view nurses, beyond how nurses feel about themselves (Huston, 2017). In addition, males nurses are becoming more involved in nursing suggests that nursing's occupational value and image have shifted in contemporary Korean society (Nursing statistics, 2019).

Application of the Functional, Expressive, and Aesthetic (FEA) Consumer Needs Model for Design Improvement

Various occupational characteristics such as group membership, identification, trust, professional image, and functionality are conveyed in nurse uniforms; however, beyond the functional aspects, nurse uniforms have not been fully investigated in previous research (Joung & Chi, 2001). While the importance of a professional image has been identified by analyzing nurse uniforms (Albert et al., 2008;

Mangum et al., 1991; Wocial et al., 2010), few studies have examined actual uniform designs beyond the functional aspects of uniforms using a quantitative approach (Han et al., 2012; Joung & Chi, 2001; Kim et al., 2011). An in-depth understanding of nurses' attitudes toward the uniforms they wear still needs further investigation. Not only should an analysis consider the functionality of nurse uniforms; it should also reflect individuals' specific needs when wearing them. Due to the various nurse uniform requirements, applying a functional, expressive, and aesthetic (FEA) conceptual framework can identify design problems and suggest improvements. Therefore, a FEA conceptual framework for apparel design by Lamb and Kallal (1992) is adopted to identify nurses' attitudes toward nurse uniforms and areas of design improvement in our study.

An FEA framework as a theoretical framework has been previously applied to understand the specific needs of disabled girls in designing functional clothing (Stokes & Black, 2012), and to design martial arts uniforms (Perry & Lee, 2017). Functional considerations for uniforms are related to their utility. Protection, comfort, fit, and ease of movement are all examples of nurse uniforms' required functional aspects. On the other hand, expressive considerations are related to uniforms' communication and symbolic aspects, which are essential in conveying the professional image of nurses' roles and responsibilities. Aesthetic considerations concern the design elements for nurses, such as the lines, colors, textures, and patterns to create pleasing designs.

Method

Participant Characteristics

Participants were male and female nurses who volunteered to join this study at a university-affiliated hospital in Seoul, South Korea. The participant selection criteria included the following requirements: minimum clinical experience of one year, and performing nursing activities with patients in outpatient clinics, operating rooms, or intensive care units. Nurses whose main duties include administrative roles without patient interaction were excluded from the study. A total of 5 female nurses (Participants A, B, C, D, E) and six male nurses (Participants F, G, H, I, J, K) were identified to conduct the focus group interviews. Participants' ages ranged from their 20s to 40s, and their clinical experience ranged from one year three months to 19 years, with an average of 6 years. Four nurses worked in the delivery room, four in inpatient wards, one in the operating room, and two in intensive care units. Eight nurses usually wore scrubs at work, while three nurses usually wore pantsuit uniforms. The characteristics of the participants in the focus group are shown in (Table 1).

Data Collection Procedures

After the researchers secured Institutional Review Board approval (IRB No. 1807 / 003-012), they posted participant recruitment ads on the hospital's social media to explain the nature of the study and to ask for participation. The research objectives and data collection procedures were explained to

Table 1. Participant characteristics

Classification	Category	n (%)
Gender	Female	5 (45.5)
	Male	6 (54.5)
Age	20-29	4 (36.4)
	30-39	5 (45.4)
	40-49	2 (18.2)
Years of work experience	Less than 5	7 (63.6)
	More than 5-Less than 10	2 (18.2)
	More than 10-Less than 15	0
	More than 15-Less than 20	2 (18.2)
Nurse uniform worn typical work day	Pantsuit	3(27.3)
	Scrub	8(72.7)

the participants as well. The focus group interviews were conducted separately with male and female nurses in a seminar room at the hospital where the principal investigator was employed. Each interview took approximately an hour for the male and female nurses. The project's primary investigator conducted the interviews, while the co-investigator recorded the interview process. After each interview, all recorded responses were transcribed and saved as a text document file based on the interview protocol and data collection procedure by Fantana and Frey (2005).

Research Instruments The structured questionnaire was based on the FEA model (Lamb & Kallal, 1992), including the functional (fit, mobility, comfort, protection, donning), expressive (values, roles, status, self-esteem), and aesthetic (art elements, design principles, body/garment relationships) aspects of nurse uniforms. Demographic information regarding the participants' age, gender, years of experience, and units to which they are assigned was collected. The functional aspects of nurse uniforms were measured using questions such as the following: "Please discuss the functional aspects of the nurse uniform: how do you like the comfort, protection, and convenience of wearing the uniform?" The expressive aspects of the uniforms were measured using questions such as the following: "How does the uniform express your role, status, and self-esteem as a nurse?" The aesthetic aspects of the uniforms were measured using questions such as the following: "Please discuss the design elements of the uniform: how do you like the color, silhouette, and texture of the uniform design?"

Data Analysis

After reading the transcribed interviews, the responses were grouped into similar themes. Focus group interviews provide information involving a range of ideas and feelings that individuals have about specific issues and illuminate the differences in perspective between groups of individuals. Krueger and Casey (2000) suggested that the focus group interview captures the meaning, ideas, and feelings that participants experience rather than validating the truth. The major concepts were identified by underlining similar responses to an interview question, which is the approach

suggested by Van Manen (1990) to identify themes. Accordingly, responses were grouped based on 21 structured questions using the FEA design framework and literature to increase the validity of the questions. For example, responses relating to questions indicating something about the uniform's functional aspects were grouped into the same category as a theme. Once all of the responses were grouped into their respective categories, the researchers examined each category to determine whether there was an underlying theme that best reflected the data collected. The interviewer asked additional unstructured questions in response to the interviewees' answers in order to elicit further information. Three researchers (the authors in this study) in apparel and nursing clinical practice independently selected answers and interpreted the meanings that emerged from the participants by analyzing the data based on the FEA model. They compared their analyses to reach a consensus on the findings.

Results

The participants' responses revealed their attitudes toward their nurse uniforms concerning the functional, expressive, and aesthetic (FEA) aspects (Table 2). The results showed that their uniforms play an integral role in their job performance, occupational value, and self-image with respect to their day-to-day operations. The participants considered pantsuits as their uniform; however, they also indicated that they wear scrubs, depending on the work assignments given to them. Nurses wear traditional pantsuits and scrubs interchangeably. In this study, the researchers considered the nurse uniform in terms of what the participants said they wore in their workplace, unless otherwise indicated by the nurses.

Functional Aspects of the Nurse Uniform

The male and female nurses' responses were similar in terms of how they view their uniforms with regard to functional aspects. For example, they indicated that their uniforms were comfortable and allowed them to perform their roles. Both male and female nurses indicated that scrubs are easy to take care of and are comfortable to wear. However, they were

Table 2. Summary of attitudes toward nurse uniforms based on the functional, expressive, and aesthetic (FEA) design model

FEA model	Female nurses	Male nurses
Functional aspect	Comfort	Comfort
	Convenience	Convenience
	Protection from infection risk	Protection from infection risk
Expressive aspect		Garment utilization and pocket spaces*
	Occupational value	Occupational value
	Status expression	Status expression
	Self-esteem	Self-esteem
	Self-control*	
Aesthetic aspect	Professional image	Professional image
	Preference for androgynous design	Preference for less feminine design*

*Indicates differences between male and female nurses

both worried that scrubs might not protect them from infection; furthermore, they were concerned that they might also infect other patients when their uniforms are contaminated. Interestingly, only male nurses indicated that there were no pockets to store small items that they needed to perform their roles.

Comfort and Convenience Both male and female nurses emphasized that comfort, the number of uniforms available, and ease of wearing are important parts of nurse uniforms' functional aspects. They recognized that scrubs are very comfortable, compared to the pantsuit-type uniforms they wear when interacting with patients in the general wards. Participant A noted the following:

“I am very envious of wearing scrubs because they are comfortable and easy to wear, as they have an elastic opening. The most important thing about scrubs is that I don't have to store them in the closet after I wear them because I can wear a new one the next day when I return to work. There are plenty of washed scrubs available for nurses. However, for the pantsuit uniform, I have to be more careful when I wear it because I am given only two pairs of pantsuits per week, and they are cleaned once every Wednesday.”

Participant G noted, “Scrubs are always available for us

to wear, so we can change whenever we are sweaty or have stains or dirt on them.” Participant I also added the following:

“Scrubs are much more comfortable because we are allowed to change scrubs whenever we want; however, the uniforms are uncomfortable because we can't easily change our uniforms, even if there are stains on them, once we wear them for the day.”

The nurses identified the comfort of scrubs as a functional aspect of their workwear.

In addition, only the female nurses mentioned that skirts are uncomfortable; however, they reported that the uniform became much more comfortable after the design was changed to pants. For example, Participant A noted the following:

“I have been a nurse for a long time, as I have worn skirts as my uniform. Skirts were somewhat uncomfortable, but as the uniform changed to only pants, uniforms are much more comfortable than they used to be. However, I'm in the general wards. I'm given only a pantsuit uniform, where I interact with only outpatients, so I'm envious of those wearing scrubs. I envy all of the nurses in the intensive care unit or other units that are required to wear only scrubs because

scrubs are more comfortable than pantsuits.”

Participant I noted that the pantsuit is comfortable because it replaced the waistband with a rubber band. Specific details, such as changes in the enclosure, facilitate the ease of wearing these pantsuit uniforms. In addition, the nurses all agreed that scrubs are comfortable. Participant K said, “Some nurses mentioned to me that they would like to take their scrubs home so they can wear them as pajamas. That’s how comfortable the scrubs are.” There was unanimous agreement among the participants that nurse scrubs are comfortable concerning their functionality.

Infection Risk Nurses revealed concerns about their uniforms. Specifically, the fabric of scrubs is very thin; thus, they worried about not being well-protected from infection. The nurses raised the issue of the fabric’s thickness. Participant C said, “Scrubs are too thin. I don’t think there’s any protection.” Some nurses expressed additional concerns that there are, in fact, risks of infection because scrubs are designed to fit loosely and flutter. Participant B noted the following:

“In the case of scrubs, the strings are loosened very frequently, and the ankles are not covered. For this reason, I often feel my entire body is not covered with the scrubs. I believe my whole body should be covered, especially the pant legs and ankle area. I am short, and sometimes the pant legs touch the ground, which can be easily contaminated with blood or amniotic fluid from the floor. When that happens, the ankle area is usually exposed. This happens often, so a rubber band at the hem would be helpful so it does not drag. Thus, due to the risk of infection, scrubs should be made of fabric that prevents infection; moreover, scrubs should not be loose or fluttering.”

In addition, Participant A noted that some nurses store their pantsuit uniforms in a closet after they have had contact with patients; consequently, there is a potential risk of infection to other patients and their fellow nurses if they use

that closet. To address this concern and minimize contamination, there should be a separation where used uniforms are stored.

Garment Utilization and Pockets The specific need to have more pocket space was discussed only by the male nurses as part of their uniforms’ functional aspects. They wanted to have enough pockets so that they can carry small items such as pens, tape, or booklets because scrubs do not have enough pockets to store these items. Participant J noted, “I have a lot of small items I need to carry. I would like to have more pockets or spaces for storing things like pens.” Participant H added the following:

“When I put a pen in my pocket, it would fall out when I leaned down to check patients, so I need a pocket with a zipper so small items such as pens are secure, not falling out.”

It is interesting to note that only the male nurses revealed the need for pocket space, although both groups wear the same uniform design. Therefore, design considerations should include adding more pockets so that nurses can store small items in their uniforms.

Expressive Aspects of Nurse Uniforms

Participants revealed that their uniforms enhance their occupational value and self-control when they interact with patients. Specifically, the nurses mentioned that scrubs express their status and boost their self-esteem. There were noticeable differences between the male and female nurses in terms of their attitudes toward pantsuits versus scrubs.

Occupational Value Participants indicated that their uniforms play a vital role in fulfilling their responsibilities. Participant A noted that she feels more responsibility when she is in uniform. Participant C mentioned that wearing scrubs helps her develop a more professional service-oriented mindset as a nurse. Participant C said the following:

“When I am in scrubs, I feel like I am ready to take on my job immediately for patients who

need help. Even though helping patients is a high risk-taking responsibility, I feel that I am ready, and I can tackle my responsibility anytime.”

Participant B said that her uniform makes her feel that she should do her best with her patients. Participant H also added, “I think I look more professional when I see myself in scrubs in the intensive care unit.” He mentioned that one of the nurses he knew told him that he would like to work in an intensive care unit so that he can wear scrubs instead of pantsuits.

Status Expression Both the male and female nurses indicated that scrubs, in particular, indicate their job status as nurses. Participant E noted the following:

“When I’m wearing scrubs for surgery, I can enter a restricted area; therefore, scrubs represent my role as someone who can care for patients or who has an important role.”

This status identified by scrubs also allows nurses to interact effectively with their patients and with their guidance. For example, Participant A said, “When I give a command, people comply with my request when I am in scrubs. I can control guardians or patients easily.” Participant F mentioned that patients treat him differently when he wears scrubs, as though he gains more respect from patients when wearing them.

Self-control Participants indicated that their uniforms enforce the behaviors that are expected of nurses. Participant A said the following:

“I sometimes get frustrated with patients; however, when I am wearing a uniform, I always try to be very nice to the patients, and I cannot show my anger or frustration to the patients.”

Similarly, Participant B noted that the uniform always compels her to be friendly with her patients. In addition, Participant B said that wearing scrubs delivers the image that

nurses are performing their job to the best of their ability and with passion. The participants indicated that when they wear uniforms, they become careful about their behaviors toward their patients. They make sure that their attitudes toward their patients are in line with the mission of their nursing role.

Self-esteem Female nurses felt that their self-esteem is enhanced when they work in their uniforms. Participant B noted, “I gain more confidence when I change my clothes into my uniform. I really think the nurse uniform boosts my self-esteem as a nurse.” On the other hand, some male nurses felt uneasy about wearing their uniform due to its feminine style; some of them expressed the concern that they are not respected as much as female nurses when they are wearing a pantsuit-style uniform. Participant H indicated that he does not want to work in the pantsuit uniform. He mentioned that he feels much better when he is wearing scrubs. Moreover, he indicated that the pantsuit-type nurse uniform lowers his self-esteem. In addition, Participant K responded, “I feel I look much better when my girlfriends and family see me wearing scrubs than the [pantsuit-style] uniform.” Moreover, Participant J said the following:

“I know many nurses would like to work in scrubs, even though they are just working in a general outpatient ward, which does not require scrubs to perform their duties, because some nurses believe wearing scrubs is a little bit more professional.”

Participant B noted that scrubs make their colleagues feel proud as a profession. She said, “I think I express myself very well in those surgical scrubs.” Overall, scrubs meet their needs better when working with patients, especially for male nurses.

Professional Image Both the male and female nurses placed importance on their professional image required in the workplace and believed that their uniform style allows them to highlight their professional image. Nurse D said, “When I wear a uniform, I look neat and clean as a nurse.” Participant C also said, “I think I look pretty in my uniform, maybe like

uplifting for the patients.” They believed that the nurse uniform delivers an appropriate nurse image for their patients.

Aesthetic Aspects of Uniforms

In terms of the aesthetic aspects of nurse uniforms, the participants believed that their professional image is achieved through neat and clean uniforms. Nevertheless, both the male and female nurses showed different aesthetic points-of-view, given that the male nurses perceived the uniform as feminine. Interestingly, female nurses preferred a more androgynous style of uniform.

Androgyny Female nurses preferred nurse uniforms that do not emphasize feminine elements in the design. For example, Participant A said the following:

“I would rather wear scrubs because once in a while, some male patients check out my body, and I am wondering if they would do that to me if I were wearing scrubs.”

Participant J noted that the male uniform should have some sense of masculine elements because the uniform design is perceived as feminine. He said, “I think the nurse uniform is just too pretty. It’s too feminine for male nurses, so I don’t like it. The uniform does not represent male nurses’ identity.” He preferred wearing just a dress shirt. Participant K mentioned that due to the uniform’s feminine style, nurses would be more satisfied wearing scrubs than a uniform, so he suggested that all nurses wear scrubs. There were marked

differences in how the male and female nurses view their garments. Female nurses preferred a more androgynous style, whereas male nurses perceived uniforms as being too feminine for them to wear.

Nurse Uniform Design Considerations for Improvement

The interview questions with the participants provided various ideas for uniform design improvements based on the FEA framework (Table 3). Participant D mentioned that scrubs are somewhat uncomfortable because the size is too large for petite-sized women, given that the trouser width is wider, and the inseam is longer, compared to the pantsuit style. In addition, nurses’ undergarments can be seen due to the loose fit of scrubs when the nurses lean forward to examine their patients. Participant B particularly noted that uniforms should not be a source of infection. Scrubs are loosely fitted, making it more likely for nurses to come into contact with their patients or objects for possible contamination. One way to avoid is to have the pants’ hem area secured with rubber bands. Therefore, it is necessary to diversify the size to provide a better fit for nurses and to differentiate the design for male and female nurses. Additionally, the fabric should be tested to determine whether it protects against contamination after many wash cycles. Nurses also carry around many small items, but scrubs lack pocket space. Participant J noted that he would like to have deep pockets with large openings so that he can store small items.

The expressive aspects included nurses’ role

Table 3. Summary of design considerations for improvement based on the functional, expressive, and aesthetic (FEA) design model

FEA model	Design considerations
Functional aspects	Sizing – Inseam is longer for height The scrubs should be easily washed. The scrubs should be comfortable to the skin. The buttons should be removed. Prevent infection Fabric hand Easy to clean Pocket spaces
Expressive aspects	Role identification – Distinction should be clear from surgeons, especially for male nurses.
Aesthetic aspects	Modesty – Less emphasis on feminine curves

identification provided by the uniform. Participant D noted that clear distinctions need to be made for patients to determine whether they are doctors or nurses while wearing scrubs. Often, patients are not used to seeing males as nurses wearing scrubs, and they tend to confuse male nurses with surgeons. Participant K mentioned that patients cannot distinguish nurses from doctors when male nurses are wearing scrubs. As discussed in the literature review (Mangum et al., 1991), the participants believed that nurse uniforms express nurses' role identity and accountability.

The aesthetic aspects included a design that needs to be more androgynous and modest. Participant C mentioned that nurse uniforms emphasize the hips too much, and that the design should be more androgynous for female nurses. Scrubs can replace the pantsuit style for nurses, given that several female nurses preferred the androgynous characteristics of a uniform. It is interesting to note that the female nurses preferred uniforms with a more androgynous style that would not emphasize feminine curves.

Discussion and Conclusion

While nurse uniform studies have been conducted with female nurses and have employed a quantitative methodology, our current research analyzed both male and female nurses' attitudes toward their uniforms. By applying the FEA design framework, the focus group interviews revealed their in-depth attitudes toward their uniforms, as well as the need to consider design modifications. The majority of the nurses in the study indicated that they preferred wearing scrubs, compared to the traditional pantsuit-style uniform. This result is also consistent with previous research findings that scrubs are preferred by nurses (Houweling, 2004; Kim & Kim, 2014).

For the functional aspects of uniforms, all participants indicated that scrubs are comfortable and easy to wear. In addition, the participants mentioned that scrubs are more effective in reducing possible infections at the hospital; in addition, they are more hygienic and practical to wear. The nurses in our study favored scrubs, a finding that is consistent with previous research (Kim & Kim, 2014). The nature of the

job responsibilities confirms that nurse uniforms should accommodate their active working environment and the risk of infections. With regard to the expressive aspects of uniforms, the participants believed that uniforms effectively communicate their professional image when providing care for their patients. Our findings also corroborate previous studies' finding that uniforms support nurses' professional image and identity (Huston, 2017; Joung & Chi, 2001; Mangum et al., 1991). Interestingly, scrubs are perceived as a more professional outfit over pantsuits by the nurses themselves. As for the reasons behind their preference for scrubs, it appears that wearing scrubs liberates gender stereotypes for both male and female nurses. Projecting a professional image is perceived to be very important: the higher the nurses' satisfaction with their uniforms, the higher the professional self-image they perceive (Joung & Chi, 2001). Therefore, a nurse uniform should be designed to reflect nurses' professional image in order to increase their satisfaction with their uniforms. Previous research shows no distinct gender differences in terms of design preferences for scrubs (Kim & Kim, 2014). Both male and female nurses preferred blue- or indigo-colored uniforms with a boxy style and no princess seamline or cutting lines (Han et al., 2012; Kim & Kim, 2014). According to the participants' input, uniforms should be neat and clean with bright and pleasant images rather than incorporating specific gender characteristics into the uniform design (Han et al., 2012). It is, therefore, necessary to design uniforms that are not related to gender-specific traits.

The expressive and aesthetic aspects of nurse uniforms were perceived somewhat differently by the male and female nurses in the study. In particular, the male nurses particularly preferred scrubs because they perceived pantsuit-style uniforms as being too feminine. In contrast, the female nurses had more positive attitudes toward their traditional pantsuit-style uniform with respect to the design's expressive and aesthetic aspects, compared to male nurses. Nevertheless, the current pantsuit-style uniform is not as functional as scrubs for the nurses, who must perform many physical activities. Unfortunately, there is no previous study comparing pantsuits vs. scrubs, but the results of this study can add to the extant literature by directly comparing

pantsuits and scrubs. This study provides important implications in adopting scrubs for both male and female nurses. Finally, the findings suggest the possibility of expanding the use of scrubs as a nurse uniform. In the United States, nurse uniform styles have already been replaced by scrubs, and these scrubs are color-coded to distinguish nurses from other medical personnel. Indicating nurses' responsibilities through uniforms is important for effective communication with their patients. In the South Korean context, one possibility would be to adopt a code for nurses' roles via fabric design and color to distinguish them from other medical personnel.

Implication and Limitation

This study's findings provide academic and practical implications for changes in current uniform designs for nurses and offers further research contributions to the clothing and textile field and health professions. For instance, the study's results provide the basis for an ideal questionnaire measurement tool in various aspects, reflecting the special needs of nurse uniforms and other specific uniform needs in the future. Academic leaders in the nursing and clothing/textiles disciplines should introduce greater scientific rigor into research investigating the impact of uniform designs, specifically on patients' needs and care. The results of our study can be used for survey development, which may be validated by a quantitative analysis for large-scale surveys involving more diverse groups of nurses. In addition, the study results provide specific ways to consider design solutions in current nurse uniforms by going beyond the functional aspects of uniforms and applying the FEA model. The study confirmed the need to give more attention to various aspects of nurse uniforms such as comfort, self-image, protection, modesty, and a professional identity when new design improvements are considered for both male and female nurse uniforms. The current findings of the study also support the development of new nurse uniform designs that can boost the professional image of medical staff. It is critical to develop a uniform design to efficiently carry out nurses' responsibilities efficiently and convey professional

images simultaneously, rather than focusing on the expression of gender identity and individual preferences. Therefore, a scrub incorporating neutral color could be a good design solution for the nurses. Additional considerations include designing a practical pocket with a flap cover to store the items securely and pockets of different sizes because nurses carry various objects. A variety of fabric materials that prevent contaminations should be important to add the mixture of design, along with a masculine silhouette for male nurses.

Even though our findings contribute to understanding nurse uniforms, there are several limitations to consider in generalizing our findings. A small number of participants were recruited in one geographic location; thus, more subjects in the data collection would strengthen the results. In particular, the study requires a follow-up data collection with nurses who have similar amounts of experience. Although the male and female nurses in our study have similar responsibilities at work, the years of experience largely varied among the female nurses in our study. Therefore, collecting opinions from nurses with similar amounts of work experience would provide more reliable data. Additional research projects can be replicated in the United States in order to strengthen our findings. To generate reliable conclusions and recommendations of qualitative research, intercoder reliability is essential (MacPhail et al., 2016). The interview data should have been collected based on the code frame so that the coding process could have been accomplished before the data were collected. The researchers focused on the meaning of the content, which may challenge the accurate calculation of intercoder reliability; however, the participants' accurate meanings were captured to support the themes that emerged in our study. In the future, being able to understand how nurses feel about their uniforms could reveal other potential effects of dress on their interpersonal relationships with patients. Furthermore, other researchers might consider whether an androgynous-style uniform would hinder nurses from carrying out their jobs. Would nurses be able to assert their roles and associated authority using other aspects of appearance or non-appearance-related techniques? Further research should be considered to investigate the loss of respect due to uniform style.

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