The meanings of comfort in intensive care settings: the fusion of care and interior design revealed through a lexical and content analysis

Abstract

Providing comfort in an ICU setting is often related to pain relief and end-of-life care; environmental factors are often neglected, despite the major role of the environment on the patients' wellbeing and comfort. The aim of this paper is to explore the meanings of comfort from a theoretical and empirical perspective to increase the understanding of what comfort means in ICU settings. A lexical analysis and serials of workshops were performed, and data were analysed using a qualitative content analysis. The findings from the theoretical analysis show that comfort has a broad range of synonyms related both to subjective experiences and objective and physical qualities. The findings from the empirical part reveal four themes: comfort in relation to nature, comfort in relation to situation and people, comfort in relation to place and comfort in relation to objects and material. Materiality, functionality, memory, culture and history stipulate comfort. It is challenging to discern what comfort is when it comes to an individual's function and emotions. We also found that comfort is closely linked to nature and wellbeing.

Keywords: *Patients' rooms, health facilities, seminars and workshops, lexical analysis, content analysis*

INTRODUCTION

The current paper addresses the concept of comfort within an intensive care context, analysing it from a multi-disciplinary perspective, that is, nursing and interior design. In addition, it draws on ideas regarding how comfort could be promoted from an existential perspective.

Comfort is closely linked to nursing care and is often embedded in nursing theoretical frameworks and employed in a variety of contexts. Over the decades, nursing theorists have identified comfort either as an outcome of care or as an essential element in caring activities in various clinical practices[1]. The literature examining comfort in ICUs often associates comfort with pain relief[2] and end-of-life care. [3, 4, 5] From an interior design perspective, comfort is associated with the quality of materials and function of objects rather than how these objects are used in creating comfort, for example, in the ICU to promote peoples' wellbeing during critical illness.

There seems to be a lack of clarity on the concept of comfort in the literature. The ambiguity of the term 'comfort in critical care' is already noted by Walters[6] in a phenomenological study examining ICU nurses' perspectives. Tutton and Seers [7] show that despite the fact that the concept of comfort in the nursing literature has been developed as a component in various nursing theories, there is still ambiguity in how the term can be defined and measured as a nursing outcome. In a literature review using evidence-based knowledge in designing health care facilities, Ulrich [8]argues that a few concepts, including comfort, seem to be used in research with similar intentions but without knowing the precise meaning of each. For example, satisfaction of care and comfort are frequently employed in research without any further investigation or definition. Therefore, it is important to explore the meanings of what various meanings and forms comfort can take within an intensive care context.

BACKGROUND

The concept of comfort in nursing

Malinowski and Stamler[1] explore the conceptual framework of comfort in nursing theories developed between 1980 and 2000. Their analysis uncovers three main areas of comfort in the nursing literature: 1) comfort as an outcome or function of nursing, 2) comfort as a basic human need and 3) comfort as a process. However, it should be noted that neither existential comfort, 'environmental comfort' nor existential wellbeing is mentioned in these works.

Comfort as an outcome of nursing addresses patients' physiological needs and illness symptoms, not so much the patient's emotional and psychological needs. Comfort is merely seen as a concept of relieving and easing patients from bodily discomfort. However, this way of understanding comfort in nursing has been expanded with the work of scholars who embrace a

phenomenological point of view; they brought forth the role of body and suffering in relation to comfort and care.[9] Here, the philosophical way of understanding comfort was developed further, and comfort was described as a state of wellbeing, a pre-reflexive way of being that goes beyond physical and mental awareness.[10] Nevertheless, it is still evident in the literature that relief from pain and anxiety is a major concern when it comes to comfort and what comfort is associated with. Specifically, in ICUs, the medical perspective of comfort is prominent. When Elliot et al. [11] developed a survey to measure patient comfort in ICUs, three main issues were identified and surveyed – pain, delirium assessment and sedation levels – because these aspects relate to discomfort in ICU. Likewise, Ashkenazy and DeKeyser-Ganz [12] develop a comfort scale for adult ICU patients, which was originally created for paediatric intensive care, but later also validated for use in adult ICUs; it entails eight themes all related to symptoms and physiological parameters. The strong emphasis on bodily comfort in the ICU is also confirmed by Lombardo et al.,[2] who examine patient comfort in the ICU from the view of care providers. The findings show that health care professionals identified that the main source of patient discomfort was related to anxiety, pain and feelings of restraint. However, some environmental factors were also identified, such as lack of privacy, noise and light at night time. They also stress that ICUs are poorly organised to create environmental comfort.

Kolcaba[13] develops a theory of comfort that places the concept at the forefront in nursing care, defining comfort as 'the immediate experience of being strengthened by having needs for relief, ease, and transcendence met in four various contexts'. These contexts are physical, psycho-spiritual, social and environmental. Following this theory, Yousefie et al. [14] explore the meanings of comfort among patients in Iranian hospitals. The study recognises comfort as a basic human need that involves four main areas: family, belief and faith, staff and a comforting environment, which entails a calm, homelike quiet place. These findings are also in line with a phenomenological study on comfort and discomfort by Carnevale and Gaudreault, [15] who examine the perspective of children cared for in a paediatric ICU. Here, comfort is shown to be having one's family and friends around, having friendly staff and favourite objects near, such as a pillow, blankets and objects brought from home. Entertainment and play were also something that gave the children comfort while being in the ICU.

ICU environment, care and design – an existential perspective

The term 'place' refers to a physical location, and this location, for the purposes of the current paper, remains the backdrop for patients while being admitted to the ICU. The ICU patient room is a closed and protected environment,[16] meaning that it is a place a person cannot leave, regardless if the duration of treatment is temporary or for a longer period. Being a patient in the ICU means being connected to technological equipment and machines, and this creates a particular problem: loss of body consciousness and literally being tied to the bed by wires and

lines. This situation evokes feelings of not knowing and not feeling where the body begins and ends in relation to the bed. The boundary between the body and the surrounding world becomes blurred and ambiguous,[17] resulting in bodily discomfort and physiological and psychological stress. [18] These findings of what a person experiences in the ICU are also in line with what Olausson et al. [19] stress in a study examining patients' experiences of being critically ill in an ICU context.

Torkildsby [20] uses the expression existential design when elaborating on a design process for institutional and closed environments, claiming that such environments do not support what is considered to be a 'normal' state of existence for a sick and vulnerable person. To be placed and cared for in this environment coupled with a critical illness fully exposes the ill patient to potential risks, including the patient's lifeline. The meaning of comfort from an existential point of view derives from the notion of 'existential design'.[20] In this perspective, comfort is a fundamental form of being human and represents physical and psychological ease and satisfaction, that is, wellbeing (as in freedom from pain and anxiety). The meaning of comfort from an existential point of view derives from the notion of 'existential design'.[21] In this perspective, comfort is a fundamental form of being human and represents physical and psychological ease and satisfaction, that is, wellbeing (as in freedom from pain and anxiety).

Critical illness may result in a feeling of being in an existential homelessness [22] or, in other words, existing in absence. This is a fundamental form of being human, one that is mainly built on the concepts of unhealthyness and sickness – as in incapacity. Olausson[19] presents similar thoughts: 'The voiceless patient is compliant to care'. Moreover, Torkildby[20] states that to exist in absence indicates that although the patient is fully present physically, she or he is '[…] left with no other choice than to be taken care of and so is more or less put out of action – thus powerless and incapable of taking control'.

From an existential design perspective, this again entails that every object in the ICU patient room exists as a substitute, that is, a (poor) replacement for the private item for the patient, implying a very different way of design thinking that Torkildsby[19] calls critical design thinking. In short, this way of thinking stresses the fact that objects in the surrounding area in the patient room may directly affect certain fundamental forms of human being.

The design of ICU

Florence Nightingale first introduced the concept of a 'healing environment'. According to her, a 'sick room' should be constructed to consider sound levels, ambient light, temperature and air quality to create a therapeutic effect.[23] She writes, 'That they [patients] should be able, without raising themselves or turning in bed, to see out a window from their beds, to see sky and sunlight at least, if you can show them nothing else' (p.92). From a more contemporary

perspective, a movement toward ‘evidence-based design’ (EBD) was started by a study called 'A View Through a Window may Influence Recovery from Surgery'. [24] The study details how the physical environment can influence wellbeing and consequently promote healing; in the study, one of the findings was consistent with Nightingale’s views, namely that patients with a view of nature suffered fewer complications, used less pain medication and were discharged sooner than those who did not have a view to the outside. Later, researchers within the field of EBD claimed that ‘Good design can reduce anxiety, lower blood pressure, improve the postoperative course, reduce the need for pain medication, and shorten the hospital stay’.[25] By the beginning of twentieth century, it was a ‘universal rule’ that facility design has a direct impact on both patient and staff satisfaction.[25, 26]

ICUs are designed to help people survive, and because of this, these health care environments are designed with efficiency, sterility and safety in mind. Technical equipment, such as ventilators, intravenous pumps, blinking monitors and dialysis machines, practically dominate the patients’ rooms. But technology can be regarded as a two-sided phenomenon; it saves lives and may give hope while simultaneously creating uneasiness and somehow ‘polluting’ the environment with its clinical and unwelcoming presence.[27] There is no doubt that ICU patients are exposed to many sources of discomfort, most of which are related to the patient’s medical condition and nursing care actions. This makes the ICU design even more vital and raises a question about how ICUs as institutions of care that focus on saving lives [28] could also care for human beings by ensuring comfort. Traditionally speaking, the design of an ICU patient room has focused on total visibility and being a panoptic room,[22] which could be said to be the very opposite of ethical care, namely when it comes to promoting integrity, privacy, wellbeing and securing patient’s lives.[29]

Aim

The aim of this paper was to explore the meanings of comfort from both a theoretical and empirical perspective to increase the understanding of comfort in ICU settings. The following research questions guided the present study:

1. Could the synonyms derived from a semantic analysis be further investigated concerning meanings?
2. What elements from everyday life could be incorporated into an ICU context to increase comfort?
3. How can an understanding about the material aspects of comfort increase awareness of and a sense of meaning of the concept to people involved in planning future ICUs?

Methods

The current study took an explorative design. Data were collected theoretically by accomplishing a lexical analysis and empirically during a series of workshops using various techniques, such as photos, stories, group work and interviews.

Data collection

Phase I – the lexical analysis

Considering the ambiguity of the term 'comfort' and to map the scope of its meanings, a semantic and lexical analysis [30] was performed in English and Swedish. In the present paper, only the English version is presented. The lexical meanings of 'comfort' were examined by systematically identifying the synonyms and writing these in synonym charts. This procedure was performed systematically using ten lexicons in Swedish and five lexicons in English.[31, 32,33, 34]

Phase II Workshops

Preparation and participants

The workshops were organised in collaboration with the Chalmers University of Technology, Centre for Health Care Architecture (Swe. CVA). A snowball sampling[35] using thirty-six initial participants was employed; an invitation to the workshops was announced on the website where CVA communicates with researchers, facility planners and architects. In addition, nurses and physicians from three various ICUs in Sweden were invited to take part in the study. The invitation was also published on social media, which resulted in the recruitment of participants from the Swedish Research Institute. In the invitation, the participants were asked to photograph a few items (two to three) in their personal sphere, that is, home or other private spaces, that they associated with comfort and then bring them to the workshops.

In total forty-three people; twenty-two men and thirty-one women between twenty-one and sixty-nine years old participated in three workshops in 2016. The participants represented different European and East Asian nationalities. The English and Swedish languages were used for these sessions, and the workshops lasted for three hours each.

Procedure

To further explore and discover how the meanings of comfort are understood in broader and more general terms, the authors conducted the workshops using the synonyms from the lexical analysis. Moreover, because one of the guiding questions in the project was about materiality from a comfort and design perspective, fifty different materials common in ICUs and ones associated with everyday life, for example, in a house, were prepared and used at the workshops (Box 1). The idea here was to see if natural materials such as cotton, wool and wood might be associated with traditions, safety and comfort and one's home. In addition, synthetic

materials such as plastic, concrete and composites were prepared to examine if they would be associated with public spaces, which refers to public institutions such as ICUs.

Box 1: overview of the material collected for the workshop

Glass	Aluminium	Fleece	Towel	Fur	Oilcloth	Blanket	Jeans	Satin	Sheet
Concrete	Asphalt	Ceramic	Wall paper	Curtain material	Coated fabric	Rug	Old-fashioned wallpaper	Chiffon	Lining material
Iron	Plastic	Silk paper	Linen	Cloth	Soft plastic	Flooring material	Hoarding	Cardboard	Piece of timber
Wood	Cotton	Glass fibres	Steel	Quilt	Cellular plastic	Plexi glass	Gift-wrap paper	Sackcloth	Lace curtain
Galloon	Silk	Velvet	Lace	Foam rubber	Wool	Yarn	Furnishing fabric	Teddy	Galvanised metal

Two of the authors (SO, AT) gave an introduction to the participants using storytelling and photos to stimulate discussion and reflection on the theme of comfort. The aim of the introduction was also to frame the workshop and orientate the participants on the themes of ICU, critical illness and comfort. To set these themes, an authentic story from a former patient in the ICU was read, followed by a display of a series of photos from an ICU patient room. The participants were asked to reflect and try to relate to the story and photos. After this, the participants were invited to share their photos and talk about them, and follow-up questions were posed by the authors and noted (SO, AT). The participants were asked to circle the synonyms that they associated with ‘comfort’ on a word-cloud sheet (Figure 1). The words in the cloud were the synonyms found in the lexicons.

Figure 1: Word-cloud of the synonyms in English

During the workshops two types of group work were performed. For the first one, the participants were exposed to different kinds of materials (Box 1.) to explore and discuss their experiences related to comfort; here, all groups accessed the same type of materials. For the second group work session, the participants were asked to categorise the material according to the synonyms derived from the lexical analysis. The synonyms were printed on small cards and shared among the participants. This provided an opportunity to exemplify the terms with the material at hand (See figure 2.). The workshop ended with a common discussion about the material the participants had worked with and the outcome of it, and these discussions were recorded. Before the participants left, they were given postcards to reply within a week so that they could give feedback on the workshop and reflections they might have had on the topic afterward.[36]

Figure 2: Examples of photos from the workshops

Analysis of the data derived from the workshop

A qualitative content analysis was performed on the photos, notes and recorded discussions. All the data were read, reflected upon and categorised using a qualitative content analysis.[37] The analysis process entailed three steps: the preparatory, coding and reporting phases. The preparatory phase consisted of summarising and gathering, reading and re-reading all the data, that is, field notes and transcripts of the

recorded groups' work discussions, to gain a deeper understanding and sense of the whole. Data were sorted and categorised to find patterns in relation to the identified meaning units, which is a part of the text, photos or data that communicate adequate information about the studied phenomenon: comfort. In the second step, open coding was performed; here, the material was organised by content and abstracted with the intention to identify related meanings. This process resulted in various themes related to each other; this is what Elo and Kyngäs [37] conceptualise as the reporting phase.

Ethical considerations

The invitation to the participants entailed information about the research project and details about the workshop schedule. Prior to the workshops, an information sheet and informed consent form, according to World Health Organisation, WHO's recommendations, were provided. The participants were informed about the background and aim of the project and their rights to withdrawal anytime without explanation. The informed consent was obtained verbally and in writing.

Findings

Our findings are presented in two parts; the first part presents findings from the lexical analysis, and the second gives the themes derived from the analysis of the content in the workshop sessions.

Lexical analysis

The noun comfort comes from the Old French word *comfort*, meaning 'feeling of relief' (i.e., to take comfort in something) and 'source of alleviation or relief'.[38] The etymological meaning of comfort is to strengthen and give power, which is one of the essentials of nursing. Figure 3 shows the results of the analysis.

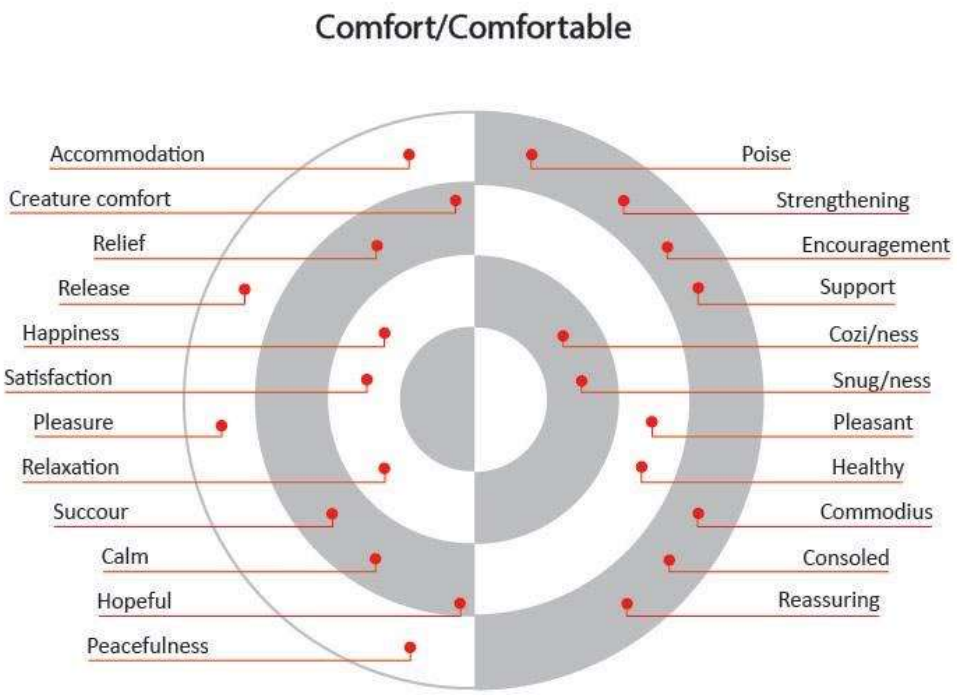

Figure 3. Illustration of the synonyms of comfort.

All the synonyms with only one hit were excluded from the chart, and a figure was created to illustrate the related synonyms (Figure 3.). Only one dictionary [32] defined 'comfortable' and 'comfort' as physical and emotional. In addition, the term 'comfortable' was related to furniture, places and clothes, and the term 'comfortable zones' was related to activities and situations. The Oxford dictionary [33] defines 'comfort' to subjective and objective meanings (context) and also a state of freedom and wellbeing. Moreover, the synonyms of comfort and comfortable vary and are not exactly the same when reflecting the same phenomenon.

Findings from the workshops

The workshop participants were asked to circle the synonyms that they associated with 'comfort'. As displayed in Box 2, there is good agreement between 'comfort' and 'satisfaction' and between 'comfort' and 'calm'. This is also in line with the lexical analysis (see Figure 3). A few participants had also written that they would like to extend the synonyms with words such as 'privacy' and 'fun'.

The field notes and transcribed group interviews produced four themes describing the meanings of comfort: *comfort in relation to nature, comfort in relation to objects and materials, comfort in relation to situation and people* and *comfort in relation to places*.

Box 2: Overview of word-cloud responds

SYNONYMS	HITS	SYNONYMS	HITS
ACCOMMODATION	-	REASSURANCE	-
CALM	20	RELAXATION	14
COMMODIOUS	-	RELIEF	-
CONSOLED	-	RELEASE	10
COSY	-	SATISFACTION	37
ENCOURAGEMENT	-	SNUG	-
HAPPINESS	6	STRENGTHENING	8
HEALTHY	-	SUPPORT	6
HOPEFUL	-	SUCCOUR	-
PEACEFULNESS	9		
PLEASURE	-		
PLEASANT	2		
POISE	-		

Comfort in relation to nature

The natural aspects and materials seemed to be crucial for comfort. The participants pointed out that nature was pivotal in experiencing comfort and was described as a source of harmony and peacefulness, creating a space for reflection and to revitalise one's energy and offer rest. These aspects were also evident in the choice of the materials and the photos that the participants had taken. For example, all the materials that were associated with nature were highly scored and subject to recommendations when building new health care facilities. Nature also was seen as a source of inspiration and power, offering a dynamic alteration from everyday life. A window with a view of nature or where one could see far into the horizon was described as calming because it created a space in the place, for example, a flat with a nice view was describe as 'freeing'. In comfort regarding their homes, the participants talked about how they had brought in elements of nature to create comfort. Many of the participants referred to their summer houses or that being by the sea eased their minds and thus brought comfort into their lives. To be close to nature seemed to be the greatest source of comfort. Nature samples in the presented material, such as a piece of wood, were scored as comforting or very comforting and related to the at-hominess feeling. Nature and natural elements were described as meaningful to people in increasing one's sense of coherence and balance. When working with the samples of material, the participants asked for more elements or examples than we had provided; for example, stones, grass and water were mentioned in the group work. From these results, nature may enhance people's existential wellbeing. The following quotes, from the workshops illustrate this theme:

'Good Mother Nature… …You walk alone and can "fuel" yourself after a day at work..It connects you with the life'

Comfort in relation to objects and materials

Participants' reflection and their photos mirrored a comfort associated with feelings of safety and security in relation to the participants' personal history and current life, but also in relation to functionality. Functionality could be described as the spaces between the objects and the intentionality of the subject or the person, that is, if the object makes sense and can be purposefully used for the intended matter. Favourite objects were defined as objects that both functioned well and mediated feelings of wellbeing and ease of mind. Favourite objects were often exemplified from participants' homes, such as a chair to sit at and read in or a coach with soft cushions. These were described as inviting to relax in and finding harmony through. On the other hand, the objects could also be related to aspects that facilitated everyday life. The examples described were a working desk and lights that allowed a comfortable body position and made it easier to concentrate on the task. In sum, the intentions of the person regarding how to use the objects seemed to be vital for comfort. Time and one's past seemed to determine comfort as well. For example, objects and materials that people linked to their happy childhood or grandparents' home were described as comforting.

In this theme, several synonyms were recognised in the lexical analysis (compared with Figure 2). Relaxation, calm, pleasant and relief were some aspects that were recognised. This occurred when the participants reflected on and chose samples from the material collection. Here, the functionality of the material was compared and reflected on regarding their purpose of use. The participants declared that when an object is 'easy' to use, it can be associated with comfort, meaning that the feeling that the material communicated did not take energy to use or cause discomfort.

Comfort in relation to situation and people

Situatedness in relation to the meanings of comfort was repeatedly discussed during the workshops. Situations in everyday life seemed to be vital for the experience of comfort; social situations and those of familiarity were associated with cosiness, and feelings of at-hominess were regarded as comfort or comforting. These situations were reflected upon and labelled as strengthening, energising and a relief for the mind and body. Having coffee, an afternoon cup of tea and relaxing with family and friends were situations related to happiness and described as a way of creating comfort in everyday life. Intersubjectivity seems to play a role in individuals' experiences of comfort. Participants discussed that knowledge about family members' wellbeing contributed to their comfort. Situations of being able to influence what is happening and understand the situation were considered as comforting. One of the participants at the workshop expressed: *'Comfort for me is concern… not concern in a general term but concern about me…about what I need'.*

Thus, feelings of security and having control can be observed as essential elements in comfort. Participants depicted many of the synonyms elaborated in the concept analysis (Box 2.) when describing what comfort meant to them, such as such happiness, satisfaction and relax. Interestingly, they also pointed out that a word was missing in these synonyms: 'fun'. One of the participants with a health care background expressed: *'It doesn't matter if you are five years old or 80 you to have fun'.*

Participants drew our attention to the significance of fun in finding hope, especially when being hospitalised and sick. This theme was both reflected in the choice of material samples and photos presented at the workshops. Materials associated with cosiness and soft materials associated with intimacy and warmth and colourful items or colours in the environment were mentioned in creating comfort. The participants also drew a line between the practicality in different contexts and in relation to various situations. For example materials for hospital settings and homes should differ because of the 'demand' on them. One of the participant stated: *'Sometimes, you have to choose something that is not perfect, but you can clean it easily'.* Building materials such as concrete, bricks and plastic fabrics were categorised into a 'junk pile'. Touch, vision and smell were senses the participants discussed in deciding whether something was comfortable or not. How materials looked and smelled or even their attractiveness in relation to the purpose they were used for.

Comfort in relation to place

An aspect of comfort relates to the surrounding environment. Environments that were '*easy to be' in* and that people felt attached to were places that corresponded with feelings of comfort. This also included bodily movement. Moving around without making effort was described as comfort. The spatial dimension entailed places where one could withdraw and find inner peace, which mirrored comfort and satisfied one's need. The participants suggested that comfort could be created in a place through dialogue; a situated dialogue can generate meaning. The participants who had a background in health professions said that to help a person or patient feel comfort also means to orient the patient in a temporal and situational context. This was seen as a way to increase the patients' sense of coherence and was reflected in relation *'to be in place'.* We noticed that two words, 'security' and 'recognition', frequently recurred in describing comfort in relation to a place.

The choice of materials in this theme were related to sustainability and safety, such as anti-glide materials and materials that have *'enough power to protect you',* as one participant described it. Long-lasting materials were seen as the best choice for providing comfort. It was also discussed that the choice of material should be based on the purpose of the place.

Discussions and reflections

When looking at our findings comfort seems on the one hand contextual and individually determined; on the other hand, we found a general pattern in the data that can describe some essential meanings of comfort. Materiality, functionality, memory, culture and history are the backgrounds that provide meaning for what comfort is. In addition, it is challenging to discern comfort when it comes to function and emotions. We also found that comfort is closely linked to nature and wellbeing; however, this dimension was lacking in the lexical analysis performed prior to the workshops. The original meaning of comfort, that is, to strengthen and give power, became evident. Analysing the evidence, we argue that nature should be incorporated in to the ICU, not only as a view from the window, but also when designing and choosing materials. For example, wood, wool and ecological cotton can be used to a greater extent. Interestingly, iron was found to be appealing and to communicate feelings of being anchored.

The findings from the current study raise questions about how the environmental design of ICU patient rooms can promote comfort. Minton and Batten[39] argue for a reintroduction of the concept of biophilia in ICU care, that is, to deliberately include nature as a healing aspect in the patient's room. In a review, they present nature-based interventions directed to ICU nurses' care practices. This is also in line with the findings in this study. Nature was the largest and most essential aspect in providing comfort. It is reasonable to believe that nature "neutralize" the high tech and unfriendly environment of ICU.

In ICU settings it is of important to actively reduce of disturbing sounds and lighting and the importance to give patients, next of kin and staff a natural view to the outside. Lindahl and Bergbom[16] carry out an intervention research programme where an ICU patient room was created using an evidence-based design. The purpose was to examine if design and interior decoration intended to promote health, recovery and wellbeing could support a traditional medical and caring treatment regimen. An identical but ordinary patient room was kept as a control. The active components in the intervention were sound-absorbent walls, a cyclic light system, soft colours, ecological sustainable materials in textiles and furniture and a view to outside greenery. The findings show that sound levels were too high and differed too little between day and night[40]. Moreover, experiences of sound and noise were very subjective,[41] and the staff's knowledge of sound levels could be better. The group being cared for in the intervention room had a better recovery process after six months. Staff noted[44] being calmer and relaxed in the intervention room and more attuned to the patients' needs. We argue that these findings point to the connection between design and human factors, such as the experience of comfort in relation to nature.[42]

In a comparative study[43] of three various Swedish ICUs, it was found that the patient rooms were given less attention concerning interior design and decoration compared with staff areas, which had a more welcoming design. Patients' rooms and access to daylight was also often disregarded. When reviewing forty-six Norwegian hospitals' (n=86) strategic building plans, 74 percent of the answers showed that few guidelines or directions were explicit concerning the aesthetical dimensions. To further explore the value of a hospital surrounding, the researchers interviewed experts of artistic and aesthetical professions with personal experiences of being cared for in hospitals. The expert group agreed about the importance of the design and aesthetic dimensions as a basic foundation for recovery processes, but their experiences showed that the aesthetical dimensions in hospitals were totally absent.[44, 45] A design and atmosphere that is conducive to health and wellbeing is also considered to promote sustainability.[46]

In an integrative review Wensley and co-authors [47] found that patient comfort is a complex and multi-factorial phenomenon. Amongst factors identified to influence comfort was the clinical settings and environment one major issue. Comfort was defined as *" the state of comfort is transient and dynamic, arising from an integration of complex, personal and context-specific factors but characterized by relief from physical discomfort and feeling positive and strengthened in one's ability to cope with the challenges of illness, injury and disability" (p.4.).* However, this study does not provide any solutions in order to improve comfort related to the environment or in relation to the ICU context. Promoting comfort for the most sick and vulnerable – a characteristic of patients in need of critical care – demands more efforts involving a multi-disciplinary perspective and a holistic approach.

Methodological reflections

In the current paper, we sought to examine the meanings of comfort in an ICU context by using a novel data collection procedure. To our knowledge, no previous studies on this subject have undertaken this approach: combining the methods of nursing and interior design. Comfort is an ambiguous concept, and ICUs are complex care environments. Because of this, we decided to go beyond traditional research methods because a conventional empirical approach to depict the meaning of comfort and peoples' ideas and experiences of what comfort means would probably not have been enough to cover the subject fully. When concepts are complex and poorly explored, a mix of methods with an exploratory design is an appropriate choice.[35]

Using photos and various materials together with what we found in the literature provided rich data and increased our understanding of comfort. Using this approach enabled the participants to discuss and verbalise what comfort meant to them and how they understood comfort. This was expressed both at the workshops and was also the most common feedback we received from the postcards sent to us afterwards. The variety of the participants' backgrounds and the large number of people who participated in the workshops can be seen as a strength of the current study.[35] However, no former ICU patients or their next of kin participated. This is a limitation, and we think further studies can focus on comfort from the patients' and next of kin's perspective at the time of a critical illness. Also, many of the participants had a background in architecture, and this could both be an advantage and a disadvantage. However, having an architectural background means that those participants had a professional knowledge and preunderstanding of comfort that might differ from health care providers and other professionals. This can be seen as a disadvantage on the one hand. But on the other hand, the workshops might deepen the architects' understanding of what comfort means from an ICU context, which hopefully can contribute to designing purposeful and more comfortable places for care.

Implications for education and clinical practice

In conclusion, a practical approach is needed to incorporate a comfort-thinking approach when designing and refurbishing ICU patient rooms and wards. Another important issue is to increase the number of architects and facility planners involved in understanding how comfort can be achieved or promoted in ICUs. Finally, based on the findings in the current study, regarding the target group and context, we recommend that the following issues be taken into consideration: incorporate natural material as much as possible into the ICU environment and use materials that contribute to feelings of being anchored, as suggested in the current study, including heavy and robust elements (soil and iron) because they contrast the artificial and high-tech atmosphere of the ICU.

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