

An assessment of lighting concepts in the healthcare environment

Fatma Jobran

Taibah University, Saudi Arabia

Background: This study presents how comfortable lighting luminance in a waiting room can add more relaxation to patients before going to the (surgical operations) at the Orthodontist's office. The objective of this study is to provide a full review of comfortable lighting luminance in the health care environment. This study proposes a new luminance system in an existing health care facility based on limitations presented in the literature review, suitable design alternatives, localized lighting, use of phototropism, and the use of wall washing. The methodology is based on case studies using behaviour and environmental conditions. Colour appearance, colour contrast, colour rendering, control, horizontal and vertical illuminance, and equipment are primary variables to consider when looking at quality and quantity of lighting.

Introduction: The lighting in the waiting room and other rooms in the healthcare environment have a challenge according to evidence based design. Patients are very nervous when entering the waiting room as they are awaiting their operation. This healthcare facility includes a variety of seeing conditions and present many concerns and challenges for the lighting design of the waiting room

Problem/Question: This study will focus on current findings and the use of Evidence Base Design (EBD) as extrapolated from this study to inform design decisions. In addition, this study addresses the impacts of the physical environmental change on people's behaviour.

Methods: The information gathered has been evaluated and structured using case studies from the literature review. The present case studies were analyzed to determine patients' needs. Then, adjustments on existing waiting room lighting were made and the current plan was made according to lighting application and lighting calculation with a concentration on phototropism and patient stress relief.

Finding: The findings of this study suggest the following:

- 1) A larger, low brightness source appears to be less distracting,
- 2) Human phototropism is an explanation of movement in a space using light. Using of ceiling mounted lighting is to clearly define the space and create a transparent room impression should not exceed the S/MH ratio.
- 3) The use of wall washing technique will create the impression of pleasantness when applied to the lobby area, and
- 4) The use of concentrated light on sculpture, flower, murals, and paintings will create the impression of pleasantness through wall washing in the lobby area and glare can be controlled by the shielding angle.

The aforementioned findings will necessitate the following specifications: Anti-Glare Metal Halide Down lights, placed into the ceiling, at the lobby area, and above the desk area. Moreover, The study suggested using florescent lighting, it is a wide light distribution with high degree of glare control, the benefit of using a florescent lamp as following: 1) generates radiant energy, 2) most beneficial for plant prorogation, and 3) enhances vegetative and reproductive growth in many plants. In addition, Phototropism findings used lighting to: 1) direct human movement, 2) using wall washing and non-uniform lighting treatments to break up the space and provide a feeling of warmth and pleasantness.

Conclusion: One of the problems that were noted in these cases is that hospitals do not want to spend funding on changing the lighting. The particular problems related to the design space were related to problems of not having much space according their needs. It is also necessary to show how best to furnish and make the space a less scary place for the visitors. Also lighting must be designed according to the lighting applications.

Biography

Fatma Jobran is currently an assistance professor at Taibah University, Department of Interior Design. Previously, she was the Chair of the Academic and Professional Development Commission at Texas Tech University Graduate Student Advisory Council (GSAC), April 2014-present. Her current research interest involves the impact of Sustainability and Places of Respite: Saudi Arabia Healthcare Environment and the Traditional and Modern Built Forms in Saudi Arabia. Fatma Jobran earned her M.S in Environmental/Interior Design in 2013 from Texas Tech University, Lubbock, TX. She honoured the outstanding academic record as an excellent candidate for the Honours College. After she moved to Texas in 2009, Fatma served as a faculty member of the school of Design at Taibah University in KSA in 2012 to present. In her professional career she served as a lecturer in King Abdul Aziz University - KSA 2005-2007. Early graduate work (MFA degree, 2005) was completed at King Abdul Aziz University. BA work was completed at the School of Fine Arts. Fatma Jobran honoured fifth times as the "outstanding achievements at Texas Tech University", Government & Public Service Intern Program and scholarship offered by the Texas Tech University Office of the President, at Washington DC, Austin, and Huston (2009-2014).

fatma.jobran@ttu.edu