

Identifying environmental stressors for staff in an Emergency Department and co-designing solutions

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Introduction

Working in an Emergency Department (ED) is a demanding occupation, requiring high levels of concentration and long working hours. Stress and burn-out are commonly reported by medical staff, with at least a quarter of NHS staff reporting distress.

The consequences of stress and burn-out on individual staff members and the health service are far-reaching. These include job dissatisfaction, absenteeism, and high staff turnover. This is in addition to the negative effect on patients, both medically and of their overall hospital experience.

Alongside the major social and resource stressors, the environment has been identified as an irritant for ED staff. Besides from ambient temperature and lighting, specific environmental stressors affecting hospital staff have hardly been identified. Therefore, the main objective of this research is to identify which aspects of a UK ED environment annoy, stress or irritate staff.

ED staff are best placed to indicate their daily environmental stressors and irritants. Additionally, they know which solutions are more likely to be successful than others, as they can consider the solution in its context, accounting for other environmental features or behavior patterns that interact with the stressor. Involving end users in the design of solutions also increases the 'buy-in' to changes that are made, as they are included in the decision processes.

Understandably, the time ED staff have during work shifts to participate in research is limited, yet if asked about irritants and minor environmental stressors after the event, when away from them, many may be forgotten. Therefore, a secondary objective of this research is designing methods that can

provide quick and easy ways for *in situ* staff involvement with minimum disruption to their job. The suitability of the created methods for use in an ED will be assessed.

Method

Two data collection methods have been devised to identify environmental stressors/irritants and a participatory design process for co-designing solutions.

Firstly, postcards with postboxes are to be placed around an ED asking staff to note environmental stressors/irritants and how they affect their behaviour and emotions. These provide all staff the opportunity for brief contributions. This will be complimented by up to ten qualitative in-depth 'stress walks' involving staff members individually walking the researcher through the environment as if conducting routine activities. En route they will be encouraged to talk through their interaction with the environment during activities, particularly in relation to how it makes them feel.

Staff members (n=215) will then be invited to contribute to a participatory design process to find solutions for some of the identified stressors. Instead of time-intensive co-design group workshops, computer/ipad kiosks will be situated within the ED alongside other computers and in their staff room. Using technology *in situ* will allow continuous updates for each design solution, as different staff members anonymously contribute and annotate each other's ideas.

Results and Discussion

The identified environmental stressors/irritants will be described in terms of their strain on the varied ED staff. The success of the developed methods for quick, inclusive participation by ED staff for collecting data and co-designing will also be discussed.