A model of Human Factors for frontline healthcare staff: Translation to clinical practice

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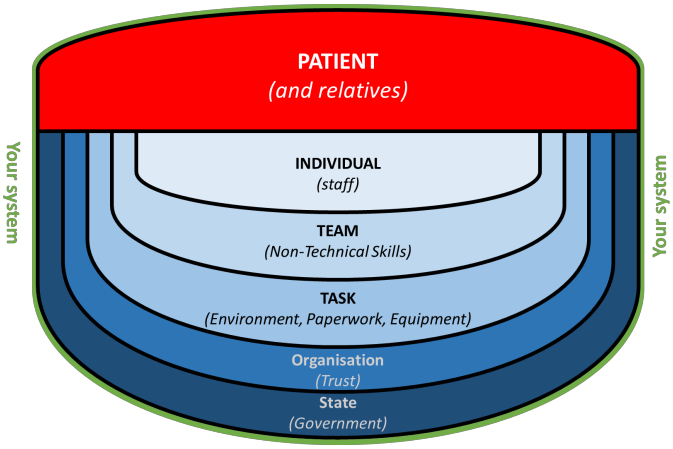
1. Introduction

Healthcare understands the importance of Human Factors and Ergonomics (HFE) in design and improvement of all aspects of the healthcare system[1]. However, dissemination and integration of HFE thinking in healthcare has been slow[2] and often focussed on the development of individual and team non-technical skills. Whilst this is important, it only addresses a proportion of the complex sociotechnical system that is healthcare.

Slow integration is in part due to a lack of understanding of HFE[3] concepts making them difficult to apply to healthcare. Previous work by the authors attempted to address this by creating a simple model for healthcare HFE, designed for frontline staff, by frontline staff[6].

This new model was created after review of existing published models and was tested through dissemination to multiple healthcare staff and students, of various specialties and professions, for their opinions on certain model attributes[4]. The final model (*figure*) incorporates physical, cognitive and organisational components of HFE with the patient at its centre. The model was deemed easy to remember, concise, relevant and applicable to multiple areas of healthcare[5].



This paper presents follow-up work in relation to the above model to identify whether education in use of the model can be translated into application in clinical practice.

2. Methods

TSCSC hosts regional simulation days for postgraduate trainees in general medicine. These use high-fidelity simulation with interprofessional audiences to consider the acute care of patients, including negative and supportive influences on performance. In 2015, as part of these days, all participants were subjected to a 30 minute workshop which introduced the authors' model and practiced application to identify HFE influences in the simulated environment. Participants were then tasked with taking the model (in electronic form) away with them and applying it to their own work contexts. They were encouraged to identify both negative factors, and those that support resilience, and were followed-up electronically two weeks later to collect free-text responses about factors identified in their workplace. These responses were thematically analysed. The category of "governmental" influences was removed for follow-up, because the focus was on immediate work systems.

3. Results

31 participants responded to the follow-up (25 core trainees (doctors qualified 3 - 4 years), 3 higher trainees (doctors qualified at least 5 years) and 3 nurses. 25/28 (90%) respondents found the model useful in identifying influences in their workplace. 12 themes (with subthemes) were identified from the thematic analysis of the free-text responses (*table*).

Category	Theme	Subthemes (and number times reported)
Patient	**Interruptions**	Non-urgent interruptions from patients
Individual	**Physical**	Tiredness from on calls (X3), Hunger (no food available out of hours)
	Psychological	Stress from excess workload (X3) and personal life with no support (X3)
	Training	Lack of induction for new starters and locums
Team	**Members**	Not enough staff in team (sickness), no identification of roles and skills
	Structure	Lack of cohesion in teams, constantly changing due to rotas (no consistency)
	Professionalism	Ignoring tasks as deemed "not important" e.g. answering phone
Task	**Equipment design**	Batteries always flat, unclear when power is low, IT systems do not "talk to each other"
	Equipment availability	Equipment missing, not restocked or stolen when needed urgently
	Environment	No standardised layout, everything in a different place (X2), distractions from monitoring
	Protocols	Outdated guidelines that are complex to use (X2)
Organisation	**Trust focus**	On discharges rather than sick patients, saving money rather than employing extra staff

4. Conclusions

The model is well received and applicable to multiprofessional, frontline healthcare staff. It provides clarification of the system-wide application of HFE and allows identification of system issues for improvement. The issues highlighted in this work have been fed back to local Trust governance and frontline improvement groups for actions, where possible, to improve conditions to support high-quality patient care.

Future work will include creating a more in-depth tool for use by trained clinicians to assess their work systems.

References

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