

PhD overview: Investigating teleconsultations in primary care using human factors

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SUMMARY

The discipline of human factors plays a crucial role for the design, implementation, and evaluations of use of teleconsultations in primary care. This paper provides an overview of a PhD project which used the Systems Engineering Initiative for Patient Safety (SEIPS) 2.0 model (Holden et al, 2013) to synthesise previous applications of human factors in this area; explore the facilitators and barriers to the use of video consultations in primary care pharmacy services in Scotland; and to understand the extent to which existing video consultation guidance considers each component of the current work system.

KEYWORDS

SEIPS, teleconsultations, primary care

Introduction

As there are plans for continued use of teleconsultations in Scottish primary care (Scottish Government, 2021), it is beneficial to understand how these technologies are being developed and used to deliver primary care services. The discipline of human factors is suited to this type of research. The overall aim of this PhD thesis was to describe and explore the ways in which human factors approaches and methods can be applied to the design, implementation, and use of teleconsultations in primary care.

Methods

Describing the ways in which the discipline can be applied to the development of teleconsultations involved a four-stage process, which was informed by and analysed using the SEIPS 2.0 model. Stage 1 involved a systematic scoping review to identify previous applications of human factors (2010 to 2023) to examine components of the work system and different types of processes and outcomes at each stage of the technologies' lifecycle (i.e., Design, Implementation, and Use) in primary care. Stage 2 involved a secondary analysis of studies in the aforementioned review, via thematic inductive and deductive analysis of results data, using the SEIPS 2.0 model to understand the work system components presenting as barriers. Stage 2 produced an evidence base of facilitators and barriers for patient and primary care providers' use of teleconsultations in the current primary care work system, which informed the development of interview schedules for Stage 3. Patients and primary care pharmacists in Scotland were recruited, and the SEIPS 2.0 work system was used to understand the factors influencing their use of video consultations (VCs) (November 2022 to June 2023). The results of Stage 3 informed the scoping review and content analysis conducted in Stage 4 to identify and synthesise the existing guidance relevant for primary care pharmacists working in Scotland on the use of video consultations. This involved

understanding the extent to which resources contained information relevant to each component of the SEIPS 2.0 work system.

Results

Stage 1 identified 70 studies applying 20 approaches, the majority of which had been used to examine use of teleconsultations. Approaches focused mainly on the person(s) in the system, and no studies explicitly mentioned human factors or ergonomics. The majority of studies were set in general practice, with less in settings such as community pharmacy. The secondary analysis of these results (Stage 2) identified 36 and 39 factors influencing patients and primary care providers' use of teleconsultations, the majority of which related to personal characteristics for both groups. When patients (n=14) and primary care pharmacists (n=19) in Scotland were interviewed on their perspectives on using video consultations in relation to these factors (Stage 3), only five pharmacists had experience of using video consultations with patients. Pharmacists perceived a lack of patient demand; however, patients were unaware the service was available at all. Pharmacists highlighted a lack of organisational drive for uptake, and despite being aware of some existing resources, pharmacists expressed a need for more guidance on when video consultations may or may not be appropriate to use with patients. Based on this need, the subsequent review (Stage 4) identified 94 resources on video consultations relevant to primary care pharmacists working in Scotland. The majority of resources contained information relevant to only one of the work system components (tools & technology), with only four containing information relevant to all six components. The internal and external environment components were the least represented. Some resources were signposted to by pharmacy bodies and Scottish health boards that would not have been relevant to primary care pharmacists working in Scotland, for example, resources for General Practitioners or healthcare professionals working in England. These gaps and inconsistencies could be causing uncertainty and confusion in pharmacists looking to use VCs in practice.

Conclusions

The findings within this PhD thesis illustrate that human factors is in its infancy in the area of teleconsultations in primary care, as the approaches identified in the review focused mainly on the person(s) without consideration of the wider system components. Nonetheless, the results provide an evidence base concerning the development of these technologies. It would be beneficial for future researchers to update the review conducted during Stage 1 to understand how applications of human factors in this area evolves as integration of the discipline into healthcare continues. Future efforts to integrate video consultations into pharmacy services in Scotland could utilise the results of this thesis to understand some of the key barriers for patients and primary care pharmacists. It is hoped that the results of Stage 4 will inform future updates of national video consultation guidance, by illustrating the types of information and requirements that could be considered in relation to each of the work system components.

References

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