Questionnaire to Capture the Over Time User Preference During the Comparison of Pharmacovigilance Software Systems

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Abstract. The study aimed to assess the usability of the PVClinical platform, which is designed for detecting and managing Adverse Drug Reactions (ADRs). A "slider" type comparative questionnaire was designed to capture the preferences of six end-users over time between PVC clinical platform and the established clinical and pharmaceutical ADR detection software tools. The results of the questionnaire were cross-examined with the results of the usability study. The questionnaire was a quick preference-capturing tool over time and provided impactful insights. Coherence in participants' preferences for PVClinical platform was observed, but further research is needed to establish the effectiveness of the questionnaire as a preference-capturing tool.

Keywords. User preferences, comparative study, eHealth

1. Introduction

Although perception questionnaires are well-established tools widely used to capture feedback for a given software during evaluation studies, there is a lack of widely accepted questionnaire tools dedicated to facilitating the comparison of software. Perception questionnaires are often used to measure the usability of a given software and are comprised of various attributes. Although learnability is the most covered usability attribute, most questionnaires have items covering only one or two of its aspects [1]. Taking also into consideration that technology can be subjectively pleasing but have poor learnability and memorability, requiring extra mental effort from its users it is evident that further research is needed in this domain [2]. The comparative questionnaire (CQ) presented in this study, was designed and used in the context of the PVClinical project’s pilot study [3]. The PVClinical platform, is a web-based software that enables the analysis of various kinds of data sources aiming to support the early detection of potential Adverse Drug Reactions (ADRs), a.k.a. pharmacovigilance (PV) “signals”.

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2. Methods

We designed a "slider" type CQ addressing user preferences between the use of PVClinical platform and the established clinical and pharmaceutical software tools used in everyday practices regarding the detection and reaction to ADRs. The CQ is comprised of preferential ratings with a 7-rating scale (strongly prefer currently available tools, prefer, slightly prefer, prefer both equally, slightly prefer, strongly prefer) based on the following factors: Complexity (Which tool was optimal in terms of actions taken?), Optimal time (Which tool saved you more time?), Certainty of decision (Which tool's results give you more confidence in your decision?), Data quality (Which tool do you prefer in terms of data quality on which to make a decision?), User experience (Which tool left you with a better experience?), and overall preference (Which tool would you prefer to use from now on?). Every question had a follow-up requesting a brief justification for the chosen answer. This CQ was administered to six end-users (two clinicians and four PV professionals) involved in the comparative and usability section of PVClinical project’s pilot study. All end-users completed it at three specific time points after completing a third of the total signals planned to be screened for ADR detection during the pilot study.

3. Results

The results were cross-examined with the results of the usability study that took place also in the context of the pilot study. Based on those results all end-users’ preferences were aligned completely with the results from the CQ. Additionally, the CQ results provided insights on the learn ability of the platform during the pilot study, and also served as a quick and efficient way of collecting end-users’ preferences during that time. Finally, due to the brief explanation required by the CQ, one of the main outcomes of the usability study that is not directly asked in the CQ was resulted from the use of the CQ alone which might suggest that further research might add on the effectiveness of CQ.

4. Discussion and Conclusions

Although further research is needed: benchmarking and validation of the CQ with more end-users across multiple software, results indicate that the comparative questionnaire, is a quick preference-capturing tool over time and provided impactful insights during the analysis of the pilot study results.

References