

Development and feasibility testing of clinical decision support tool to aid physiotherapists with diagnosis of low back pain

Mbada Chidozie Emmanuel, Gambo Ishaya Peni, Adelusola Israel, Babalola Ayobami, Gebrye Taddesse, Fatoye Francis.

Background: The advent of technological innovation is considered a significant improvement in the management of low-back pain (LBP). However, decision support systems (DSS) for patients with LBP remains largely unexplored, despite its potential benefits to service providers and users. A DSS for LBP will help put in order the variety of routine tests and questions the physiotherapist needs to perform and enquire to arrive at a specific diagnosis. The study developed and assessed the feasibility of a clinical decision support tool (CDST) to aid physiotherapists with clinical diagnosis of LBP.

Methods: Qualitative and quantitative research methods were employed in this study. The qualitative phase was used for the development of the decision support tool (DST) using a three rounds Modified Delphi approach among purposive respondents including physiotherapists and orthopaedic surgeons. The feasibility testing phase of the developed DST was implemented after a two-week period and outcomes were assessed in terms of engagement, satisfaction, level of motivation and user experience. Descriptive of mean, standard deviation and frequency and inferential statistics of t-test were used to analyse the data.

Results: A three-end user (patient, physiotherapist and admin) DST was developed. The most positively rated items were “frequency of usage” (100%), “ease of usage” (60%), “technical support” (60%), and “ease of learning” (60%) System Usability Scale (SUS). The tool had a modified mobile app rating scale (M-MARS) score of 16.5 ± 1.00 before the intervention and 18.3 ± 0.57 after the intervention out of a total of 22.5. Moreover, there were significant differences between participants’ rating of the tool before and after intervention in “information” (22.0 ± 1.87 vs 25.4 ± 1.52 ; $p = 0.04$) and “total app quality rating” (16.5 ± 1.00 vs 18.3 ± 0.57 ; $p = 0.04$).

Conclusion: The findings of this study show that the developed DST for LBP diagnosis has high usability, quality rating, and change in health behaviour. Also, there was a significant increment in participants’ rating of the tool after use. The implication of this study is that DST could potentially assist with diagnosis in the management of LBP.

Ethics: Ethical approval was sought from the Health Research Ethics Committee of the Institute of Public Health, Obafemi Awolowo University, Ile-Ife, Nigeria (Registration number: IPHOAU/12/1396).

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