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

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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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