DEVELOPMENT AND VALIDATION OF A TOOL TO PREDICT INFORMATION SEEKING BEHAVIOUR OF MEDICAL UNDERGRADUATES, SRI LANKA

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Abstract

Information seeking behaviour is a set of actions expressing information needs, searching, evaluating, selecting, and utilization of information. The study aimed to develop and validate a tool to measure the information seeking behaviour of medical undergraduates in Sri Lanka. Final and penultimate year students in medical faculties in universities of Kelaniya, Peradeniya and Colombo, and Eastern University in Sri Lanka were invited for the study. The elements of information seeking behaviour were defined by thematically analyzing the content of focus group nine discussions with medical undergraduates. The scale was developed based on the Integrated Behavioural Model. The preliminary scale with 60 items was developed and pretested. The responses of a field test with the participation of 436 medical undergraduates were subjected to confirmatory factor analysis (CFA) and psychometric analysis. The tool was refined to include 40 items and the revised version was administered to 645 of medical undergraduates. The sub-components of the 40-item tool partially matched with the theoretical framework and the reliabilities of overall and sub-components demonstrated high to moderate reliabilities. The tool can be used to evaluate the information seeking behaviour of medical undergraduates effectively.

Keywords: *Information seeking behaviuor, Integrated behavioural model, Medical undergraduates*

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Introduction

Higher education is knowledge-driven and dependent on information. The information seeking behaviour (ISB) of undergraduates is a purposeful process of searching and utilizing information for information needs and/or interests (Pwadura et al., 2018). It is important in planning, decision making, and reduction of uncertainty (Oluwaseye et al., 2017).

The ISB has become an essential attribute for academic success in the new paradigm of medical education (Ajiboye & Tella, 2007). The rapid proliferation of information is highly evident, especially in the field of medicine (Ajayi, 2004), and keeping up-to-date needs an effective and efficient approach to ISB. The ISB is an integral part of the learning process for the academic success of medical undergraduates.

The ISB of medical undergraduates cannot be accurately measured or predicted without developing a validated tool. The current study aims at developing a valid and reliable tool to measure and predict the ISB of medical undergraduates based on a suitable theoretical model of ISB in the Sri Lankan context. It facilitates identifying best practices and inform information system design for academic success.

Objectives

The general objective of the study was to develop and validate a tool to measure the information seeking behaviour of medical undergraduates in Sri Lanka. The specific objectives were to define the elements of ISB, to determine a suitable theoretical model to predict ISB, to develop a tool, and to establish its reliability and validity for measuring the ISB of medical undergraduates.

Methodology

The study was conducted in four medical faculties in Sri Lanka; University of Colombo, Eastern University, University of Kelaniya, and University of Peradeniya. Conventionally, the University of Colombo and Peradeniya have a greater proportion of students entering based on merit while the other two Universities have a greater proportion of students entering on the district basis (de Silva et al., 2006). This provides a study population comprising students representing different social, educational, and cultural backgrounds from many districts of Sri Lanka. This will increase the generalizability of the findings of this study. Students in the final and penultimate years in four medical faculties were considered as the study population as they have explored and experienced information more than students in earlier years. They were in a better position to reflect on their information seeking behavior critically.

Fishbein's Integrated Behavioural Model was selected as the theoretical model from a literature review. The development and the validation of a questionnaire based on this theory were carried out in three phases. In phase I, to identify the items related to each aspect of the

theory, nine focus group discussions (FGDs) were conducted with 85 final year medical undergraduates in four universities. The FGDs provide a greater emphasis on the points of view from different participants than doing individual interviews (Thomas et al., 1995). All focus group discussions were audio-recorded and the records were transcribed verbatim. Thematic analysis of content was carried out using Richie and Spencer framework as the basis (Richie & Spencer, 1994).

In phase II, a draft of the preliminary questionnaire was pre-tested for language clarity, ambiguity, and relevance with the participation of the undergraduates (30) in six academic years and 15 academic staff members in the Faculty of Medicine, University of Kelaniya. The relevance of each item was reviewed by experts. Improvements were made based on the feedback. The preliminary 60 items with 5 point-Likert scale were administered among 653 fourth-year medical undergraduates in four universities. The responses were subjected to confirmatory factor analysis (CFA) and the calculation of internal consistency. The CFA confirmed some of the key domains in the theoretical model and, 40 items were representative of these domains.

In phase III, the final 40-items with 5 point-Likert scale was administered among 645 medical undergraduates (a different cohort from the one who responded to the 60-item scale) in the same four medical faculties. The internal consistency and the CFA were computed to re-examine the domains.

Ethical clearance for the study was obtained from the Ethical Review Committee (ERC) of the Faculty of Medicine, University of Colombo, Eastern University, University of Kelaniya, and University of Peradeniya.

Results and Discussion

In phase I, the male to female ratio was 47:38 and the average age of participants was 26.1(range: 24 to 29). The themes identified varied from conceptualization of ISB to needs, facilitators, strategies, comparison of ISB with the academic year, time & place, barriers, dilemmas, devices used, mode of finding information, and suggestions to improve the ISB of medical undergraduates.
The response rates of Phase II and III were 66.76% (436/653×100) and 70.08% (452/645×100). The sample size is good enough for the analysis because the rule of thumb considered by most of the researchers is the ratio of a sample size to the number of free parameters or items: 5 to 1 (Bentler & Chou, 1987).

In phase II, the face validity and the content validity was ensured by selecting the items by analyzing focus group discussions, pre-testing the scale and reviewing the preliminary scale by subject experts. The reliability of the scale was measured by internal consistency using Cronbach's alpha and the CFA was used for the construct validity of the scale. Twenty items

were removed from the original questionnaire based on the ambiguity, CFA and internal consistency, and the 40-item scale was developed. The model fit of the 40-item tool was acceptable based on RMSEA, but the value of SRMR, CFI, TLI do not support the model fit well (RMSEA= 0.073, SRMR=0.091, CFI= 0.675, TLI= 0.652). The minimum standard values of these fit indices for the good fit are RMSEA ≤ .08, SRMR ≤ .08, CFI ≥ .90, TLI ≥ .90 (Tay & Jebb, 2017). The domains identified were: intention, knowledge and skills, salience, environmental constraints, and habit. The Cronbach's alpha values for the internal consistency were measured for each domain of the 40-item scale. The Cronbach's alpha values interpreted by Ekolu & Quainoo (2019) were $\alpha < 0.5$: low reliability, $0.5 < \alpha < 0.8$: moderate (acceptable) reliability, $\alpha > 0.8$: high (good) reliability. The reliability of intention ($\alpha = 0.726$), knowledge & skills ($\alpha = 0.712$), environmental constraints ($\alpha = 0.659$) and habit ($\alpha = 0.659$) were acceptable. The reliability of salience ($\alpha = 0.869$) was good.

The scale was further validated in phase III. The final 40-item measurement was a good fit model from CFA (RMSEA = 0.053, SRMR= 0.066) to assess and predict the ISB of medical undergraduates. The values of CFI and TLI were 0.675 and 0.653 respectively. The domain-level reliabilities were moderate in: intention ($\alpha = 0.634$), knowledge and skills ($\alpha = 0.540$), habit ($\alpha = 0.561$) and low in: salience ($\alpha = 0.438$), environmental constraints ($\alpha = 0.470$). However, the reliability of the overall measurement was acceptable ($\alpha = 0.744$).

Conclusion

The tool which has been developed to assess the ISB of medical undergraduates was with acceptable validity and reliability. All the items of the scale were based on the integrated behavioural model and the assessment and predictions would be more credible.

Recommendations

The reliable and validated tool developed based on the integrated behavioural model can be used to evaluate and predict the ISB of medical undergraduates successfully. It will help immensely to academia to promote information seeking among undergraduates, and the libraries can make decisions on allocating resources based on the findings. Although the number of respondents was adequate for a meaningful statistical analysis, the study was entirely conducted in Sri Lanka and the tool should be tested in many more countries to determine its global applicability. Some of the domain reliabilities could have been better.

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