



Using the Theory of Planned Behaviour to examine health professional students' behavioural intentions in relation to medication safety and collaborative practice



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SUMMARY

Background: Safe medication practices depend upon, not only on individual responsibilities, but also effective communication and collaboration between members of the medication team. However, measurement of these skills is fraught with conceptual and practical difficulties.

Aims: The aims of this study were to explore the utility of a Theory of Planned Behaviour-based questionnaire to predict health professional students' behavioural intentions in relation to medication safety and collaborative practice; and to determine the contribution of attitudes, subjective norms, and perceived control to behavioural intentions.

Design: A descriptive cross-sectional survey based upon the Theory of Planned Behaviour was designed and tested.

Participants: A convenience sample of 65 undergraduate pharmacy, nursing and medicine students from one semi-metropolitan Australian university were recruited for the study.

Methods: Participants' behavioural intentions, attitudes, subjective norms, and perceived control to behavioural intentions in relation to medication safety were measured using an online version of the Theory of Planned Behaviour Medication Safety Questionnaire.

Results: The Questionnaire had good internal consistency with a Cronbach's alpha of 0.844. The three predictor variables of attitudes, subjective norms, and perceived control accounted for between 30 and 46% of the variance in behavioural intention; this is a strong prediction in comparison to previous studies using the Theory of Planned Behaviour. Data analysis also indicated that attitude was the most significant predictor of participants' intention to collaborate with other team members to improve medication safety.

Conclusion: The results from this study provide preliminary support for the Theory of Planned Behaviour—Medication Safety Questionnaire as a valid instrument for examining health professional students' behavioural intentions in relation to medication safety and collaborative practice.

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Introduction

Medication safety is a component of a broader strategy to improve patient safety and quality of care, and a key focus of national and international healthcare organisations. The goal of medication administration is to achieve optimum therapeutic outcomes for patients. However, despite various safety initiatives, the prevalence of adverse

patient outcomes associated with medication incidents remains unacceptable high (Westbrook et al., 2010). Medication incidents are the second most common type of incident reported in Australian hospitals with error rates of 18% (Clinical Excellence Commission and NSW Department of Health, 2011); similar figures are evident in the United Kingdom and the United States (Wahr et al., 2013). It is likely, however, that the available figures underestimate the extent of the problem.

The safe, timely and efficient delivery and use of medicines is dependent not only on individual responsibilities, but also effective collaboration between all members of the medication team (Madegowda et al., 2007). Evidence indicates that interprofessional models of healthcare delivery are necessary to achieve optimum medication outcomes for patients (Scarsi et al., 2002; World Health Organization, 2011). The value of interprofessional collaboration is further reinforced by studies

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showing that medical professionals depend upon pharmacists and nurses to identify and correct medication errors (Dornan et al., 2009).

Educational strategies aimed at improving health professional students' ability to communicate and collaborate so as to improve medication safety have been identified as an essential component of global efforts to improve patient safety (World Health Organization, 2011). Emerging evidence indicates that health professional students who learn together are better prepared to work collaboratively with other professions (Ateah et al., 2011; Patrician et al., 2012). Consequently, interprofessional education (IPE) is acknowledged both nationally (Bennett et al., 2011; Dunston et al., 2010; Garling, 2008) and internationally (Carpenter and Dickinson, 2008; Schmitt et al., 2013; World Health Organization, 2010) as essential for preparing health professional students for future collaborative practice.

In response to the acknowledged need for IPE universities around the world are implementing initiatives that allow health professional students to learn with, from and about each other. However, there is limited evidence of the effectiveness of these interventions (Lapkin et al., 2013) and, as with many educational efforts, evaluation of IPE-related learning outcomes and experiences is fraught with conceptual and practical difficulties (Thannhauser et al., 2010). Research based upon the Theory of Planned Behaviour (TPB) offers an exciting opportunity to rigorously measure behavioural intentions as a proxy for changes in clinical behaviours. Thus, the aim of this study was to explore the utility of using a Theory of Planned Behaviour-based questionnaire to predict health professional students' behavioural intentions in relation to medication safety and collaborative practice.

Background

Preparing graduates for safe and effective clinical work, including safe medication practices, is one of the greatest challenges for health professional education (Ross and Maxwell, 2012). Although the actual rate of medication errors made by nursing, medical and pharmacy graduates is difficult to ascertain, studies suggest that novices make significantly more errors than experienced health professionals (Dornan et al., 2009; Likic and Maxwell, 2009; Unver et al., 2012). A study conducted at a 550 bed teaching hospital in the UK reported that approximately 90% of serious medication errors reported during a four week period involved recently graduated junior doctors (Dean et al., 2002). In one Australian study, 15 new nursing graduates self-reported a total of 11 medication related adverse incidents (three medicine omissions, seven incorrect doses and one blood product error) within their first four weeks of practice (Hall and Madsen, 2009). These studies suggest that recent health professional graduates are not sufficiently prepared for safe medication practice. This is an important finding considering that up to 10% of a typical hospital's clinical staff comprise recent graduates (Health Workforce Australia, 2012).

Improving Medication Safety Through Interprofessional Education

The inclusion of safe medication practices in the curricula for health professional students is a key component of broader strategy to improve patient safety and quality of care (World Health Organization, 2011). In the Australian context, the National Medicines Safety and Quality Scoping Study Steering Committee (2008) specifically advocated for increased attention to teaching safe medication practices in health professional curricula. However, evidence suggests that there is a tendency for many universities to focus mainly on prescription related knowledge, calculation and numeracy skills, and the technical components of medication administration (Blank et al., 2011). However, contemporary studies indicate that improving knowledge and calculation skills does not necessarily translate to a significant reduction in medication errors (Blank et al., 2011; Wright, 2010). Additionally, despite the recent introduction of technology-based strategies such as electronic prescribing and

computerized order entry systems (Australian Commission on Safety and Quality in Health Care, 2012), error rates are still unacceptably high (Redley and Botti, 2013; Rodriguez-Gonzalez et al., 2012).

Considering the multidisciplinary nature of the medication process, it has been suggested that strategies such as IPE have the potential to more appropriately prepare students for safe medication practices (Lapkin et al., 2013). IPE is a collaborative approach that involves students from different professional groups learning from, with, and about each other to improve collaboration and quality of health care (Center for the Advancement of Interprofessional Education, 2002). Although undergraduate health professional education is delivered predominantly in a discipline and profession-specific way, an expanding literature about IPE points to an increasing interest in this approach.

Evaluating the Effectiveness of Interprofessional Education

Whilst a growing body of evaluative literature about IPE is apparent, most outcomes are learner-focused and address satisfaction with learning experiences, and changes in perceptions, attitudes, and short-term knowledge acquisition (Embrett and Randall, 2014; Trevena et al., 2014). Such outcomes represent the lower levels (1–2) the Kirkpatrick's (1967) four-level model for evaluating educational outcomes (Table 1). However, evidence of the effectiveness of IPE experiences for outcomes that represent levels 3–4 of Kirkpatrick's model, such as improved clinical practice and patient care, is limited (Clifton et al., 2007; Lapkin et al., 2013). It is these behavioural changes and improvements in patient outcomes which are the ultimate objectives of educational initiatives; however they represent the greatest challenges to evaluation. This highlights the need for valid and reliable instruments to evaluate the impact of university based IPE experiences on clinical behaviours particularly in relation to medication practices. Several authors have suggested that the use of empirically validated social, psychological, cognitive and behavioural theories can help researchers and educators better understand the process and outcomes of learning associated with IPE (Mann et al., 2012; Reeves and Goldman, 2011; Sargeant, 2009).

The Theory of Planned Behaviour

The Theory of Planned Behaviour (TPB) posits that behavioural intention is the immediate antecedent of behaviour and can act as a proxy for measuring actual behaviour (Ajzen, 1991). Intentions are in turn determined independently by three domains; attitudes, subjective norms, and perceived behavioural control (Ajzen, 1991). Although other variables may potentially affect behaviour, human action is most accurately predicted by the three basic determinants of attitudes, subjective norms, and perceived behavioural control (Ajzen, 1991). Attitudes refer to an individual's positive or negative disposition when

Table 1
Kirkpatrick's model of evaluation of educational outcomes.^a

Level	Description and characteristics
1 Reaction	Learners' views on the learning experience and its interprofessional nature
2a Modification of attitudes/perceptions	Changes in reciprocal attitudes or perceptions between participant groups. Changes in perception or attitude towards the value and/or use of team approaches to caring for a specific client group.
2b Acquisition of knowledge/skills	Including knowledge and skills linked to interprofessional collaboration.
3 Behavioural change	Identifies individuals' transfer of interprofessional learning to their practice setting and changed professional practice.
4a Change in organisational practice	Wider changes in the organisation and delivery of care.
4b Benefits to patients/clients	Improvements in health or well being of patients/clients.

^a Adopted from Freeth, D., Hammick, M., Koppel, I., Reeves, S., & Barr, H. (2002).

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