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Opportunistic Risk Screening for Type 2 Diabetes: Exploring of Application of Diabetes Risk Assessment Tool in Community Pharmacy in Australia and Thailand

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ABSTRACT

Objective: To evaluate the feasibility of providing diabetes risk assessment at community pharmacy level in Australia and Thailand from organizational aspects. **Methods:** The intervention study was conducted in eight community pharmacies in New South Wales, Australia, and six community pharmacies in Central Thailand. Diabetes risk assessment tools were applied to determine the risk of developing type 2 diabetes. An open-ended question was asked to solicit the willingness-to-pay value for the service. A semistructured interview was conducted with participating pharmacists to solicit the perceived facilitators and barriers in providing the service. **Results:** There were a total of 132 and 185 participants, with the ratio of participants in the three risk categories of low, intermediate, and high being 1:4:11 and 2:1:1.5 for Australia and Thailand, respectively. More Thai participants were willing to pay for the service (72.4% vs. 18.9%; $P = 0.0001$). Pharmacists from both countries agreed that providing risk assessment would increase health awareness and assist in dampening the burden of disease. A major barrier is time and staff shortage. Support from the government and collaboration among health care providers were major facilitators from Thai pharmacists' perspective, whereas remuneration was a major facilitator from Australian pharmacists' perspective. **Conclusions:** Pharmacists in both countries agreed that this intervention would contribute to produce positive health benefits. Differences in advantages and barriers as well as in the proportion of consumers willing to pay for the service demonstrated that it is essential for pharmacists (particularly in developing countries) to be aware of the pitfalls of copying practice initiatives in developed countries without any consideration of the local health care environment.

Keywords: community pharmacy, health promotion, pharmacy practice, prevention, risk assessment, type 2 diabetes.

Introduction

The prevalence of type 2 diabetes is increasing rapidly, with the global number of patients estimated to increase to 439 million by 2030 [1]. In Australia, data from the Australian Bureau of Statistics showed that the estimated prevalence rate for diabetes was 5.7% in 2010, which was double the rate from the last decade [2]. Similarly, the Thai National Health Examination Survey IV, 2009, revealed the prevalence of diabetes in the Thai population is 7.5% [3]. With the rapidly rising prevalence, diabetes is exerting a heavy burden on health care systems worldwide. In 2007, an estimated US $215 billion to US $375 billion were spent on diabetes care globally, and this is likely to escalate to US $490 billion by 2030 [4]. Consequently, diabetes is listed as a national health priority in many countries including Australia and Thailand [5,6].

Because type 2 diabetes is a preventable disease, early identification of individuals at risk of developing type 2 diabetes is an important approach in diabetes prevention [7]. Fasting blood glucose test is currently used as a standard diagnosis tool for diabetes. Its invasive nature and relatively high cost, however, hamper its adoption as the first choice for screening individuals with risk factors only or for population-based screening [8]. Hence, many attempts have been made to develop simple and noninvasive scoring systems to identify individuals at high risk of developing type 2 diabetes [9].

In Australia, the Australia Diabetes Risk Assessment tool (AUSDRISK) has been developed and has been recommended as

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an assistant tool to evaluate the risk of developing type 2 diabetes in the Australian population by general practitioners since 2008 [10]. In Thailand, a diabetes risk score was developed to predict the risk of developing type 2 diabetes in the Thai population older than 35 years [11]. This tool was also recommended by the Thai Diabetes Management Guideline for the primary prevention of type 2 diabetes in 2008 [12]. The application of these tools in the clinical setting, however, is still limited [13,14]. This raises the question whether community pharmacists as the most accessible among first-line primary health care professionals can contribute to the screening of diabetes risk in the general population.

In fact, the involvement of community pharmacists in the management of diabetes and other chronic diseases is growing internationally [15,16]. Organizational theory–based studies on the impact of pharmacy practice, however, are still limited [17]. One of the definitions of organization is the interaction of components including participants, social structure, goals, technology, and environment; each of the components affects and is affected by the others [18]. Hence, based on this theory, cultural and health system differences may affect attitudes and the implementation of health care delivery, and ultimately its feasibility and effectiveness. Nevertheless, little attempt was made to determine the difference in practices in delivering diabetes risk assessment between developed and developing countries. Thus, it is important to explore the factors that may influence pharmacists' practices regarding diabetes risk assessment intervention in countries with different health care system and pharmacy practice.

Another issue in providing cognitive services (*cognitive services* can be defined as services provided by professionals who use their skills and knowledge to play an active role in patient health) at community pharmacies that has not been resolved adequately is how to quantify meaningfully the perceived value of such services by the consumers. If the perceived values were elicited as the consumer's willingness to pay (WTP) and compared in different countries, then it would be possible for the pharmacy profession to evaluate whether this is a true or a perceived barrier. Knowing the WTP and the influencing factors would also help to lessen the financial uncertainties preventing pharmacists from moving toward providing more patient-oriented activities at the community pharmacy setting.

Therefore, Australia, with well-established pharmacy regulations and health coverage systems, was chosen as an example of a developed country [19], and Thailand, being in the transitional stage of establishing universal health care coverage policy wherein the practice of community pharmacy is less strictly regulated, was chosen as an example of a developing country in this study [20]. The aims of this study were to 1) explore the feasibility, facilitators, and barriers of community pharmacies in Australia and Thailand in relation to providing opportunistic diabetes risk assessment, and 2) predict the influence of demographic, perception, and other related factors based on the organization theory on the WTP for the service.

Methods

Settings

A convenience sample of six community pharmacies in Central Thailand and eight community pharmacies in the Hunter region of New South Wales, Australia, participated in this study. The 3-month intervention period was August to October 2012 and September to November 2012 in Thailand and Australia, respectively. The concept of opportunistic risk assessment (the intervention occurring sporadically in a primary setting, including primary care, pharmacy chains, occupational health departments, or small businesses) was applied in this study [21]. The study was approved by the Human Research Ethics Committee, University of Newcastle, Australia, and the Institutional Review Board at Silpakorn University, Thailand.

Recruitment of Participants

Invitation letters, study information, and consent forms were distributed to pharmacies in the Hunter region, New South Wales, Australia, and to pharmacies in Central Thailand. Eight Australian community pharmacists and six Thai community pharmacists consented to participate in the study. Based on the validity of the risk assessment tool, in Australia, inclusion criteria were adult participants (aged at least 25 years) who were interested in receiving diabetes risk assessment service and able to read or understand English. In Thailand, adult participants (aged at least 35 years) who were interested in receiving diabetes risk assessment service and able to read or understand Thai were recruited. Participants with a previous diagnosis of diabetes or current use of antidiabetic medications or currently pregnant were excluded. Participants were recruited by either pharmacist's invitation or by self-selection. All participants were provided the study information sheet and signed a consent form before undertaking the risk assessment.

Instrument and Data Collection

The risk assessment tools AUSDRISK and Thai diabetes risk scores were used to determine the risks of developing type 2 diabetes in Australia and Thailand, respectively. The characteristics of risk assessment tools are described in Appendix A in Supplemental Materials found at: http://dx.doi.org/10.1016/j.vhri.2015.03.022.

A generic health-related quality-of-life instrument, namely, the five-level EuroQol five-dimensional questionnaire (EQ-5D-5L), was used to measure participants' health-related quality of life and utility values. The self-reported EQ-5D-5L includes the EQ-5D descriptive system, which comprises five dimensions of health: mobility, self-care, usual activities, pain/discomfort, and anxiety/depression. Each dimension has five levels reflecting "no problems," "slight problems," "moderate problems," "severe problems," and "unable or extreme health problems." The visual analogue scale, which provides a direct valuation of the respondent's current status state of health, is also included in the EQ-5D-5L [22]. At the same time, a five-point, Likert scale, self-reported questionnaire was used to determine the client's perception of risk assessment, level of concern, level of need for information about the disease, and level of understanding of the content of risk assessment. The questionnaire was developed from previous validated questionnaires that have interests similar to this study's objectives. The draft questionnaire was reviewed by expert pharmacists in an academic institute who were not involved in this study. The final questionnaire was then formulated according to comments received from expert pharmacists. The questionnaire also contained an open-ended question —"Assuming the risk assessment service can improve your quality of life and delay or prevent type 2 diabetes, how much would you be willing to pay (WTP) for the service to gain this benefit?"—to solicit the values that participants were willing to pay for diabetes risk assessment service. Participants were given a range of WTP amounts (0–300 baht for Thai participants and Au $0–10 for Australian participants) and asked to indicate their maximum WTP for the risk assessment service provided at the pharmacy.

A semistructured interview was used to interview participating pharmacists after the intervention period to solicit the perceived facilitators and barriers in providing diabetes risk