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Development of a health dialogue model for patients with diabetes: A complex intervention in a low-/middle income country

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ABSTRACT

Type 2 diabetes is reaching epidemic proportions in a low-/middle income country such as South Africa, where most patients are managed in the public health sector with limited resources. Poor knowledge, negative attitudes and unhealthy practices are common, highlighting the need for healthcare providers to adapt health communication strategies appropriately. The current study aimed to develop a health dialogue model by applying a multiple-methods design informed by the United Kingdom Medical Research Council's guidelines for the development and evaluation of complex interventions. Guided by this framework, four separate but inter-related studies were conducted to establish the active components of health dialogue. Participants included patients with type 2 diabetes from a variety of public healthcare settings and healthcare providers who provide services to them. The findings from the four primary studies were then synthesised at a two-day workshop during which three focus areas emerged, including the community, the patient and the healthcare provider. Community awareness could be raised by delivering key messages in the native tongue of patients through combinations of traditional folk media such as drama and storytelling in the waiting rooms of health centres. Self-management of patients could be promoted by active participation of patients in tailored health communication using peer support and the use of mobile health devices. Finally, training platforms for healthcare providers should include in-service training through interactive workshops. Our culturally sensitive health dialogue model has the potential to improve adherence to treatment, leading to greater satisfaction and consequently improved health outcomes.

Type 2 diabetes mellitus (T2DM) is a chronic metabolic disorder with a rising worldwide prevalence (World Health Organization., 2016), affecting all age groups, nationalities and classes (Hanson, Gluckman, Ma, Matzen, & Biesma, 2012; Kiberenge, Ndegwa, Njenga, & Muchemi, 2010). The International Diabetes Federation (IDF) (2015) estimates that approximately 415 million people worldwide live with diabetes and the disease affects one in eleven adults. Should this growing concern not be addressed it is projected that one in every ten adults will be living with the disease by the year 2040, and most of these will live in low-and middle income countries (LMICs).

The majority of patients with T2DM are adults from the economically active population (who work and earn a living) in LMICs (Narayan, Ali, & Koplan, 2010; Tunceli et al., 2005). These countries have a lower gross national income than high-income countries and present with limited resources, personnel, infrastructure and technologies (Kreps & Sivaram, 2008).

South Africa, classified as a middle-income country, reflects the same prevalence of T2DM amongst economically active adults (Narayan et al., 2010; Tunceli et al., 2005). Not only is the prevalence of T2DM in South Africa expected to rise (World Health Organization, 2014), but also the percentage of deaths attributable to T2DM (Stats SA., 2014). T2DM is now the leading natural cause of death amongst females and second amongst both sexes and all ages (Stats SA, 2017). These patients are mainly managed within the South African public health sector (Harris et al., 2011).

The focus of the public health sector is to improve the health status of the entire population and to contribute to the government's vision of "a long and healthy life for all South Africans" (South Africa Department of Health, 2010, p. 3). Consequently, one of the objectives of the Negotiated Service Delivery Agreement of the South African Department of Health is "Increasing life expectancy" (South Africa Department of Health, 2010, p. 3). For this vision to be realised, the rise in diabetes needs to be curbed (Chan, 2016).

In South Africa, as elsewhere in the world, the increasing prevalence of T2DM may be attributed, at least partly, to negative attitudes and unhealthy practices related to the self-management of T2DM (Ng et al., 2012), with beliefs about the expectations and behaviours of others influencing health behaviour (Ajzen, Joyce, Sheikh, Gilbert, & Cote,

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2011) of T2DM. The theory of planned behaviour, predicts that behaviour takes attitudes towards the behaviour, subjective norms and perceived behavioural control into account. This theory can be applied as a vehicle to understand these influential factors as well as the interactions that exist between them (Ajzen, 1991). It is important that healthcare providers consider the patient's point of view (Boini et al., 2010), as it influences their health behavior and thus healthcare providers should position and adapt health communication strategies appropriately (Rensburg & Krige, 2011). A collaborative, interactive relationship between the patient and healthcare provider can encourage effective communication (Shue, O'Hara, Marini, McKenzie & Schreiner, 2010).

Tomaselli and Chasi (2011, p.17) define *dialogue* as a "two-way, interactive and participatory" process, comprising valued aspects such as mutual respect, humility and trust. This approach is strongly based on the participatory paradigm and influenced by theorists like Paulo Freire (Smith, 2002), in that dialogue is based on the sharing of knowledge rather than a top-down approach from a source to a receiver. In other words, if health dialogue with the patient is effective, the patient becomes actively involved in his/her care and shares in the decision-making process leading to improved adherence to treatment, greater satisfaction and consequently improved health outcomes (Barclay, Blackhall, & Tulsky, 2007; Shue, O'Hara, Marini, McKenzie, & Schreiner, 2010).

Cultural and ethnic diversity in health dialogue is a source of complexity, particularly in LMICs. Healthcare in South Africa often lacks effective, culturally appropriate health communication strategies to address concerns in order to encourage awareness, early intervention and self-management. Practices of patients with chronic diseases such as T2DM in urban and rural South African communities in the Free State Province leave much to be desired and relevant interventions to remedy this situation are long overdue (Groenewald, Van Wyk, Walsh, Van Zyl, & Van der Merwe, 2009; Van Zyl et al., 2010; Tesfaye & Gill, 2011).

1. The study

In order to design an effective health dialogue model between healthcare patients with T2DM in the Free State Province, the framework for complex interventions, developed by the UK Medical Research Council was applied (Medical Research Council & (MRC), 2000), with a feasibility study planned as follow-up.

This article reports on the development phase of a study conducted between 2014 and 2016 to develop a health dialogue model for patients diagnosed with T2DM attending identified public health services in the Free State Province. The complexity of such an intervention required careful planning of the development phase, which finally manifested in four primary studies and a two-day workshop during which a multi-professional expert research team synthesised the data from the mentioned studies to design a health dialogue model (referred to as the HDM Diabetes study).

2. Aims

Although each of the primary studies in the multi-phase research programme had a specific aim, the findings were synthesised to develop a health dialogue model for adult patients with T2DM. In Fig. 1 the four primary studies that culminated in a health dialogue model are depicted.

The *concept analysis* aimed to develop a definition for health dialogue with a clear theoretical base, in order to promote consistency in the use of the concept and to understand the underlying key characteristics of the concept (Reid, 2015). The aim of the *integrative review* was to synthesise the best available evidence of communication strategies used to accomplish effective health dialogue in adults with chronic diseases in LMICs from the year 2000 to 2014 (Pienaar, 2016).

Two *knowledge, attitude and practice (KAP) studies* were conducted: one to assess the diabetes-related KAP of adults with T2DM in the Free State (Le Roux, 2016), and the other to investigate the KAP of healthcare providers caring for such patients (Hassan, 2016). A *qualitative study on perceptions* explored the perceptions of patients diagnosed with T2DM regarding health communication strategies, in order to establish how health messages should be conveyed to them, what techniques they preferred and which aspects in health messaging acted as change agents (Nyoni, 2016).

The findings of the mentioned studies were synthesised during a two-day workshop aimed at designing a *health dialogue model* for adult T2DM patients within the South African context. This concluded the development phase of the project. In a future study, the feasibility of the model will be tested during a health dialogue intervention.

3. Design

A multiple-methods design informed by the guidelines for the development of complex interventions (Medical Research Council, 2000) was applied. Both qualitative and quantitative methods were implemented during the primary studies to identify the best available evidence, grounding the study within the theory of planned behaviour (Medical Research Council, 2000; Ajzen et al., 2011). More detail related to the primary studies that formed part of the development phase are included in the following section:

4. Health dialogue: a concept analysis

The concept analysis was conducted in stages, following the stepwise structured process of Walker and Avant (2011) including literature between 2000 and 2013. Health dialogue was defined as an equal and symbiotic health relationship between the patient and the healthcare provider, with reciprocal health communications geared to reaching a recognised health objective via a health message. In this context, the outcome of health dialogue leads to an improved health outcome (Reid, 2015). A conceptual map of health dialogue ensued from the data analysis (Walker & Avant, 2011) comprising antecedents, characteristics, empirical referents and consequences (see Fig. 2).

This conceptual map served as a guiding standard in developing a health dialogue model for patients with diabetes in the Free State.

5. Integrative review: communication strategies for adults with Chronic Disease used in LMICs

A focused review question based on the PICO format (*PICO = population, intervention, comparison intervention, outcome)* guided the review process. The seven steps of conducting an integrative review suggested by Higgins and Green (2006) were applied. The following questions were asked: "Which communication strategies are used during effective health dialogue among adults with chronic diseases?" The effective communication strategy elements, were related to how, when, what, where and by whom health communication strategies were used.

Data analysis included thematic summaries (*cf.* Gough, Oliver, and Thomas, 2012; Snilstveist, Oliver, and Vojtkova, 2012). Consequently, the data were analysed qualitatively and coded in terms of an analytical framework based on the review question and sub-questions. The synthesis process led to the following concluding statements related to the review question:

- How? A variety of strategies may be used to accomplish effective health dialogue in adults with chronic disease in low- and middle-income countries.
- When? Frequently scheduled communication strategies are recommended.
- What? A communication strategy that provides focused and specific