

APPLICATION OF CHRONIC CARE MODEL FOR SELF-MANAGEMENT OF TYPE 2 DIABETES: FOCUS ON THE MIDDLE-AGED POPULATION OF PAKISTAN

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Abstract

Keywords:

*Chronic care model;
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quality of life.*

This article discusses the potential application of Chronic Care Model (CCM) for self-management of type 2 diabetes focusing on the middle-aged population of rural area of Pakistan. The article further highlights the variations of chronic care model and the evidence for its efficacy and elaborating the elements of the model that are used in primary health care. The features of Chronic Care Model (CCM) have been highlighted including the socio-ecological approach to diabetes self-management and community-based partnership for improving chronic disease management. The two components of the chronic care model such as patient self-management support (SMS) and delivery system design (DSD) have been proposed for type 2 diabetes patients in the middle-aged population of rural area of Pakistan to see the effectiveness of their intervention in improving the patient quality of life, risk behaviour and knowledge and adherence to treatment. The chronic care model offers an ideal framework to support diabetes self-management education and support because it provides a sound basis on which to promote self-management.

INTRODUCTION

The main scope of Chronic Care Model (CCM) development was to enhance the performance of the healthcare system and to help individual and population health interventions. The applications of chronic care model manage the expected increase in chronic disease as there has been a change in the applications of the models in recent times more towards patient-centred care that emphasizes the individuals who are managing and living with chronic diseases, illness and disability (1, 2).

The self-management of diabetes and the education and awareness of self-management play an important role in effective management of diabetes and self-care (3). In order to enhance outcomes for the people with diabetes, diabetes educators and healthcare professionals use evidence-based healthcare delivery models such as Chronic Care Model. The chronic care model focuses on patient-centered care, patient empowerment, and self-management support. There is evidence to support that interventions aimed at these principles (4) improve health status in chronic diseases (5).

This article considers to include two important components of chronic care model such as patient self-management support (SMS) and delivery system design (DSD) for type 2 diabetic patients in the middle-aged population of Pakistan and to see the effectiveness of their interventions in improving the patient quality of life, risk behaviour and knowledge and adherence to treatment. This article will further discuss the Chronic Care Model (CCM) developed

by Wagner and its variations highlighting the evidence for its efficacy and elaborating the elements of the model that are used in primary health care addressing the chronic diseases and particularly self-management of type 2 diabetes.

THE CHRONIC CARE MODEL (CCM)

The Chronic Care Model (CCM) is the most widely used model of care for people with chronic diseases (6). The model developed by Wagner et al. (6) and its variations are designed to help practices to improve patient health outcomes and its elements are essential for improvements in chronic conditions of the patients in primary health care settings (6, 7). The six elements of the model are: delivery system design (DSD), self-management support (SMS), decision support, clinical information systems (these are at the practice level) and the other two at the community and system level are community resources and health care organizations (5, 6). The figure 1 shows the six elements of the CCM (6).

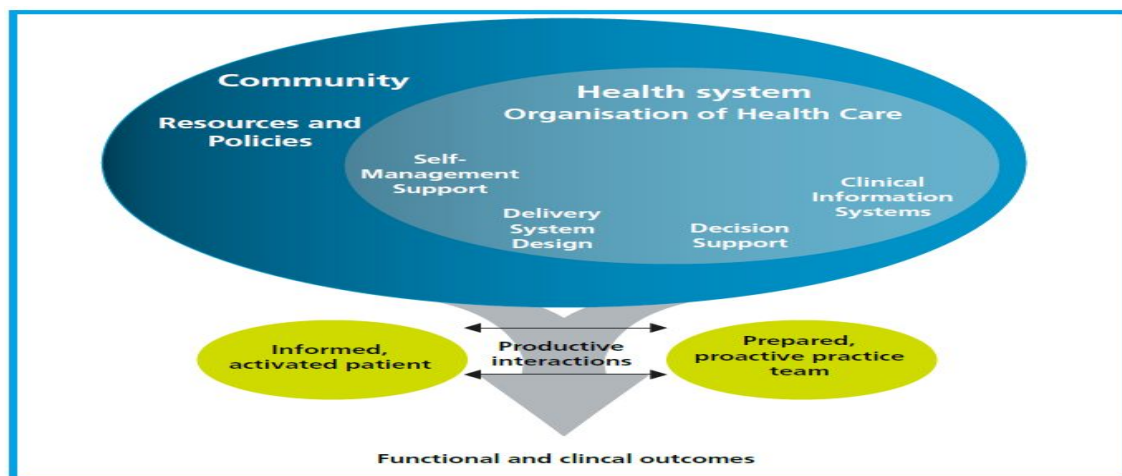


Figure 1 The Wagner Chronic Care Model with its elements: Source: Wagner et al. (6).

EVIDENCE FOR THE EFFICACY OF CHRONIC CARE MODEL

In literature, the studies showed that attempts have been made to assess the efficacy of the CCM on the outcomes for chronic disease and to determine the extent to which the elements of the CCM have contributed to primary health care (8, 9). The results showed that the addition of one or more element of the CCM resulted in improved patient or process outcomes for a variety of chronic diseases (6). The strongest evidence was found for diabetes (lower levels of HbA1c), heart failure, asthma and depression (9). The elements of chronic care model which have shown the evidence for its efficacy include self-management support (improved physiological measures and quality of life); delivery system design, decision support and clinical information systems (10).

THE ELEMENTS OF THE MODEL USEFUL IN PRIMARY HEALTH CARE

In order to assess the usefulness of the elements of chronic care model in primary health care, 23 systematic reviews were identified in literature by Zwar et al. (11) addressing the above mentioned four elements of the Chronic Care Model as the main focus. The systematic review identified from the literature the evidence on the usefulness of the elements of the chronic care model and answered the following research question:

HOW EFFECTIVE, EFFICIENT & INNOVATIVE ARE THE ELEMENTS OF THE CHRONIC CARE MODEL?

The eleven systematic reviews were identified addressing the self-management support, diabetes came up with six reviews (12-17), asthma with two reviews (18, 19), one in chronic obstructive pulmonary disease (20), one in hypertension (21) and one in arthritis (22). In relation to diabetes, only five reviews reported gain in knowledge of patients in understanding the self-management of diabetes (12-14, 16) and chronic obstructive pulmonary disease (20). The other two reviews have demonstrated an improvement in patient outcomes associated with the improvement in knowledge for diabetes group training (12) and for self-management education in community gathering places (14).

The 14 studies showed improvement in HbA1c but other 15 studies showed improvement in both active and control groups (13). It was reported by Turnock et al. (20) that there was an improvement in chronic obstructive pulmonary disease knowledge and in a review of behavioural interventions for hypertension, patient outcomes were improved as well (21).

CHRONIC CARE MODEL FOCUSING ON TYPE 2 DIABETES SELF-MANAGEMENT

The chronic care model was expanded to include socio-ecological approach to self-management of type 2 diabetes (22) and community-based partnership for improving chronic disease management (23). Paula et al. (24) developed home-based chronic care model to address the requirements of the patients with chronic diseases. The model helped to re-design of chronic care delivery using the concepts of patient-centred evidence-based care. Roberto et al. (25) highlighted the contribution of the “Innovative Care for Chronic Conditions (ICCC) framework” as a model for change in health systems towards better care for chronic conditions.

Baptista et al. (26) highlighted in their studies that the health services which follow the concepts of chronic care model achieve better results, therefore it is important to consider CCM applications at all the levels of healthcare and that should be validated for feasibility in healthcare systems in all the countries (27, 28).

The importance of Chronic Care Model is that it presents the conceptual framework which facilitates the understanding of the six components of the model which are necessary for the management of chronic disease and the relationship between these elements or components. In relation to the effectiveness of these elements, it is not possible to make an assessment experimentally for their effectiveness and that indicates the lack of research evidence to support the role of healthcare organization and community resources (11).

APPLICATION OF CCM TO PATIENTS WITH TYPE 2 DIABETES IN PAKISTAN

Diabetes self-management in Pakistani Context

Type 2 diabetes is more prevalent among people aged between 40 and 59 years. The prevalence of type 2 diabetes is higher in Pakistan compared to Australia due to the sedentary lifestyle, obesity and other risk factors in the country (29). The prevalence of lifestyle risk factors is 26.5% among the males aged 50–59 years and 35% among females with the same age group (30). The main modifiable behavioural risk factors are tobacco use, unhealthy diet, and physical inactivity (31). The main biological risk factors are overweight, obesity, high blood pressure, elevated blood glucose (31).

The self-management of a chronic disease is significant in controlling and preventing complications associated with the disease. Despite the benefits associated with self-management of diabetes, research has shown that most patients do not adhere to self-management recommendations (29–32). The adherence to the recommendations and barriers are both problematic for “lifestyle” behaviours such as eating patterns and physical activity rather than medication adherence (31–34). This is evident from the culture, tradition and lifestyle behaviour of the people of Pakistan where the eating patterns and physical activity are posing a great deal of difficulties to the middle-aged population in the self-management of diabetes

APPLICATION OF CHRONIC CARE MODEL

The aim of self-management support using chronic care model for type 2 diabetic patients in the middle-aged population of rural area of Pakistan is to develop skills and confidence within patients and their families so that they can take responsibility for their own care (6). The self-management support strategies that were found to be most effective were those that developed self-efficacy in relation to specific behaviours such as diet and diabetes rather than those that were more general. Self-efficacy theory underpins this process and this can only be interpreted and measured in regard to specific behaviours, such as diabetes self-management or diet and exercise behaviours and not broadly in relation to a range of behaviours such as chronic disease self-management in general (6).

The two important elements or components of chronic care model have been included here for diabetic patients in the middle-aged population of rural area of Pakistan. These elements are patient self-management support (SMS) and delivery system design (DSD). For self-management support, the effective interventions include the patient educational sessions, patient motivational counselling and distribution of educational materials. There was evidence that self-management support was effective at the patient level outcomes such as physiological measures of disease, quality of life, health status and satisfaction (11). These results support a previous analysis of the elements of the CCM by Tsai et al. (9) and further analysis of patient and provider interventions by Weingarten et al. (35).

For delivery system design (DDS) element, the effective interventions are the multidisciplinary teams of health professionals. At this level of the element, there was evidence that intervention that addressed delivery system design improved adherence to guidelines, patient service use and physiological measures of disease (11). Patient self-management support (SMS) was the most frequently used intervention across all the disease groups followed by decision support (36) for health professionals and delivery system design (20).

CONCLUSIONS

This article has highlighted the expansion of Chronic Care Model (CCM) to include socio-ecological approach to type 2 diabetes self-management and community-based partnership for improving chronic disease management. The chronic care model offers an ideal framework to support diabetes self-management education and support because it provides a sound basis on which to promote self-management. It has been demonstrated that the elements that most frequently impacted on physiological measures of disease, health and function status, and quality of life were self-management support and delivery system design particularly when in combination. These elements of chronic care model are most suitable in the context of middle-aged population of Pakistan to improve the self-management of their type 2 diabetes. Therefore, developing systems that incorporates accessible, sustainable diabetes self-management education services that affect health outcomes has large-scale public health implications.

CONFLICT OF INTEREST

The authors declare that they have no funding resources or conflict of interest to report.

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