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A quantitative research on self-management of type 2 diabetes in middle-aged population of rural area of Pakistan

Rashid M. Ansari  
*University of New South Wales*

Hassan Hosseinzadeh  
*University of Wollongong*, hassanh@uow.edu.au

Nicholas Arnold Zwar  
*University of New South Wales*, nzwar@uow.edu.au

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A quantitative research on self-management of type 2 diabetes in middle-aged population of rural area of Pakistan

Abstract
Background: In Pakistan, the prevalence of Type 2 diabetes is high ranging from 7.6% (5.2 million populations) to 11% as compared to the prevalence rate of 8.3% in the world. The high prevalence of type 2 diabetes in the country has been attributed to high-risk factors such as lack of physical activity, unhealthy food and eating habits among the Pakistani population. Aims: The main aim of this study is to use the quantitative method to explore the association between illness and cultural beliefs, family and healthcare provider support and self-management behaviours of patients of type 2 diabetes in middle-aged population of Pakistan. Materials and Methods: The study will employ quantitative design method to allow for a more comprehensive approach to address a multifaceted problem. The quantitative design will use self-administered survey questionnaires to be provided to n=200 randomly selected patients from the Medical Centre of rural area of Abbottabad, Pakistan to acquire the basic knowledge about diabetes and to measure the association between illness and cultural beliefs and self-management behaviours in that population. Results: The quantitative study will acquire demographic information and the basic knowledge about diabetes, illness beliefs, family and social support and self-management activities in the middle-aged population of Pakistan. Conclusion: This study will help to improve the diabetes self-management approach in middle-aged population in rural area of Pakistan and will help to better understand the contextual determinants of behaviours for future development of culturally appropriate interventions to modify the illness beliefs and support of self-management activities.

Keywords
quantitative, aged, area, rural, middle, diabetes, 2, type, pakistan, management, self, research, population

Disciplines
Education | Social and Behavioral Sciences

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Background: In Pakistan, the prevalence of Type 2 diabetes is high ranging from 7.6% (5.2 million populations) to 11% as compared to the prevalence rate of 8.3% in the world. The high prevalence of type 2 diabetes in the country has been attributed to high-risk factors such as lack of physical activity, unhealthy food and eating habits among the Pakistani population. Aims: The main aim of this study is to use the quantitative method to explore the association between illness and cultural beliefs, family and healthcare provider support and self-management behaviours of patients of type 2 diabetes in middle-aged population of Pakistan. Materials and Methods: The study will employ quantitative design method to allow for a more comprehensive approach to address a multifaceted problem. The quantitative design will use self-administered survey questionnaires to be provided to n=200 randomly selected patients from the Medical Centre of rural area of Abbottabad, Pakistan to acquire the basic knowledge about diabetes and to measure the association between illness and cultural beliefs and self-management behaviours in that population. Results: The quantitative study will acquire demographic information and the basic knowledge about diabetes, illness beliefs, family and social support and self-management activities in the middle-aged population of Pakistan. Conclusion: This study will help to improve the diabetes self-management approach in middle-aged population in rural area of Pakistan and will help to better understand the contextual determinants of behaviours for future development of culturally appropriate interventions to modify the illness beliefs and support of self-management activities.

KEYWORDS: Type 2 diabetes, quantitative method, middle-aged population, self-management.
Aims and Objectives
The primary aim of this study is to use the quantitative method to explore the association between illness and cultural beliefs, family and healthcare provider support and self-management behaviours in middle-aged population of Pakistan. Embedded in this exploration are a number of distinct objectives:

1. To explore how the health issue related to diabetes is viewed and addressed individually and within the rural communities in Pakistan.
2. To explore the factors affecting the self-management practices among the study population.
3. To examine how health professionals perceive the self-management approach of the patients and their specific behaviours.

Research Questions
The research questions have been formulated as follows:-

1. What are the patients’ perception and experiences of diabetes self-management in a rural area of Pakistan?
2. What factors affect the diabetes self-management practices?
3. Does socio-demographic influence the diabetes self-management?
4. What social and religious beliefs influence the experience and practice of diabetes self-management?

MATERIALS AND METHODS
Quantitative Design
The quantitative design approach will use self-administered survey questionnaires to acquire demographic information and the basic knowledge about diabetes, measuring illness beliefs, family and social support and self-management behaviours in the middle-aged population of Pakistan. The data collected on these issues will be analysed by means of statistical analysis.

Sampling Method
The study will employ quantitative methods to conduct interviews of n=200 diabetic patients randomly selected representing the larger sample from three diabetic centers in rural area of Abbottabad, Pakistan. The study sample will be restricted to the patients enrolled in the Primary Health Care Centres.

Participant Recruitment
The patients will be recruited from the Primary Health Care (medical centres) in rural area of Abbottabad, Pakistan conducting the study of management of type 2 diabetes among the population aged 40-60 years. The eligibility of patients will be subjected to further screening if their records will not be found in the database. The patients with diabetes having HbA1c >7.0% will be included in this study and patients having coexisting liver, kidney or thyroid disorder will be excluded from this study. The American Diabetes Association (ADA) criteria will be used in the selection of the patients with diabetes [24]. The systematic review of literature has guided the development of the questionnaire and study design for quantitative research provided in Table 1 and Table 2.

Description of Data Collection Strategy
Patients with Type 2 Diabetes
In this quantitative approach, self-administered survey questionnaires will be provided to 200 randomly selected patients representing the larger sample from three diabetic centers in rural area of Abbottabad to acquire demographic information and the basic knowledge about diabetes and to measure illness beliefs, family support and provider support and to measure the self-management activities of the patients with diabetes. The data collected on these issues will be analyzed by means of statistical analysis.

Quantitative Analysis
The quantitative design approach in this study is based on self-administered survey questionnaires which will be administered to acquire demographic information and the basic knowledge about diabetes, diabetes family support, assess the support from the service providers, assess the illness perceptions and measure the self-management activities in the middle-aged population of Pakistan. The data collected on these issues will be analysed by means of statistical analysis using STATA software.

RESULTS AND DISCUSSION
Diabetes Self-Care Activities (SDSCA)
The revised version of the Summary of Diabetes Self-care Activities (SDSCA) suggested by Toobert et al. [41] will be used to measure self-management activities of diabetic patients. The SDSCA measure is a brief self-report questionnaire of diabetes self-management that includes items assessing the aspects of the dia-
The strengths of the revised SDSCA include its brevity and ease of scoring, which make it practical to use both clinically and in research. Their use in previous studies provided valuable information on norms, reliability, and validity, against which new data was evaluated [41]. Diabetes – MILES used an 11-component scale which assesses the frequency of undertaking diabetes self-care activities, the extent to which respondents regard these activities as burdensome and as important [20, 21]. The SDSCA will be translated in the local language Urdu which is widely spoken in that area as majority of population in rural areas do not speak and understand English language.

Brief Illness Perceptions Questionnaire (BIPQ)
The 9-item Brief Illness Perceptions Questionnaire (BIPQ) will be used to measure illness beliefs [42]. In this measure, five items assess cognitive representations (consequences, timeline, personal control, treatment control, and identity); two items assess emotional representations and one item assesses illness understanding. Responses will be obtained on a zero to ten point Likert scale. The final item (not reported here) invites free-text responses about what respondents believe caused their condition. The BIPQ has good internal reliability and has been used with a variety of illness groups [43]. In Diabetes-MILES Study, the BIPQ was modified to be diabetes-specific, e.g. questions refer to “your diabetes” rather than “your illness” [21].

Resources and Support for Self-management (RSSM)
This will be measured using the seven-item Resources and Supports for Self-Management Short Form (RSSM) scale [44]. A diabetes health care team is defined as all the health care professionals who help to take care of the respondent's diabetes. In this study, the healthcare professionals will include general practitioners and nurses and will exclude friends and families.

Diabetes Family Support and Conflict
The Diabetes Family Support and Conflict (DFSC) scale will be used to measure the extent to which participants will share their experiences of having support or conflict related to their diabetes within their families. This measure is similar to the measure used in Diabetes-MILES studies [45]. The scale includes 10 items which address various aspects of diabetes management (including ‘taking medications’, ‘eating well’ and ‘exercising regularly’). For each item, participants will be asked to indicate the extent to which their family is supportive or is in conflict.

Statistical Analysis and sample size calculation
Statistical analyses will be performed using the Statistical package STATA software. The sample size is powered at 80% with alpha = 0.05 (significance level), we need N=200 type 2 diabetic patients in this quantitative study [46]. Descriptive statistics will be used to obtain measures of central tendency (mean, medians and mode) and dispersion (range, variance and standard deviation) for continuous variables and frequency distribution for the categorical variables. Depending on the research question, differences between subgroups (e.g. men versus women) will be tested using chi-squared tests for categorical data, and independent samples t-tests/analyses of variance for continuous variables. Multiple linear (continuous dependent variable) and logistic (binomial dependent variable) regression analyses will be used to study the association between the independent and dependent variables of interest.

Table 1: Recruitment and data collection overview for quantitative study

<table>
<thead>
<tr>
<th>Participant group</th>
<th>n</th>
<th>Recruitment</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group Patients with type 2 diabetes</td>
<td>200</td>
<td>Randomly selected from three diabetic centres of rural areas of Abbottabad</td>
<td>Quantitative Study: Self-administered survey questionnaires</td>
</tr>
</tbody>
</table>

Table 2: General Overview of the Study Designs for Quantitative Research

<table>
<thead>
<tr>
<th>Design</th>
<th>Concept</th>
<th>Measure</th>
<th>Sample Size (n) location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantitative Research</td>
<td>Diabetes self-care activities</td>
<td>SDSCA – a brief self-report questionnaire of diabetes self-management assessing the aspects of the diabetes regimen [41] (SDSCA - To be translated into local language)</td>
<td>n=200 patients with type 2 diabetes. Randomly selected from a larger sample representing the three medical centres of rural areas of Abbottabad.</td>
</tr>
<tr>
<td></td>
<td>Beliefs about illness</td>
<td>The 9-item Brief Illness Perceptions Questionnaire (BIPQ) will be used to measure illness beliefs [42, 43]. (BIPQ - To be translated into local language)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Healthcare and self-management</td>
<td>Resources and Support for self-management of type 2 diabetes (RSSM) - a seven item short form scale [44]. (RSSM - To be translated into local language)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Diabetes Family support</td>
<td>DFSC – Diabetes Family Support and Conflict scale will be used to measure the extent to which the patients will share their experiences of having support or conflict related to self-management [45]. (DFSC - To be translated into local language)</td>
<td></td>
</tr>
</tbody>
</table>

CONCLUSION
The quantitative study will help to acquire demographic information and the basic knowledge about diabetes, illness beliefs, family and social support and self-management activities in the middle-aged population of Pakistan. The quantitative study will measure the association between illness and cultural beliefs, family and healthcare professional’s support and self-management behaviours in middle-aged population of Pakistan. It is also anticipated that this study will help to better understand the contextual determinants of behaviours which could facilitate in future the development of culturally appropriate interventions to modify the illness beliefs and support the self-management activities. Conflict of interest
The authors declare that they have no funding resources or conflict of interest to report.

REFERENCES