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Systematic Review

Systematic Review of Type 2 diabetes self-management: focusing on the middle-aged population of rural area of Pakistan

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The systematic literature review was carried out to identify and analyse qualitative and quantitative articles published in the last 20 years relevant to the self-management of type 2 diabetes. The aim of this review was to identify and synthesize the contemporary qualitative and quantitative research on the self-management of type 2 diabetes focusing on the factors that play an important role in self-management of diabetes in Pakistan. This systematic review synthesized the knowledge and identified the gap in the literature regarding type 2 diabetes self-management among the middle-aged population of Pakistan. The review has revealed that there is lack of studies in literature on self-management of type 2 diabetes in Pakistan. This review will be useful for health care professionals suggesting that coping with diagnosis and living with diabetes is affected by a complex constellation of factors, including life circumstances, social support, gender roles and economy.

Keywords: Type 2 diabetes, evidence-based analysis, socio-ecological approach, semi-structured qualitative interviews, and self-management of type 2 diabetes.

INTRODUCTION

This systematic review of qualitative and quantitative studies on self-management of type 2 diabetes is focusing on the middle-aged population of Pakistan as there appears to be inadequate utilization of established evidence-based guidelines for self-management (American Diabetes Association, 2006) and implementing the practice recommendations to care in that country

(Rayappa et al., 1998). The systematic review is an ideal mechanism for clearly identifying “Knowledge gaps” which will be useful to identify the need for self-management approaches for patients with type 2 diabetes and the assessment of quality of diabetes care in the community which can help draw attention to the measures required to improve diabetes self-management and provide a benchmark for monitoring changes over time. It has been demonstrated that patients who self-manage well tend to have better health outcomes, in terms of symptom control, health services utilization, and disease activity (Thille et al., 2014; Goldman and Maclean, 1998).

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The importance of factors external to the self in diabetes management was acknowledged by Paterson et al. (Paterson et al., 2001) who drew attention to the role of health care professionals in “transformative” experiences; they conceptualized this as a dynamic, interpersonal process between doctor and patient and suggested that when it works well, it offers patients a great deal of benefits (Paterson et al., 2001). However, unsatisfactory relationships with healthcare professionals could lead to a lack of trust and abandonment of self-management recommendations. Therefore, the management of diabetes appears to operate on multiple levels: first, internally, in terms of personal identity, and self, but also externally, in terms of cultural resources and inter-subjective realities of medical consultations (Gomersall et al., 2011).

A study conducted in Pakistan on diabetes knowledge, beliefs and practices among people with diabetes (Rafique and Shaikh, 2006) provided evidence that there was a lack of information available to people with diabetes in Pakistan as a large proportion of the population has never received any diabetes education on self-management at all (Rafique and Shaikh, 2006). This study may have under estimated the extent of the problem as it was conducted in an urban university hospital setting, where diabetes education may be more readily available compared to rural areas where people have less access to information and may have even poorer understanding of diabetes and the importance of self-management practices.

The health care system in Pakistan is encountered with many problems such as structural fragmentation, resource scarcity, inefficiency and lack of functional specificity, gender insensitivity and inaccessibility (Shaikh et al., 2010). The 66% population living in rural areas face inadequately organized primary care services which are slowing down progress in health indicators (World Bank, Pakistan, 2002). In Pakistan, basic health units are seeing an average of 20-25 patients per day where each basic unit has about 10 staff members. The primary care delivery system and satisfaction level have largely remained unchanged during the last three decades. The recent surveys indicate that nationally, not more than 20% of the people used the first level public sector network for their health care needs (Government of Pakistan, 2000; National Institute of Population Studies, 2008). Therefore, the economic constraints, lack of good governance and inability to deliver public goods have led to the concept of “unleashing the primary care to contracting services in Pakistan” (Nishtar, 2006).

The health services in the community in Pakistan are not adequate and diabetes health management programmes in the community health clinics do not

provide enough help and support to the patients. Shortage of community doctors and expensive consultations with doctors make the life of patients more difficult in terms of managing their diabetes, particularly in the poor areas Pakistan (Shaikh et al., 2010; World Bank, Pakistan, 2002). These clinics in poor regions or in rural areas of Pakistan face special challenges in providing diabetes care to the poor patients as most of these clinics do not meet the evidence-based quality of care standards as compared to the targets established by the American Diabetes Association (American Diabetes Association, 2006).

Similar cases have been reported in several studies in diverse health care settings from low SES areas in various countries other than Pakistan; including academic institutions (Peters et al., 1996), health maintenance organization (Miller and Hirsch, 1994), health centers (Chin et al., 2000) and medical providers (Chin et al., 1998) where a substantial portion of diabetes care does not meet the evidence-based quality of standard care (Al-Malki et al., 2011; Alzaid, 1997; Fatani et al., 1987; El-Hazmi et al., 1998; Gilles et al., 2007). On the basis of the highest age-specific prevalence of diabetes (40-60 years) in Pakistan and in line with the latest estimates of International Diabetes Federation on the greatest number of people with diabetes between 40-59 years (International Diabetes Federation, 2012), this systematic review focuses on the middle-aged population of Pakistan with diabetes aged between 40-60 years.

SYSTEMATIC REVIEW OF SELF-MANAGEMENT

Aims and Objectives

The systematic review of the literature was carried out to cover the self-management of type 2 diabetes with specific interest in the population of Pakistan, aimed at capturing the contemporary qualitative research or mixed methods methodology on the self-management of type 2 diabetes. In this review of self-management of type 2 diabetes, the aim is to synthesize the most contemporary qualitative research on the self-management of type 2 diabetes; that is the literature that has been published in the last 20 years on the self-management. The main interest in this systematic review focusing on the factors that had been identified as playing important role in self-management and considered that a systematic review is a good way to obtain perspective on current direction and future research in that area. This systematic review will identify knowledge gaps and synthesize knowledge of the self-management of type 2 diabetes among the middle-aged population of Pakistan.

The Review Questions

1. What are the patients' perception and experiences of diabetes self-management?
2. What are the differences between physician and patient understandings of self-management of type 2 diabetes?
3. What factors affect the diabetes self-management practices (barriers to self-management)?
4. Does gender influence the diabetes self-management?
5. What social and cultural beliefs influence the experience and practice of diabetes self-management?

The 'review questions' are broad enough to accommodate for inductive data-driven thematic analysis. The analysis addresses the review questions which will be further refined as we carry out the systematic literature review. The qualitative analysis would identify the barriers to self-management and explore the complexity of the proposed research questions and to capture uniqueness of the individual, feelings, behaviours and experiences and complex interactions.

Design Methods

Literature Search Strategy

A literature search was conducted in the following electronic database; the Cochrane Library, Medline, PubMed, PsycINFO, between the years 1993 to 2013 (20 years back in time). References of all retrieved articles were checked for relevant studies. The following keywords were used during the literature search; "type 2 diabetes", "diabetes knowledge and awareness", "Diabetes health education", "semi-structured qualitative interviews", "quantitative analysis and self-management of type 2 diabetes." All the retrieved articles were checked, and the articles that involved self-management of type 2 diabetes or diabetes knowledge or awareness were considered. This strategy led to the identification of 47 relevant articles which are highlighted in Table 1.

Inclusion Criteria

The initial literature search was broad enough to scope the quantity of contemporary qualitative research on the self-management of type 2 diabetes. The inclusion criteria for the articles was that they should be published

in peer-reviewed journals between January 1993 to August 2013, should be related to self-management of type 2 diabetes, should use qualitative and quantitative methods and should be available in English language.

The other inclusion criteria was the middle-aged population aged 40-60 years (specific interest in the population of Pakistan) with poorly controlled type 2 diabetes – in line with the highest number of diabetic patients within the age groups of 40-59 years reported by International Diabetic Federation (International Diabetes Federation, 2012). In addition, studies must report qualitative research on diabetes self-management, diabetic complications, quality of life, and patient-doctor relationship or interaction.

Exclusion Criteria

The articles were excluded if their focus was theoretical research only and were not related to diabetes self-management but otherwise related to diabetes. The placement of a time limit on the literature search (Jan 1993 to August 2013) is a common strategy (20 years back-in time) to identify a manageable yet sufficiently broad sample for detailed analysis (Gomersall et al., 2011; Campbell et al., 2003).

Outcome of Interest

The outcome of interest during the literatures review were qualitative descriptions or interpretations of personal view or social experiences in the local context on the self-management of type 2 diabetes, healthcare system use, quality of life and identification of knowledge gaps for future research. Measures of improved diabetes outcome such as exercise self-care, improved physical activity, HbA1c and BMI will be analysed in quantitative studies to associate self-management programs with the outcome

PRISMA FOR SYSTEMATIC REVIEW REPORTING

According to reporting guidelines for systematic review, a PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analysis), checklist and flow chart approach was used for this systematic review. This approach is an evidence-based minimum set of items for reporting in systematic reviews and meta-analysis. Figure 1 shows the flow scheme of the identified literature search under this systematic review.

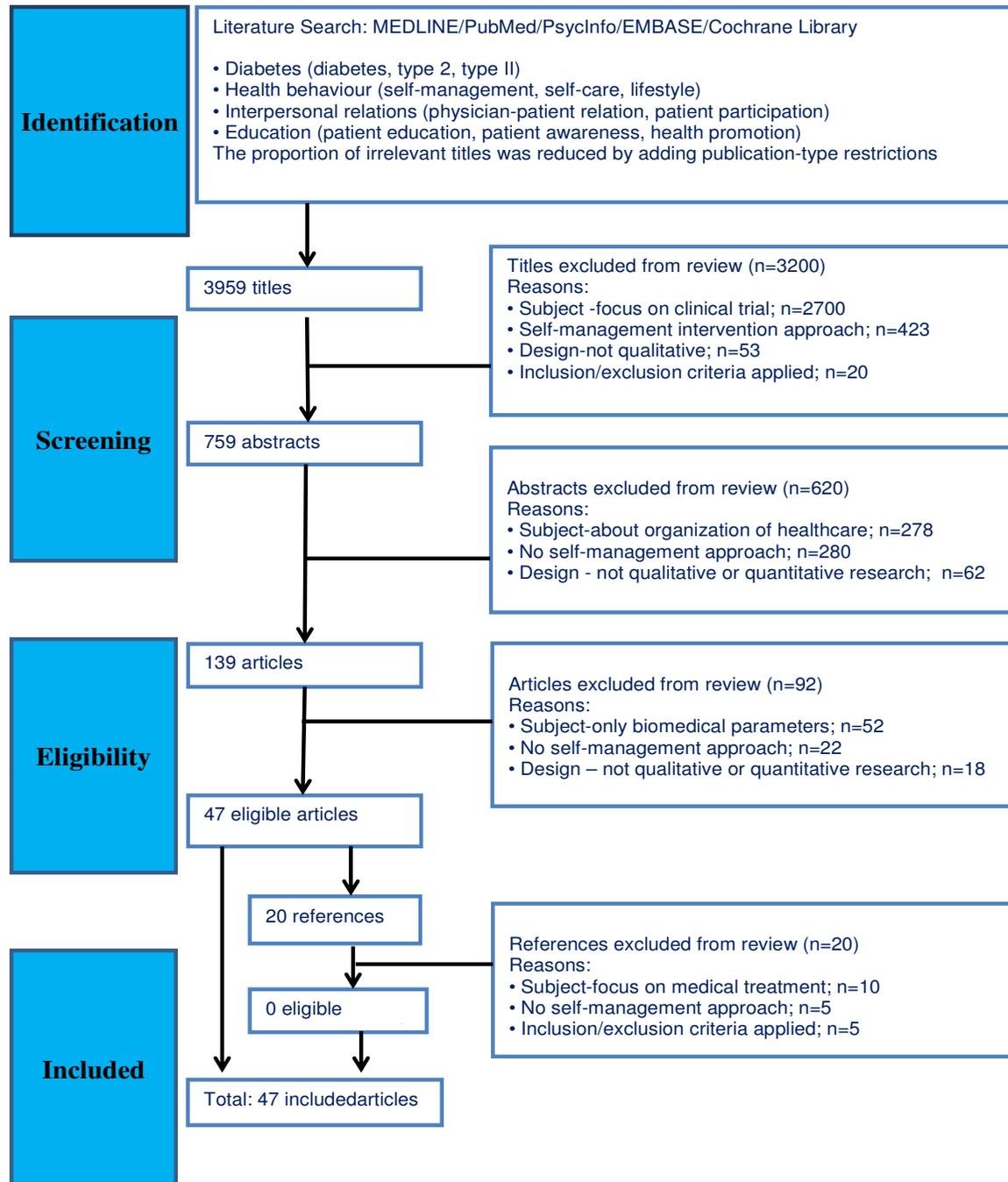


Figure 1. Flow scheme for the identification screening and inclusion of articles during the literature search

DATA ANALYSIS

Characteristics of the identified literature

In the selected 47 articles, participant sample size varied from n=9 (Jo et al., 2008) to n=500 (Khowaja and Waheed, 2010) with the mean sample size of n= 54. Principles of grounded theory was most frequently used

to interpret transcribed semi-structured interview and focus group data and, researchers were interested in facets of experience associated with having type 2 diabetes and in developing new theories from the analysis of participant accounts. The identified literature in Table 1 shows that topics covered a number of different aspects of the experience of type 2 diabetes and its management.

Table 1. Summary of Systematic Review of Self-management of Type 2 Diabetes.

Study Details (Author, Year)	Sample Characteristics	Design/Methods	Results
Adams, 2003	n=13 Latina women	Interpretive phenomenology	Patients viewed stress as causal in diabetes. They found it difficult to diet in cultural context, and religion was often drawn on for support.
Alcozer, 2000	n=10 Mexican women Age 27 to 45 years, living with partners/spouses.	Narrative Interview	Meaning of diabetes was "viewed as a life threat with complications and a shortened life"
Ahmadani et al., 2012	n=110 Pakistani patients	Prospective studies conducted in the month of fasting	Active glucose monitoring and patients education helped to manage diabetes.
Ahmadani et al., 2008	n=327 Pakistani patients with fasting	Questionnaire based survey of self-management	Patients required special attention on self-management of diabetes during the fasting period.
Broom and Whittaker, 2004	n=119 people with diabetes, 56 service providers, 52% men aged 20 to 90 years.	Unstructured Interview of self-management	People concept of diabetes self-management is that of discipline and control. Attempts to avoid stigma might undermine agency for management.
Balcou-Debussche and Debussche, 2009	n= 42 Creole people with type 2 diabetes; 28 women aged 17 to 72 years	Semi-structured interviews of self-management	Patients experienced a "suspension of reality" in the hospital: everyday constraints of home life were pended, facilitating diabetes management.
Chasens and Olshansky, 2006	n= 17 people with Type 2 diabetes; 35% men and 65% women. Mean age 55 years.	3 focus groups; analysis of grounded theory	Explored the ways in which sleepiness constrained self-management.
Chun and Chelsea, 2004)	n=16 Chinese American families; mean age = 60 years	Group interviews	Culturally related responses and experiences of type 2 diabetes.
Chelsea and Shun, 2005	n=16 Chinese American families; mean age = 60 years	Narrative Group interviews	Accommodation was the key response to diabetes and consisted of practices and concerns to balance quality of life.
Fagerli et al., 2005	n=15 Pakistanis-born people with diabetes living in Oslo, 4 men, 11 women; age range 38-66 years.	Semi-structured interviews	A number of constraints were found – Discontinuity between different types of culturally mediated lay understanding.
Furler et al., 2008	n=24 women and 26 men; age range 50 to 80 years.	Four focus groups to elicit "shared frames of meaning" of people with diabetes in communities	Patients described the role of emotional contexts (shock, fear and worry) in self-management. These have influenced approach to self-management
Greenhalgh et al., 2011	n=82 patients, aged 25-86 years, from 6 ethnic groups	Quasi-naturalistic story-gathering, analyzed thematically.	Self-management should take closer account of over-arching storylines that pattern experience of chronic illness.
Hawthorne and Tomlinson, 1999	n= 201 Pakistani patients, 101 women and 100 men, 24% new how to manage diabetes.	One to one semi-structured interviews	Uneducated women did not know much about self-management- require culturally appropriate, health education and support.
Huang et al., 2005	n=28 older people with type 2 diabetes; age range 65 to 88 years (12 men)	Semi-structured interviews analyzed with grounded theory	Patient's health care goals were social and functional, as compared to biomedical.
Jezewski and Poss, 2002	n=22 Mexican American with type 2 diabetes; 4 men; age range 29-77 years.	Semi-structured interviews followed by focus groups; analyzed by grounded theory	Patients' explanatory frameworks for diabetes drew on both lay and biomedical understandings

Table 1 continue

Keval, 2009	n=18 South Asian, Gujarati-speaking United Kingdom residents; 10 men; age range 40 to 88	Semi-structured interviews analysed by grounded theory	Patients viewed their social and cultural networks as facilitating self-management
Khowaja and Waheed, 2010	n=500 type 2 diabetic patients in Agha Khan University hospital Pakistan. Age range 30-70 Years	Cross section study design – interviews with structured questionnaire.	Self-management of diabetes is associated with clinically and statistically better glycemic control.
Koopman et al., 2004	n=15 people with type 2 diabetes; age range 24 to 70 years	Semi-structured interview; thematic analysis using a continuous iterative process	Physicians and patients often misattributed symptoms of diabetes to other causes.
Lawton et al., 2006	n=32 Asian people with type 2 diabetes (23 Pakistani, 9 Indian); 15 men; age range 40 to 70 years	Open-ended interviews; analysis based on grounded theory	Patients' willingness to adhere to physical activity – barriers included obligations to others and lack of culturally sensitive facilities.
Lawton et al., 2005 (Study 1)	n=40 patients with type 2 diabetes; 18 men, 22 women; age range 21 to 77 years	3 semi-structured interviews at 6 months intervals; grounded theory	Health services delivery system was influenced how patients perceived their diabetes.
Lawton et al., 2005 (Study 2)	n=40 patients with type 2 diabetes; 18 men, 22 women; age range 21-77 years	3 semi-structured interviews at 6 months intervals; grounded theory	Patients were satisfied with delivery of diabetes support by specialist nurses.
Lawton et al., 2004	n=40 patients with type 2 diabetes; 18 men, 22 women; age range 21-77 years	3 semi-structured interviews at 6 months intervals; grounded theory	Patients preferred blood glucose monitoring for self-management.
Lawton et al., 2008	n=20 people from Scotland with type 2 diabetes; 11 men; age range 40 to 80 years	Semi-structured interview analysed with grounded theory	Experimental dimension of self-management of diabetes points to the direction of "self- beliefs" and "intentions".
Macaden and Clarke, 2006	n=20 people with type 2 diabetes; four focus groups with "ethnic health development workers".	Focus group and "individual interview" analysed with grounded theory	Explored the issues influencing perception of risk among South Asian people with type 2 diabetes. Management perceived as the responsibility of health professionals.
Miller and Brown, 2005	n=20 people with diabetes; mean age 65 years (men), 56 years (women).	Semi-structured interview with focus on dietary management	Three type of adaptation to diabetic diet: cohesive, enmeshed, and disengaged.
Moser et al., 2008	n= 15 people with type 2 diabetes residing in Holland	Qualitative descriptive and exploratory design based on grounded theory	Delineated 4 phases of involved in "identifying with diabetes (comprehending, struggling, evaluating, and mastering)
Moser et al., 2006	n= 15 people with type 2 diabetes	Semi-structured interviews analyzed with grounded theory	7 categories of autonomy defined, including "identifying with diabetes, shared decision making, self-determination.
Nasmith et al, 2004	n=25 in-depth interviews and 3 focus groups with patients; 52% men, 48% women	Interviews and focus groups audiotaped and transcribed; thematic sequential analysis used	Patients perceived benefits in having individualized information and support.

Table 1 continue

Parry et al., 2006	n=40 patients with type 2 diabetes; 18 men, 22 women	3 in depth interviews with over a year; discourse analysis	Patients and physicians both valued access to multidisciplinary team. Patients perceived benefits receiving individualized information and support.
Peel et al., 2005	n=40 patients with type 2 diabetes; 18 men, 22 women	3 in depth interviews over a year; discourse analysis	Men perceived diet as a family matter , women considered it as an individual concern
Polzer and Miles, 2007	n=29 African American people with type 2 diabetes; 10 men; age 42-73	Semi-structured interviews analyzed using grounded theory	Identified religious beliefs and management was impacted by these beliefs.
Poss et al., 2003	n=22 Mexican American patients with type 2 diabetes; 4 men; age 29-77	Interviews using Kleinman's questions to elicit explanatory models; analyzed with grounded theory.	Patients used social networks as a source of support and information about local remedies.
Rayman and Ellisson, 2004	n=14 women with type 2 diabetes; age range 25-75 years	12 face to face and 2 phone interviews using a guided conversation approach; used grounded theory	Engaging in self-management often resulted in self-blame and negative affect.
Weiler and Crist, 2009	n=10 Latino people with type 2 diabetes; 4 men; age range 46-65 years	Semi-structured interviews; qualitative descriptive design using grounded theory	All aspects of self-management were linked with aspects of the Latino social context, including perceptions of illness and social stigma of disease.
Wong et al., 2005	n=12 people with type 2 diabetes	Semi-structured telephone interview analyzed with grounded theory	Men actively supported by wives in self-management and women were only passively supported by husbands.
Wu et al., 2008	n=9 people with type 2 diabetes and recent cardiac event. 3 men and 6 women; age range 59 to 85	Open ended interviews; data analyzed into codes and interpretive framework.	Patients' self-confidence and confidence in health professionals was shattered after the cardiac event.

RESULTS OF SYSTEMATIC REVIEW

Out of the 47 identified studies presented in Table 1, 41 studies from the literature search representing self-management in context, suggesting that the multiple contextual factors identified are fertile ground for further research. The studies also suggested that context should be given particular attention for researchers to gain understanding of the process of diabetes management. Two of the 41 studies that represented self-management in context were quantitative articles that investigate the association between social support and improved outcome. Four studies represented gender and self-management while 2 studies represented the physician-patient relationship. Three conceptual themes were identified from the analysis of the identified literature. These include (i) self-management in context, (ii) physician-patient interactions on self-management, (iii) Gender and self-management.

QUALITY OF EVIDENCE OF SELECTED STUDIES

The field of qualitative research lacks consensus on the importance, methods, and standards of critical appraisal (Melia, 2010) and the qualitative health investigators under-report procedural details conventionally (Sandelowskin and Barroso, 2007). In addition, the quality of findings tends to rest less on methodological processes than on the conceptual prowess of the researchers (Melia, 2010). The findings that are theoretically sophisticated are promoted as markers of study quality for making valuable theoretical contributions to social science academic discipline (Sandelowski, 2002). However, theoretical sophistication is not necessary for contributing potentially valuable information to a synthesis of multiple studies, nor to inform questions posed by the interdisciplinary and inter-professional field of health technology assessment (Saini and Shlonsky, 2012). The appraisal of the value of the research findings

Table 2. Evidence examined according to conceptual themes, study design and study context

Body of evidence examined according to conceptual themes			
Chronic Disease	Conceptual Theme 1	Conceptual Theme 2	Conceptual Theme 3
Type 2 Diabetes	Self-management in context	Gender and self-management	Physician-Patient Interaction
Nr of Studies	41	4	2
Body of evidence examined according to study design			
Study Design		Method of Analysis	Nr. of Eligible Studies
Qualitative and Quantitative Studies		Grounded Theory	19
		Content Analysis	6
		Questionnaire-based interviews	9
		Narrative interviews	9
		Framework Analysis	2
		Statistical Analysis	2
Total			47
Body of evidence examined according to study context			
Study Context		Number of Eligible Studies	
Pakistan		10	
Saudi Arabia		2	
Australia		1	
United States		22	
United Kingdom		7	
Scotland		2	
Holland		2	
Norway		1	
Total		47	

was based solely in terms of their relevance to the research questions, and the presence of data supported the authors' findings. Studies in the selected sample that meet the selection criteria were considered to be of higher quality. The three conceptual themes were used to examine the body of evidence shown in Table 1. In this table for each included study; the study design and location was identified and summarized.

Self-management in context

In the identified literature of Table 1, the authors assumed and argued that a number of contextual factors impact diabetes self-management. Many authors developed analyses of the interrelationships between culture and diabetes self-management. Chun and Chelsea (Chun and Chesla, 2004), and Chelsea and Chun (Chesla and Chun, 2005), drew on a set of empirical data to explore the role of Chinese American "collectivist" culture in living with diabetes. While the participants in these studies expressed a view of their families as instrumental in offering emotional and

practical support in living with diabetes, they have also noted problematic aspects to the collectivist context. These included placing the needs of the families above requirements for illness management and postponing it to take part in traditional celebrations involving food.

A similar approach was evident in other three studies of Latin-Mexican American culture (Adams, 2003; Alcozer, 2000; Weiler and Crist, 2009). The participants in these studies described their cultural context in which immediate and extended families were viewed as a source of support. These social networks were confirmed and developed in Latin-Mexican American sub-cultures through community events; and refusing food at, or bringing diabetes –appropriate food to such events "would be considered rude to the hosts and would not be accepted" (Weiler and Crist, 2009). The lack of understanding of diabetes self-management exists in these cultures which might have constraining effects to the self-management of diabetes.

Polzer and Miles (Polzer and Miles, 2007) focused on the importance of spirituality for African Americans with diabetes, and found that the Christian faith was drawn on

in various ways. Some participants considered role of God to be one of background support and took an active role in self-management of diabetes, whereas others viewed God more as a healer and were more passive in relation to self-management, believing outcomes to be in the hands of God. These contrasting understanding were associated with different approaches to diabetes self-management. Fagerli et al. (Fagerli et al., 2005) proposed after their investigation of experiences of dietary advice among Pakistani-born residents of Norway with type 2 diabetes that advice from health care professionals should be culturally and contextually sensitive.

A number of the Muslim Indian and Pakistani participants described by Lawton et al. (Lawton et al., 2006) adopted the similar line of action believing that "it is in Allah's hands" (Lawton et al., 2006) to cure them. The other studies carried out in Pakistan on diabetes education and awareness on self-management suggest that level of awareness at both physicians and patients along with other community people has been observed to be low (Ali et al., 1998; Jabbar et al., 2001; Shera et al., 2002; Hasan et al., 2000; Adil et al., 2005; Sabri et al., 2007; Ulvi et al., 2009; Afridi and Khan, 2003). It is evident from these studies that the different ways in which cultural understandings were drawn on by participants profoundly affected their approach to self-management.

Similarly, McEwen et al. (McEwen et al., 2010) used a culturally-tailored support intervention program for Mexican American adults living with type 2 diabetes in a quantitative research approach to investigate the association between the program and improved outcome. The study found that the post-intervention showed a significant improvement between the social support and exercise self-care ($P = 0.02$) and self-care for the feet ($P = 0.04$). This study demonstrated that social support is a significant factor in the achievement of diabetes self-management. A similar quantitative study by Schiøtz et al. (Schiøtz et al., 2012) established that social support (frequent contact with friends) is associated with improved health-promoting self-management behaviours such as frequent foot examinations and frequent exercising. This further demonstrates the effectiveness of the social context in the self-management of diabetes.

Physician-Patient Interactions

The social interaction between the patients and doctors is of great significance. The patients of diabetes need to engage with a range of health professionals. Gaining knowledge of the patient's perspective builds on traditional models of physician-patient communication (Pendleton et al., 1984) provides greater clarity to the range of lay understandings that should be explored as a component of effective risk communication. Feudtner (Feudtner, 2003) has shown evidence of "victim blaming"

between doctor and his patient and suggested that a "moralistic dialogue" emerged between the two parties.

In the searched literature, Lawton et al. (Lawton et al., 2008) found that patients who had acted on advice from health professionals, but who continued to experience deterioration in their condition, were likely to reject the notion that their diabetes was controllable, and hence, decided not to adhere to dietary and behavioural recommendations. Conversely, when symptoms were minimized by drug treatment, some patients viewed their diabetes as having been cured and, therefore attempting to control their illness through self-management was no longer important (Lawton et al., 2005; Lawton et al., 2005).

Moser et al. (Moser et al., 2008) identified in their theme "welcomed paternalism" that in achieving autonomy in diabetes care, some patients prefer the health care professionals to take the lead in the management of their disease. Similarly, Balcou-Debussche and Dubussche (Debussche and Debussche, 2009) found that participants appreciated some aspects of hospitalization that caused diabetes management to be placed temporarily in the hands of medical staff. These findings highlight the inter-relationship between self-management experiences, institutional contexts, and ways of interpersonal relating that impact how type 2 diabetes is perceived and experienced.

Gender and self-management

The other aspect of self-management identified in literature was that of influence of gender (Adams, 2003; Alcozer, 2000; Peel et al., 2005; Rayman and Ellison, 2004). These researchers explored the self-management specifically in relation to women and discussed the intersection of gender and culture. In the studies of Peel et al. (Peel et al., 2005), the question of how blame and accountability are constructed in accounts of dietary management, and gender emerged as fundamental. In the case of women, the diabetes management was considered as their own responsibility, which had to be negotiated within a family context.

In Pakistani women often subjugated their own needs to those of other family members, usually husbands and children, who preferred non-diabetic foods. The men in that society, by contrast viewed dietary change as a matter for their wives who were allocated the task of serving the "right" foods. Hence these men resisted shaping their own identity to the requirements of diabetes management by shifting the responsibility on others.

The importance of the relative positions of men and women were acknowledged by Whittemore et al (Whittemore et al., 2001), suggesting that women are primarily responsible for family meals and for overall family health and therefore, the diabetes management aimed at women might be particularly fruitful. Hence, the social and historical positioning of women as caregivers

for children and husbands impacts how diabetes management is understood and enacted by the whole family.

In relation to women, several researchers have explored self-management (Adams, 2003; Alcozer, 2000; Rayman and Ellison, 2004; Pendleton et al., 1984) found that diabetes management was sometimes mediated by cultural norms, such as the important role of Catholic faith as a source of support. The author suggested that women are largely responsible not only for the self-management of diabetes, but for the management of diabetes on other family members. The lack of specific research in the identified literature might echo a general cultural tendency to view men as normative and the experience of women of self-management may be considered to require specialist research.

DISCUSSIONS

In this analysis, the qualitative and quantitative research on type 2 diabetes on self-management was considered from January 1993 to August 2013 (20 years back-in time) to identify sufficiently large sample for detailed analysis. An interesting feature of the literature synthesis is the way in which multiple levels of subjectivity were identified as pertinent to the process of self-management of type 2 diabetes. Many authors explored how cultural, bodily and spatial contexts impacts self-management of type 2 diabetes.

Also, the differences in the experiences of men and women, as identified in the literature, demonstrate that diabetes self-management has a gendered dimension. In particular, in the context of Pakistani, the structure of gendered roles within the family often meant that in comparison to men, women's effort to "self-manage" were less likely to be supported by children and male partners, who were often unwilling to adopt diabetic-friendly diets.

The authors have also identified diabetes self-management as spatially contingent, with different spaces offering distinct opportunities to manage diabetes. The identified literature also reveals that diabetes management was conceptualized in individualist terms in which patients were given responsibility for management of diabetes, and "internal" psychological processes were frequently prioritized by both researchers and participants.

There is also a strong moral aspect to self-management, because deteriorating health due to diabetes is linked to a failing self, in particular a failure to self-control. It was also noted by Broom and Whittaker (Broom and Whittaker, 2004) that such understandings undermine the efforts of health professionals in managing the diabetes. It has also been understood from the identified literature that giving importance to the role of the individual downplays the role of cultural, interactional,

material, and spatial factors in illness trajectory, instead placing accountability with patients themselves.

Many authors in the identified literature found ways to enable individuals to take responsibility for the management of type 2 diabetes on a day to day basis and this was achieved by educating patients about the link between lifestyle, glycemic control, and comorbidity, providing the informed choices made by patients themselves.

In literature, although several authors indicated that educational information provided to patients on diabetes management was valued by study participants, the idea that people with diabetes have real choices if they want to remain well has been analyzed and critiqued as a rhetoric stemming from the values of rational individualism (Mol, 2008). Some authors (Broom and Whittaker, 2004; Parry et al., 2006) referred to the assumptions of individualism in discussions; none of them explicitly used "individualistic culture" as a framework through which to understand the practices and experiences in self-management.

STRENGTH AND WEAKNESSES OF LITERATURE SYNTHESIS

The strengths of this literature synthesis include the search strategy that was systematically employed across relevant databases and criteria that ensured relevance of articles to the synthesis. The synthesis covers a wider range of articles over the period of 20 years and offers a unique critique of the idea of self-management that was brought to light by exploring the multiple social, interactional, and spatial contexts that the identified literature showed to be pertinent to diabetes self-management.

The other unique aspect of this literature search was that while it identified the articles on self-management over a longer period, it has also focused on the aspect of self-management in Pakistan and highlighted the cultural, social and religious norms in self-management of type 2 diabetes in that country. The aim was to search the literature comprehensively on self-management of type 2 diabetes. In practice; this might have been an ideal approach, however, the inclusion criteria on the research articles might have created "selection bias", but debate continues around how best to proceed with literature searches, as there is no Cochrane "gold standard" exists for synthesizing qualitative research (Dixon-Woods et al., 2007).

CRITICAL ANALYSIS OF THE CURRENT LITERATURE

The literature review has established that there is no evidence to show the successful applications of self-

management of type 2 diabetes in the middle-aged population of Pakistan. There is lack of diabetes education and awareness in the middle-aged population of Pakistan making the self-management more challenging. Indeed, the self-management approach has been applied to some success in other western world. It has been demonstrated that socio-ecological approach to self-management of diabetes reflects the grounding of diabetes in the context of environmental and social influences (Schiotz et al., 2012). However, there is a lack of availability of effective and culturally-tailored diabetes programmes in Pakistan which limits the success of self-management programme of type 2 diabetes in the middle-aged population in this country.

The study conducted in Pakistan on diabetes knowledge, beliefs and practices among people with diabetes provided a scientific evidence that there was a lack of information available to people with diabetes in Pakistan as the large population has never received any diabetes education at all (Blaxter, 1990). In addition, the study was conducted in an urban-based university hospital, where diabetes education is expected to be more readily available compared to rural areas where people have less access to information and will have even poorer diabetes perception and practices.

The psychosocial barriers to diabetes-self management influence longer-term outcomes, such as glycemic control (HbA1c) and eventually development of diabetes complications. The middle-aged population of Pakistan have both psychosocial and cultural barriers to their diabetes management and control and the analysis of literature revealed that lack of physical activity, eating patterns, lack of family and cultural support and difficulties in accessing medical care, clearly points to that direction. There is no effective diabetes problem-solving intervention programmes available in that country to reduce the barriers to self-management of type 2 diabetes (Glasgow et al., 2000).

CONCLUSIONS

This systematic review has demonstrated that there are gaps in the literature that can be addressed by qualitative and quantitative research approaches. The review has yielded important insights into the ways in which diabetes is viewed and managed in Pakistan. The review has also revealed that there is lack of studies in literature on self-management of type 2 diabetes in Pakistan. This review will be useful for health care professionals suggesting that coping with diagnosis and living with diabetes is affected by a complex constellation of factors, including life circumstances, social support, gender roles and economy.

The review will also be helpful for patients with diabetes to enhance their knowledge and understanding of the self-management of this chronic disease. There are not

many studies found in the identified literature on self-management where patient-doctor relationships was specifically highlighted and that area is wide open for further research. It has been demonstrated in this systematic review that self-management of type 2 diabetes reflect the grounding of diabetes in the context of social, cultural and environmental influences.

This systematic review has also identified that in order to improve the quality health care for diabetes in health clinics, it would require a multifactorial approach emphasizing patient education, improved training in behavioural change for providers, and enhanced delivery system. The identified literature has identified the influence of gender on the self-management of type 2 diabetes and suggested that women are primarily responsible for family meals and for overall family health and therefore, the diabetes management aimed at women might be particularly fruitful.

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