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Review

Social support and glycemic control in type 2 diabetes: A systematic review of observational studies

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ABSTRACT

Objective: We aim to systematically review observational studies examining the association between social support and glycemic control in adults with type 2 diabetes.
Methods: We searched MEDLINE, PsycINFO, EMBASE, Scopus, Web of Science and Sociological Abstracts to July 2012 for observational studies investigating the association between structural or functional aspects of social support (social networks, community ties, marital status, family support, perceived, actual, emotional or instrumental social support) and glycemic control (HbA1c).
Results: From electronic and reference searches, 29 studies were eligible. Twenty different assessments of social support were used. Family support and composite measures of support were most frequently associated with reduced HbA1c. There was no evidence for a beneficial effect of other support measures on HbA1c.
Conclusion: We found marked variation in population, setting, measurement of social support and definition of outcome, limiting the methodological validity of research. Social support may be important in the management of type 2 diabetes, the need for consensus and standardization of measures is highlighted.
Practice implications: The presence of informal support should be explored in routine diabetes care.

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1. Introduction

Social support is an important explanatory variable with prognostic significance for health outcomes [1–3]. The self-management of type 2 diabetes mellitus (T2DM) is cornerstone to achieving good glycemic control and reducing the risk of developing microvascular (retinopathy, nephropathy and neuropathy) and macrovascular (cardiovascular and cerebrovascular disease) complications. The management of diabetes necessitates an active role of the patient. This involves lifestyle modifications such as improving diet, increasing physical activity, self monitoring of health status (blood glucose and examination of feet), acquisition of diabetes knowledge as well as adherence to professional advice.

Recently, there has been an increase in research into the supportive role of healthcare professionals, diabetes education and

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patient participation groups in the management of T2DM; support that can be classified as 'formal'. The role of more informal interpersonal relations in diabetes care, that is, the presence or support provided by social networks or family members, has been less studied. Social support comprises of structural and functional elements [4]. These elements vary in their characteristics and in their effects on health [5,6]. The structural aspects of support refer to webs of social relationships and linkages which are best measured through quantitative scoring of the size of networks or existence of support resources (marital status, social networks and community ties). Functional components (social support) are elicited from the structural basis of social relations [4]. The existence and quantity of social relationships do not necessarily provide social support, however they certainly increase the likelihood of receiving help when needed. Social support functions are more consistently associated with health outcomes than structural aspects of support [5]. However, not all support is helpful. The term 'social support' carries positive connotations. Social support may often be wanted, but can result in misconstrued social pressure, such as nagging or criticism, or unwanted (negative) outcomes [7].

In health, social support is purported to exert its influence in two main ways: (1) directly: providing necessary support to cope with health problems, adhere to self care-regimen and avoid potentially negative situations (for example, economic problems) or (2) indirectly: acting as a buffer (protection) against the impact of stressful events [8].

In diabetes, both mechanistic routes of action may lead to improved glycemic control. Social support is associated with increased adherence to diabetes self care [9–15], however there is a lack of consensus as to whether this translates into improved biomedical outcomes. A recent meta analysis of six randomized controlled trials (RCT) of formal supportive interventions (group visits to clinician, telephone and internet support, spouse involvement and family and friend support in interventions) for patients with T2DM (pooled $n = 712$) tentatively reported favorable results in diabetes self-management and biomedical outcomes [14]. Biomedical outcomes were assessed in four of the trials and improved in two, although effects were seen in different biomarkers. HbA1c and lipids improved following group visits to the clinician [16] and BMI improved following spouse involvement in diabetes weight-management education in women only [17]. Across trials, improvements were also seen in diabetes self care, quality of life and diabetes knowledge [16–19].

There is some evidence to suggest that formal social support is effective in improving glycemic control. However, RCTs artificially introduce social support. There is rich data available from observational studies which may allude to the, as yet unidentified, active ingredients of support. By using observational data to understand the active ingredient this can then be translated into RCTs. Furthermore with increasing pressure on healthcare systems, formalized support interventions are expensive to provide, rigid and risk not engaging some individuals. On the other hand, informal support, such as that provided by significant others, friends and family, is 'free', readily available and specific to the individual. Investigating these constructs in the context of long term conditions such as T2DM may be important in the support of self-management. Evidence from observational studies is the main method by which to study such associations.

The social determinants of biomedical outcomes in T2DM is an understudied area. Due to the epidemic of T2DM and its increasing societal and economic burden, the need to identify non pharmacological, cheap and modifiable targets for intervention is increasing. Our aim is to systematically review published and unpublished literature investigating the association between INFORMAL social support and glycemic control in adults with T2DM.

2. Methods

Eligible studies were those meeting the following inclusion criteria: observational studies (case control, cohort and cross-sectional studies) of adults (≥18 years of age) with T2DM or non insulin dependent diabetes, that investigated the relationship between social support and glycemic control; studies with a primary or secondary emphasis on the association between social support and glycemic control; studies utilizing measures assessing structural and functional components of (informal) social support: marital status, family support, social networks, and community ties (involvement in social structures within the community), perceived, actual, instrumental (tangible assistance) or emotional social support. Terms were chosen to cover a wide range of support measures from a socio-ecological perspective. Studies measuring other types of social support were excluded. Any variables focusing solely on formal professional support, support from healthcare providers and support from diabetes education programs were also excluded. Studies combining type 1 and T2DM were excluded unless data for T2DM were reported or could be obtained from respective authors. Studies that were purely descriptive in nature without the use of statistical analysis were excluded as these studies provide no data to quantify associations between social support and glycemic control.

Our main outcome measure was long term glycemic control based on the percentage of glycated hemoglobin (HbA1c). In type 2 diabetes the National Institute for Clinical Excellence (NICE) states that the target HbA1c should be between 6.5% and 7.5% (42 mmol/mol and 58 mmol/mol) based on individual risk for micro- and macro-vascular complications [20].

The search strategy included several data sources. Electronic database searches were carried out on the following databases: MEDLINE (1946–2012), EMBASE (1947–2012), PsycINFO (1806–2012), Scopus (1960–2012), Web of Science (1899–2012) and Sociological Abstracts (1952–2012). Searches were run on the 11th July 2012. The search was restricted to studies of human beings but was not restricted by language or publication year. Any duplicate results were combined.

To capture the broadest sample of relevant studies we used multiple search terms. The following search terms were used for MEDLINE and adapted for the other databases: exp Diabetes Mellitus, Type 2 and exp social support or (social adj support).mp or exp Marital Status or (marital adj status).mp or exp Spouses or (social adj network).mp. or exp Family and HbA1*.mp. or glyc?emic control.mp or A1c.mp. or GHb.mp. or Glycoh?emoglobin.mp. or Glyc* h?emoglobin.mp. and exp Epidemiologic Studies/or exp Case-Control Studies/or exp Cohort Studies/or case control.tw. or (cohort adj (study or studies)).tw. or Cohort analy*.tw. or (follow up adj (study or studies)).tw. or (observational adj (study or studies)).tw. or longitudinal.tw. or retrospective.tw. or cross sectional.tw. or Cross-Sectional Studies/.

The reference lists of eligible studies were hand searched for additional studies not identified by the search. Related reviews retrieved in the search were also checked for relevant citations. The conference proceedings of the American Diabetes Association, Diabetes UK and the European Association for the Study of Diabetes from July 2009 to July 2012 were searched under social, psychological and behavioral sub headings. Leading authors in the field were contacted for additional data on published or unpublished studies.

The abstracts and titles of studies identified by the search strategy were screened for potentially relevant studies by one author (RS). Manuscripts included based on their abstract were obtained as full text documents which were screened for potential inclusion in the review. In the case of ambiguity, the full text was

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