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Type 1 diabetes and living without a partner: Psychological and social aspects, self-management behaviour, and glycaemic control

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ABSTRACT

Aims: (1) To investigate the association between cohabitation status and psychological aspects of living with diabetes (diabetes distress, diabetes empowerment, quality of life), self-management behaviours, and glycaemic control and (2) to explore whether potential associations are mediated by social support.

Methods: Cross-sectional survey of 2419 adult outpatients with type 1 diabetes from a specialized diabetes clinic in Denmark. Stepwise multiple regression gender-stratified analyses assessed the association between cohabitation status and the variables of interest and the influence of social support.

Results: Significant associations existed between living without a partner and low quality of life, low diabetes empowerment and HbA1c for both men and women. For women, living without a partner was significantly associated with higher diabetes distress and poor self-management behaviours. All associations were mediated by social support to varying degrees.

Conclusions: Social network and social support are related to important diabetes outcomes in type 1 diabetes. Living without a partner indicates a need for support to prevent poorer diabetes outcomes. Women appear more susceptible to living without a partner in terms of psychosocial diabetes outcomes and glycaemic control. Generally, social support is a mediator in the association between cohabitation status and diabetes outcomes, but social support, as well as cohabitation status, are also independently associated with poorer diabetes outcomes. Assessment of cohabitation status as an indicator of psychosocial capabilities and glycaemic control may be useful in diabetes care and support.

1. Introduction

Managing their disease is a constant task for people with type 1 diabetes, and social relations seem to be closely related to the experience of living well with diabetes. However, little is known about the association between social relations and psychological, behavioural and biomedical aspects of living with diabetes. In the existing literature on diabetes, the terms ''psychosocial problems'' and ''psychosocial intervention'' often refer solely to emotional responses to diabetes [1–3] and psychological interventions, respectively [4]. Furthermore, exploration of psychosocial problems does not include the relationship between psychological and social factors. Likewise, the association between social relations and biomedical aspects has not been fully elucidated in type 1 diabetes.

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Social relations can be divided into structural (social network) and functional (social support) dimensions [5]. The structural dimension quantifies social relations, e.g., which and how many individuals are included in the network. The functional dimension relates to the operation of the network, covering qualitative and behavioural aspects of social relations, e.g., emotional and instrumental support [5].

Living without a partner/spouse is one measure of social network, and it is strongly associated with poor health and higher mortality in the general population [6–8] and among people with other chronic diseases, such as type 2 diabetes and heart disease [9,10]. To the best of our knowledge, no studies have explored the association between cohabitation status and a range of patient factors among people with type 1 diabetes. However, a few studies have explored cohabitation status as one of many determinants of quality of life, psychological well-being, or glycaemic control in adults with type 1 diabetes. These studies suggest an association between living without a partner or spouse and poor quality of life, poor psychological well-being, and poor glycaemic control [11–17].

Social support has been suggested as one of the mediators in the relationship between cohabitation/marital status and health outcomes, which raises the question of what role social support plays [18,19]. In diabetes, social support has primarily been studied among people with type 2 diabetes [20,21] and children with type 1 diabetes [22,23]. Studies focusing on social support among people with diabetes has shown that high levels of social support is correlated with better diabetes self-management [24].

No studies have combined cohabitation status and social support among people with type 1 diabetes. In addition, gender differences have been found in the structure, function, and effect of social relations [5,18], and studies have shown men to have larger health benefits from marriage than do women [19,25]. Thus it is likely that the influence of cohabitation status differs for men and women with type 1 diabetes.

The objectives of this study were to (1) investigate the association, including any gender differences, between cohabitation status and psychological aspects of living with diabetes (diabetes distress, diabetes empowerment, quality of life), self-management behaviours, and glycaemic control; and (2) explore whether these associations are mediated by social support.

2. Materials and methods

2.1. Study population

We conducted a large cross-sectional study at a specialized diabetes clinic in greater Copenhagen, Denmark. Approximately 3600 people with type 1 diabetes receive care there and are representative of the general Danish population of people with type 1 diabetes. In October 2011, a questionnaire and prepaid reply envelope were mailed to 3605 adult outpatients. Reminders were mailed to non-respondents after two and four weeks and included the questionnaire and a postage-paid envelope. An email and telephone service, operated by a diabetes nurse, was available for the survey recipients in the data collection period if clarification of survey items was needed. Data collection was terminated after 6 weeks. Fourteen people who had died or reported that they did not have type 1 diabetes were excluded; of the remaining 3591 people with type 1 diabetes, 2419 completed the questionnaire, corresponding to a response rate of 67%.

2.2. Independent variable

The independent variable, cohabitation status, was measured as a dichotomous variable; respondents were asked if they lived with a spouse/partner or not.

2.3. Outcome variables

Psychological aspects of living with diabetes included diabetes distress, diabetes empowerment and quality of life (mental aspects). *Diabetes distress* was measured by the Diabetes Distress Scale (DDS), which consists of 17 items describing possible diabetes-related problems [2]. The score on each item is 1 (“not a problem”), 2 (“a slight problem”), 3 (“a moderate problem”), 4 (“a somewhat serious problem”), 5 (“a serious problem”) and 6 (“a very serious problem”). The total score was calculated as the average of the scores on individual items. To compute descriptive frequencies, this variable was dichotomized into moderate to high diabetes distress (score $\geq$3) and low diabetes distress (score $<$3). A previous study has established the cut point of high diabetes distress as scores $\geq$3 [26]. We decided to use this criteria, but to define the category moderate to high distress in correspondence with the response scale, since the validation of the Danish version of the DDS17 did not show distinct cut points for DDS17 [27].

Diabetes distress reflects specific psychological distress related to diabetes and is distinct from and more prevalent than depression among individuals with diabetes [28,29]. Diabetes distress has been found independently and strongly associated with poor diabetes self-management and poor glycaemic control [29]. *Diabetes empowerment* was measured by the Diabetes Empowerment Scale-Short Form (DES-SF), which contains eight questions regarding psychosocial self-efficacy, such as whether respondents feel able to turn their diabetes goals into a workable plan or to ask for support when needed. The score on each item ranged from 1 (“strongly disagree”) to 5 (“strongly agree”). The total score was calculated as the average of the scores on individual items [30,31]. To compute descriptive frequencies, this variable was dichotomized into low to moderate diabetes empowerment (score $<$4) and high diabetes empowerment (score $\geq$4). To our knowledge there are no established criteria in relation to cut point of the DES-SF, and the dichotomization was based on a theoretical perspective on empowerment. In addition to the diabetes specific psychological measures we also included a general measure of psychological well-being. *General psychological well-being* was measured by the mental component score (MCS) from the 12-item short form (SF12) scale that assesses perceived health-related quality of life. Possible component scores range from 0 (poor health) to 100 (good health) [32]. To compute descriptive frequencies, the general item of the SF12, which asks respondents to rate their health on a scale from 1 (“excellent”) to 5 (“poor”), was dichotomized into poor or fair health (score $\geq$4) and good, very good or excellent health (score $<$4).