

A Study of Self-Management in Diabetes Care & Treatment

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ABSTRACT: Treatment of diabetes leading to improved control is a 24-hour-a-day activity and often includes changes in lifestyle, most of which patients with diabetes must provide for themselves on a daily basis. Self-management of diabetes involves a number of considerations and choices that the patient with diabetes must make on a daily basis. Self-management of diabetes is closely connected to the self-care concept, which can be related to the practice of activities that individuals initiate and perform on their own behalf in maintaining life, health, and well-being. The self-care concept in this thesis is inspired by Orem theory of self-care and is seen as a health resource in the individual. The Orem theory of self-care as a fundamental need in humans is based on the values of autonomy and independence. In Orem's understanding, self-care is a learned and purposeful activity of the individual that requires a certain level of maturity enabling the individual to perform effective, purposeful, controlled and consistent actions. The theory also encompasses healthcare providers to help a person with their actual or potential self-care deficits. In this thesis self-care is seen as context dependent ability. Therefore, the self-care activity is not only a process directed inwards affected by personal conditions, but the ability to conduct self-care is also affected by interpersonal and external conditions. Thus, the context and the dynamics of available resources determine the conduct of self-care activities.

KEYWORDS: Diabetes; focus groups; illness and disease, experiences; motivation; narrative inquiry; phenomenology; research, qualitative; self-care; self-efficacy

I. INTRODUCTION

Managing the rules of self-management "Managing the rules of self-management" was about how patients used self-management to get control in their lives. In all the focus groups patients discussed the struggle of attaining a balance between following the recommendations for diabetes self-care and fulfilling their own needs. It appeared that patients negotiated the best way to manage their diabetes on a daily basis. The debate was about how the patients could take proper care of the diabetes in terms of maintaining blood glucose as normal as possible while they fulfilled their own needs. It was important for all the patients in the focus groups to be able to take part in a normal life and to fit in getting a balance. The patients experienced that proper conduct in diabetes care could interfere in how they wanted to live their life. This was illustrated in a discussion between three participants in a focus group before the intervention. Laura did not eat in accordance with what she thought was right to eat to take care of her diabetes and she had difficulty in losing weight. Annie and Jacob were both much more confident than Laura in handling everyday life with diabetes, and they considered their diabetes to be well-regulated. This study was part of an ongoing research project exploring the self-efficacy of people with diabetes in a nurse-led intervention program based on motivational interviewing described by Miller and Rollnick (Miller & Rollnick, 1991). Our approach was derived from Albert Bandura's self-efficacy theory, where humans perform intentional acts through their belief in their capability to produce a desired effect through their actions (Bandura, 1997). The research project was a randomized controlled trial that involved 349 people diagnosed with diabetes type 1 or type 2 and examined the impact of an intervention program on glycemic control and patient's experiences regarding self-management competence as compared to usual care in the control group.

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All participants included in the trial received a four-day diabetes education program focusing on a range of themes such as diabetes treatment, prevention of diabetes-related complications, self-monitoring of blood glucose, diet, physical activity, alcohol use and issues regarding insurance and following this three-monthly visits to their physician. Just after the diabetes education program patients were randomized to either a control group or to the intervention group receiving five individual sessions in one year. Health care providers, educated in motivational interviewing, conducted the sessions. The goal of the intervention was to help patients to recognize and address problem areas in the self-management of diabetes. Motivational interviewing is a patient-centered directive clinical style for enhancing intrinsic motivation to change by exploring and resolving ambivalence (Miller & Rollnick, 2009). We believe this counseling style facilitates patients' self-efficacy and participation in their own treatment. All patients in the intervention group were offered counseling in changes of diet, physical activity, smoking habit, and alcohol use. The health care provider referred the patient to tailored counseling sessions on the patient's request.

II. LITERATURE REVIEW

In the current study the patient's concerns about how to conduct self-management were part of the creation of the identity as a person with diabetes. The recognition of the immutability of action clarifies how considerations of moral norms guide a person to what he or she believes to be proper conduct (Ricoeur, 1992). The norms of diabetes control were applied in everyday life in relation to the person's ability, preferences, social interactions and living conditions. Self-management was thus contextual, unlimited and changeable. Parallels can be drawn to other studies showing that health behavior is contextual and dynamic, and is about walking a fine line to live a good life. Beth Elverdam stressed the complexity of health behavior in families. She found that health was about making it work and was related to peoples' own perception of conducting healthy behaviors (Elverdam, 2012). The current study's findings were also compatible with Nyhlin's study showing how patients with diabetes had to find a balance between the diabetes regime and the social world in which the patients interact with others (Nyhlin, 1991). Ingadottir and Halldorsdottir discussed the fluctuating and temporary nature of self-management behavior further. They argued that the essential structure of diabetes self-management is closely connected to the person's conception of having diabetes (Ingadottir & Halldorsdottir, 2014).

They found that within each person with diabetes there is both a sense of constraint and a sense of freedom related to handling diabetes. Therefore, adherence to the regimen for diabetes was reflected in this complexity of feelings along with fluctuating settings. The results of our study imply the need to go beyond the adherence thinking and to recognize self-management activities as an identity project. The patients made sense of their identity through narratives about handling diabetes in everyday life. In the focus groups they compared their own ability to handle diabetes with that of others, and in the construction of a norm for appropriate management of diabetes they considered themselves as being either "good" or "poor" diabetics. The patients constructed their own sense of self on their ability to meet the challenges of self-management. Some patients found they were unable to control daily routines such as cooking and mealtimes. Well-regulated blood glucose was a benchmark for satisfactory handling of diabetes and both the individual and the surroundings were assigned the responsibility for failures and successes in the diabetes self-management. This could indicate that self-management is not just about being able to acquire skills but also about being able to mobilize one's beliefs in one's own ability to perform self-regulated practices to control diabetes (Bandura, 1997).

III. HYPOTHESIS & OBJECTIVES

With the phenomenological method three main themes emerged as being important in understanding patients' experiences of daily life with diabetes and experiences of individual counseling. These themes were:

- Becoming a self-regulating practitioner,
- Managing the rules of self-management
 - Creating a supportive social network.

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IV. RESEARCH METHODOLOGY

Data Collection: Data were collected during focus group interviews between May 2012 and May 2014. The interactive and synergistic nature of focus group interviews allowed us to explore patients' experiences with diabetes in a spontaneous and emotional way (Kvale&Brinkmann, 2009). Focus group interviews allowed access to a wide variety of ideas, views and experiences on self-management among patients with diabetes (Bojlen, 2003) and insight into how a consensus was reached (or not) on issues relating to everyday life with diabetes (Morgan & Spanish, 1984). All participants in the focus group interviews had already participated in the four-day diabetes education program and thus several of the participants knew each other beforehand. Data collection from existing groupings, in our case education groups, gave us insight into the patients' prior exchange of views on particular subjects (Kitzinger, 1994).

Participants: Patients who were randomized to the one-year intervention program of five individual sessions based on motivational interviewing were invited to participate in the focus group interviews; consecutive patients were invited until a sufficient number of focus groups were conducted, i.e. when theoretical saturation was reached. Eight patients declined because of lack of time and 2 patients declined because of serious illness in the family. A total of 22 patients with diabetes participated in the focus group interviews. Five patients participated only in an interview before the intervention; 9 participated only in an interview after the intervention and 8 participated in interviews before and after the intervention. All interviews were established to give a temporarily impression of the experiences with diabetes, diabetes self-management and treatment. All interviews were given equal weight in the analysis. Approximately one-third of the patients were treated with insulin (with or without oral medication), one-third with oral medication only and one-third regulated diabetes through diet and exercise. Educational levels ranged from secondary school to university degree and connection to the labor market was varied, including retirement, disability pension, working full-time and working part-time work in a flexible job (for people with reduced ability to work). Sixteen patients were married or lived with a partner and 6 lived alone. None of the patients came from an ethnic minority.

Data Analysis: Data analysis was inspired by Giorgi's phenomenological method. This method was used to examine the meanings expressed by participants in relation to managing diabetes in everyday life. According to Giorgi, such analysis comprised a minimum of five basic steps: (a) collection of verbal data, (b) reading of the data, (c) dividing of data into parts, (d) organization of data from a disciplinary perspective and (e) synthesis of the data (Giorgi, 1985; Giorgi, 1997). The analytic process was not linear but could go back and forth between these steps.

V. DISCUSSION

The results of this meta-analysis support that self-care management intervention improves glycaemic control in patients with type 2 diabetes. There was a 0.36% (95% CI 0.21–0.51) improvement in glycaemic control indexed by glycated haemoglobin in people who received self-care management treatment. The estimated 0.36% reduction in glycated haemoglobin in patients with type 2 diabetes was modest, but evidence suggests that such a difference is large enough to reduce the risk of development and progression of diabetic micro vascular complications. The improvement in glycaemic control found in this study is similar to the effect seen in previous studies analyzing educational and behavioral interventions in type 2 diabetes. There is significant heterogeneity among the studies with respect to effect sizes. This implies that there may be some factors, which need to be in place to ensure any effect or substantial effect of self-care interventions. We could identify two factors with significant effect on the effect sizes: sample size and follow-up period. Analysis of the sample size ($p = 0.007$) showed higher effects in small studies. This may point to publication bias, but the formal tests on publication bias did not indicate this. Sample size seemed to be associated with intervention duration. There was a tendency that the smaller the study, the shorter intervention duration and the closer the sessions were grouped together. This may indicate that self-care management interventions may have a higher effect if the programme is compact with sessions closely grouped together. With regards to internal validity most studies included in the analysis did not report on all potential sources of bias. Therefore, a validity rating as such has not been taken into account. To protect against unintended differences in interventions and control groups those providing and receiving care can be blinded. This is not possible in diabetes self-care intervention studies. Performance bias was therefore not used as a validity criterion. Detection

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bias was checked by inspection of the description of blinding procedure when it comes to persons responsible for assessing outcomes. To minimize risk of bias these persons should be unaware of the assigned intervention. Glycated haemoglobin outcomes may not be that sensitive to detection bias, as the assessment procedure often includes external laboratories. Actually, very few studies reported on a blinding procedure. There is a wide variation of clinical subgroups, intervention regimes and intervention providers in the studies included in the meta-analysis. Therefore it is difficult to establish which type of regime is the most effective, which subgroup of patients most likely to benefit from the intervention regime and who should provide the intervention. Further research is needed to establish knowledge about these factors to be able to guide development of interventions that work.

VI. CONCLUSION

Self-care management interventions have an effect. The results of the present study support that this is especially true under conditions which imply a compact programme with sessions closely grouped together. However, the effect may decrease over time. The benefits of promoting self-care management in patients with type 2 diabetes are reflected in glycaemic control and thereby hopefully also in morbidity and mortality. The role of intervention techniques seems to be of less importance, although our results indicate an advantage for educational techniques. The intervention form may have impact on the effectiveness and practicability in clinical practice.

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