Effectiveness Of Social Support Groups To Improve Self-Management In Diabetes Mellitus Patients: A Systematic Review

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Abstract

Backgrounds; : Diabetes mellitus (DM) is a chronic disease whose prevalence continues to increase. Management of DM requires good self-management from the patient to achieveoptimal glycemic control. Social support groups are believed to be able to improve self- management of DM patients; **Objectives**The aim of this systematic review is to assess theeffectiveness of social support groups in improving self-management of DM patients. **Methods**; : Inclusion criteria included: (1) participants with a diagnosis of type 1 and 2 DM; (2) intervention in the form of social support groups; (3) control group without intervention; (4) output in the form of DM self-management. This review is in accordancewith PRISMA guidelines on discussing systematic reviews **Results**; This systematic review found evidence that social support groups are quite effective in improving self- management of DM patients. More high-quality studies are needed to strengthen this evidence **Conclusions**; Social Support Groups, Peer Support groups, Mutual Aid Groups, Group Therapy, Community Support Programs, self-management, self-care, self-regulation, self-control, self-guidance, self-efficacy, dm, diabetes mellitus, type 1 diabetes, type 2 diabetes, high blood sugar, hyperglycemia

Keywords: Social Support Groups; Self-Management; Diabetes Mellitus

BACKGROUND

Elevated blood glucose levels above normal are a feature of several diseases, especially diabetes mellitus and various other conditions known as hyperglycaemia. Currently, Diabetes Mellitus (DM) is one of the biggest health hazards worldwide. According to the World Health Organisation (WHO), the number of type 2 DM patients in Indonesia will increase from 8.4 million in 2000 to approximately 21.3 million in 2030. DM patients also often experience serious acute and chronic complications, which can lead to death. In an effort to overcomeDM due to disease, all parties, both the community and the government, must participate because DM disease will affect the quality of human resources and increase health costs (Minister of Health of the Republic of Indonesia, 2020).

Putri L. R. & Hastuti Y. D (2016); Toobert DJ, et al. (2000) cited by (Istiyawanti et al., 2019) states that Diabetes Self-Care Management aims to keep blood glucose levels within normal limits. Self-Care Management activities that must be carried out by patients suffering from Diabetes Mellitus include dietary arrangements, physical activity or exercise, monitoring blood glucose levels, foot care, and medication.

Social Support according to Diatiningsih, Kusnanto, & Bakar (2019) in (Fakhriatul et al., 2022) can provide long-term support for Diabetes Mellitus patients. Social support is one way to improve Self-Management of Diabetes Mellitus patients. One way in which Social Support can be provided is through support from a group of people suffering from the same disease. Previous researchconducted by (Garizábalo-Dávila et al., 2021) has identified that from the theoretical aspects for people with type 2 diabetes mellitus to stay under control:

(a) knowledge and beliefs; (b) self-management skills; and (c) social support. It should be noted that if the Social Support intervention shows efficacy in improving self management of Type 2 Diabetes Mellitus, then similar interventions can be applied to other chronic diseases. A similar review was also conducted by (van Puffelen et al., 2019) who analysed how self-management principles and social support can be integrated in a group intervention to improve the self-managemnt ofpeople with type 2 diabetes mellitus. This pilot intervention showed gaps in diseaseperception, difficulties in goal setting and action planning, and low willingness to participate.

Many studies on Social Support through groups in patients with type 2 diabetes mellitus to improve self-management have been conducted. This study sought to focus and understand more about the effectiveness of such interventions systematically over the past 10 years.

This systematic review aims to examine the effectiveness of Social Support Groups intervention to improve Self-Management in Diabetes Mellitus patients. The benefit of this systematic review is to see which Social Support Groups intervention model is effective and can be applied by nurses in community areas to prevent and treat Diabetes Mellitus patients. This systematic review is based on a research design that includes the intervention model, duration of delivery, outcomevariables, and evaluation of the impact and effectiveness of the Social Support Groups intervention.

METHODS

Design

This systematic review used the Preferred Reporting Items for Systematic Reviews (PRISMA checklist 2020) guide, which can be accessed at http://www.prisma-statement.org/.

This paper uses a systematic review to incorporate important findings on social support group interventions that may influence patient self-management. This review is based on the PRISMA guidelines for systematically written review reports. The authors utilised the PRISMA Guidelines for study review protocols. The PRISMA Guidelines are a tool for systematic review and analysis of evidence-based reporting. The aim is to help authors improve the quality of systematic reviewreporting (Moher et al., 2009).

In writing this systematic review, the PICO research format was used in thereview protocol: Population (Diabetes Mellitus), Intervention (Social Support Groups), Control (ÿ), and Outcome (Self-Management). There were 5 articles on Social Support Groups intervention to improve Self-Management reviewed in this study, which included two articles using randomised controlled trial (RCT) designand three articles using quasi-experimental design.

Search and Strategy

The search was conducted in several international databases includingPubMed, Science Direct, Scopus, EBSCOhost, and ProQuest. To find relevant articles published within 10 years from the search date of 18 December 2023 (2013-2023). This search was conducted over two days and found 148 articles. After titlesand abstracts that did not match the research question were removed, 24 articles remained. After further screening, we excluded 6 studies due to duplicate, qualitative and not in Diabetes Mellitus patients. In the end, five studies were assessed for eligibility and fulfilled the predefined criteria. We used the following keywords in the search process:

('dm' OR 'diabetes mellitus' OR 'type 1 diabetes' OR 'type 2 diabetes' OR'high blood sugar' OR 'hyperglycemia') AND ('Social Support Groups' OR 'PeerSupport groups' OR 'Mutual Aid Groups' OR 'Group Therapy' OR 'Community Support Programs') AND ('self-management' OR 'self-care' OR 'self-regulation' OR 'self-control' OR 'self-guidance' OR 'self-efficacy').

Inclusion and exclusion criteria

1) participants with a diagnosis of type 2 DM; (2) intervention in the form of social support group; (3) control group without intervention; (4) output in the form of DM self-management; behaviour change, lifestyle management, adherenceto medication (5) title and abstract in accordance with the research question, Exclusion criteria are (1) non-human research, 2. full-text research, 3) duplicate research, 4) review research, dissertation, thesis, letter to the editor

Data extraction

We extracted the following data from each of the included studies: author, year, country, study design, population/sample, intervention model, duration of administration, measurement methods, instruments, controls, and outcome measures. Data analyses were performed by the authors.

Quality assessment

In this systematic review, guidelines were used to evaluate the quality of articles among the selected studies. Researchers used the Critical Appraisal Skills Programme Tool for Randomised Controlled Trials Checklist and the JBI Critical Appraisal Checklist for Quasi-Experimental Studies to assess the quality of evidence in RCTs and Quasi-experimental studies. The Cochrane Risk of Bias Assessment Tool was used to evaluate the risk of bias in all included studies.

RESULTS AND DISCUSSION

Study Selection

In the initial search, we found 148 relevant studies. After identifyingunsuitable titles and abstracts, we excluded 138 studies. The remaining studies werethen screened based on the inclusion and exclusion criteria. The result was five studies consisting of three RCTs and two quasi-experimental studies.

Study characteristics The five studies were published between 2013 and 2023. The total number of participants was 514 patients with Type 2 diabetes mellitus (DM) who were adults and living with their families. More specific detailson each article are in Table 1.

Intervention model

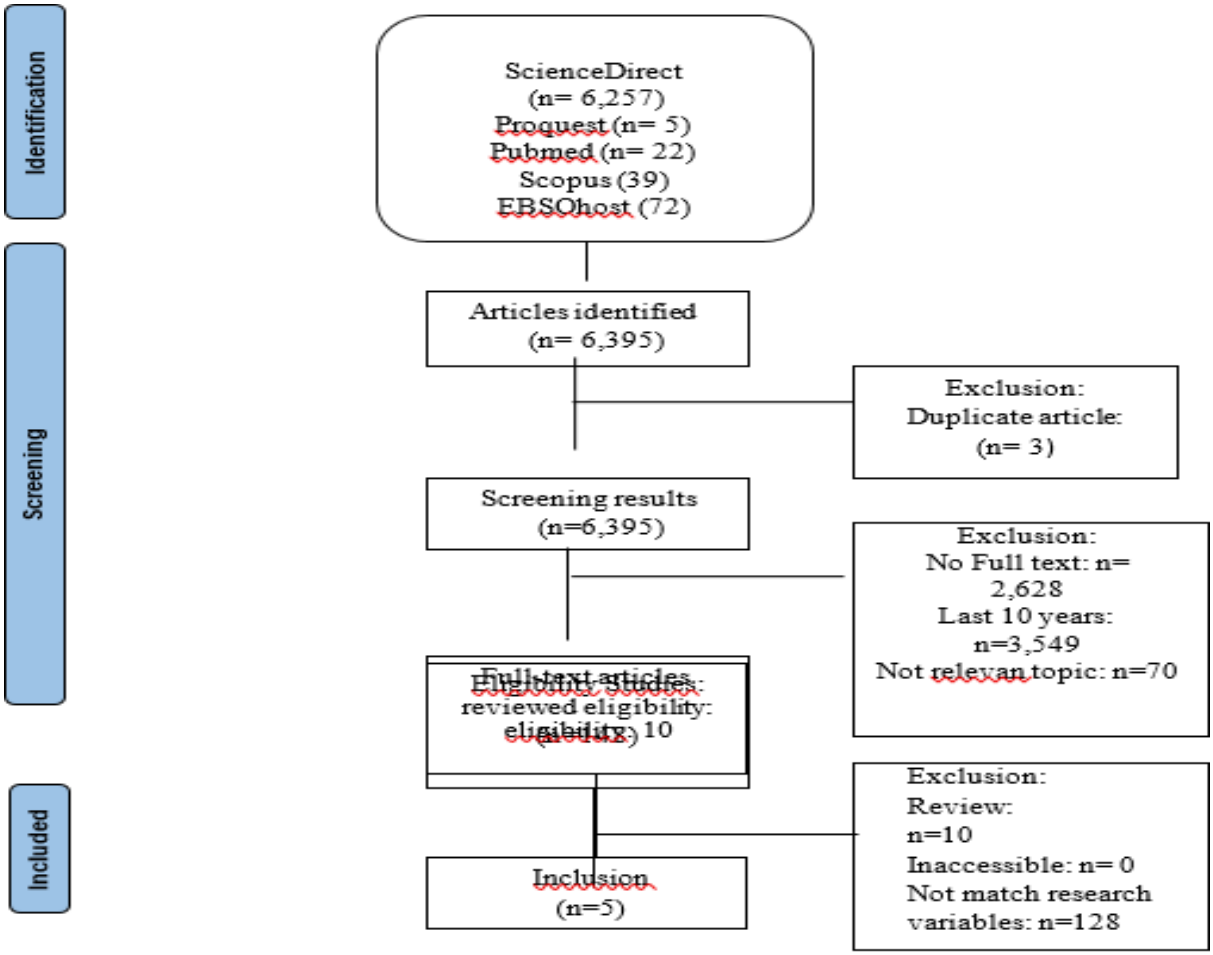
The intervention model regarding Social Support Groups varies in each study in the management of this intervention in Diabetes Mellitus (DM) patients. as for the way of providing the intervention varies.

Duration of intervention

The five studies showed that the longest duration of intervention was 12 months and the shortest duration of intervention was three months. In comparison,the other study was 6 months.

Outcome variables

Five studies had HbA1c as the main variable, in self-management. However, some articles also measured body mass index, physical activity, smoking, alcohol consumption, and DM treatment, quality of life, knowledge, and so on. Evaluating the impact and effectiveness of self-management interventions. These five studies showed that Social Support Groups intervention can improve self- management.



Picture 1 : Flowchart

Author Year Country	Research design	Sample	InterventionModel	Duration of meeting	Instrument	Results
(Van Puffelen etal., 2019) Netherlands	A trial of a group intervention for people with early-stage type 2 diabetes mellitus.The study used a mixed-methods approach, including observations, audio recordings of sessions, evaluation forms completed by participants, and evaluation meetings with group leaders to collect data on the appropriatenes soft the intervention.	16 patients with type 2 diabetes mellitus participated in the pilot intervention	Social Cognitive Self-regulation Theory, and social support theory,and involves a group-based format with partner inclusion.	1 face-to-face 3 Telephone 3 months 10-120 Minutes each session On average 30 minutes	Social Cognitive Self-regulation Theory, and social support theory,	The results demonstrate the feasibility and importance of challenging illness perceptions in individuals with early-stage type 2 diabetes mellitus through a brief interactive group intervention. Positive evaluations of the intervention and itspotential value inimproving self-management werehighlighted, as well as challengesI motivating individuals to participate. However, low participation rates raise concerns regarding engagement.
[2] Thailand	The design of the pseudo-experiment Used convenience sampling and a paired-pair design for the assignment of the control group.	Sample and quantity' at Somsak Thojampa was a sample size of 50 adults, with 25 in the control group and 25 in the experimental group.	self-management support programme based on self-regulation theory with the participation of family members.	4 Telephon 24 weeks 35-60 Minutes (week 1) 15-20 minutes (week 3,7,11)	Improved clinical outcomes such as HbA1c, SBP, DBP, SCr, and eGFR.	Self-management programmes help individuals with type 2 diabetes to improve their health by producing significant improvements in self-management activities and self-efficacy, improving physiological outcomes, and

						emphasising the importance of including family members in educational sessions to improve health outcomes
3] United States	Randomised controlled trial with post-intervention randomisation into SSG or control group.	47 adults with type 2 diabetes were initially enrolled in the study, with 25 participants randomised to the SSG and 22 to the control group.	randomised controlled trial (RCT) with two groups: one group received the diabetes-specific social support group (SSG) component for 3 months, 6 sessions, and the other group acted as a control, receiving only bi-monthly postcards reminding them to perform diabetes self-management activities.	3 face to face 6 Telephones 3 months and 6 months 1 hour per session	The outcome instruments in the study were Hemoglobin A1c (HbA1c), blood pressure, triglycerides, cholesterol, diabetes self-management knowledge and behaviour, diabetes care profile (DCP) understanding subscale, Diabetes Self-Care Activity Summary (SDSCA).	The value of the study results was that the Partners in Care (PIC) intervention resulted in significant improvements in HbA1c, diabetes-related self-management knowledge, and behaviour from baseline to the 3-month assessment. In addition, the study showed that all participants were able to maintain the initial improvements from the PIC intervention, and the SSG group experienced a significant reduction in systolic blood pressure from the3-month to 6- month assessments. The intention-to-treat analysis also showed a significant reduction in HbA1c from

						baseline to the 6-month assessment. However, there was no difference between the SSG and control groups from the 3-month to 6-month assessment. (confidence: 90)
[4] Spain	The research design in Noelia Herrero, Frederic Guerrero-Solé, Lluís Mas-Manchón (2020) was a cross-sectional study using an online survey to investigate the correlation between participating in diabetes-related online forums or social groups and the level of self awareness of care management and health problems associated with type 1 and 2 diabetes.	The study involved 307 participants, with 68% being members of diabetes-related online support groups. Among the participants, 68% were members of diabetes-related OSGs, while 32% were non- members. Of those who were members of OSGs, 90.8% were members of Facebook groups, and 41.5% were members of diabetes-related forums. The study comprised 210 participants with type 2 diabetes (68%) and 82 participants with type 1 diabetes (27%). The duration of membership in these forums varied, with 4.3% being members for less than 6 months, 58.9% between 6 months and 3 years, and 36.7% for more than 3 years. (confidence: 95).	Comparison or mean DSMQ scores between individuals who belonged to diabetes-related online support groups and those who did not, and comparison of the relationship between type 1 and type 2 diabetic individuals.	Monthly 12 months	Diabetes Self-Management Questionnaire (DSMQ)	diabetes-related online support group members are associated with lower levels of diabetes self-care management and higher health complications, especially for type 2 diabetes.2 people with diabetes. This suggests that participation in these online support groups may have a negative impact on diabetes self-management and health outcomes, especially for T2D patients.

[5] Colombia	A randomised controlled trial (RCT) with a sample size of 94 adults diagnosed with T2DM, using 1:1 random allocation to the social support intervention group and usual care group.	Sample and quantity: - - Total sample size: 94 - Social support intervention group: 47 - Usual care group: 47 support, instrumental support, and emotional support provided over four sessions, covering an overview of T2DM, healthy eating and physical activity, safe care and medication management, and emotional support in coping with various problems. The intervention is based on theoretical foundations and scientific literature, combining knowledge, self-management skills, and social support to influence self- management of people with T2DM.	The intervention model for thesocial support group in thisstudy included informational	6 face-to-face 12 weeks 1 hour per session	label Nursing Outcomes Classification (NOC), khususnya hasilNOC manajemen mandiri: diabetes (1619)	expected improvements in self-management behaviours, empowerment of adults with T2DM, and positive impacts on health outcomes and quality of life. The results also provide important information for the implementation of holistic interventions that incorporate social components as a key element in achieving self-management of T2DM.

This systematic review evaluated five studies that examined the effectiveness of social support groups in improving self-management among patients with Diabetes Mellitus (DM) types 1 and 2. Findings showed that social support groups generally provide significant benefits for DM self-management. Van Puffelen et al. (2019) found that a brief group intervention improved illness perception and self-management among early-stage type 2 DM patients. Thojampa (2017) reported significant improvements in self-management activities and physiological outcomes following a self-management support programme involving family members. Ing et al. (2016) showed that three months of diabetes-specific social support significantly improved HbA1c levels and self-management behaviours. However, Herrero et al. (2020) noted that participation in online support groups was associated with lower levels of self-management, highlightingthe importance of the form and quality of support provided. Garizábalo-Dávila et al. (2021) observed improvements in self-management behaviours and quality of life with informational, instrumental, and emotional support interventions.

These findings suggest that social support groups can be an effectiveintervention to improve self-management in DM patients, especially when supportis provided directly through face-to-face or telephone sessions. Support that involves direct interaction with fellow diabetes patients and family members seemsto be more effective than online support, which in some cases may decrease the level of self-management. This could be due to the lower quality of

interaction andlack of personalisation in online support. Studies such as those by Ing et al. (2016)and Thojampa (2017) emphasise the importance of family and community involvement in supporting behaviour change in DM patients. In addition, the duration and frequency of interventions play an important role, with longer programmes tending to yield more significant results. Overall, these findings highlight the substantial potential of social support groups to improve the quality oflife of DM patients through improved self-management, although further research is needed to understand the underlying mechanisms and optimise this intervention model.

CONCLUSION

This systematic review shows that social support groups have significant effectiveness in improving self-management in patients with type 1 and type 2 diabetes mellitus (DM). Interventions involving direct support through face-to-faceor telephone sessions, as well as the participation of family members, were found to be more effective compared to online support. Programmes that lasted longer tended to provide more significant outcomes in terms of improved self-managementbehaviours and physiological outcomes such as HbA1c. Although participation in online support groups was sometimes associated with lower levels of self- management, this study overall highlights the great potential of social support groups in improving the quality of life of DM patients through better self- management. Further research is needed to understand the underlying mechanismsand optimise this intervention model.

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