

REVIEW ARTICLE

Patients' experiences in receiving family support for type-2 diabetes mellitus: A scoping review

DOI: 10.29063/ajrh2024/v28i10s.43

Haris Suhamdani¹, Ah Yusuf², Ernawaty^{3,4} and Angger A. H. Sulisty¹

Doctorate Degree Program in Public Health, Faculty of Public Health Universitas Airlangga, Surabaya, 60115, Indonesia¹; Department of Nursing, Faculty of Nursing Universitas Airlangga, Surabaya, 60115, Indonesia²; Department of Health Policy and Administration, Faculty of Public Health Universitas Airlangga, Surabaya, 60115, Indonesia³; The Airlangga Centre for Health Policy Research Group, Surabaya, 60115, Indonesia⁴

*For Correspondence: Email: haris.suhamdani-2022@fkm.unair.ac.id; Phone: +6281917020001

Abstract

The aim of the study was to determine how patients' experiences in receiving family support for type-2 diabetes mellitus. We conducted scoping review using the Joanna briggs institute guidelines and Levac, Colquhoun and O'Brien. Five electronic databases including PubMed, Scopus, ScienceDirect, ProQuest and Sage Pub were systematically searched by keywords for literature published between 2013 to 2023. Ten articles were used to final review. Analysis revealed that family support is an important factor to improve diabetes self-management behaviour for patients with type-2 diabetes mellitus. The availability of family support primarily comes from their spouses and children. Some obstacles, such as the emotional distance between patients and their families, can be overcome by improving shared knowledge and skills in self-management. Family support also has a positive impact on behavioural control and health outcomes for patients with type 2 diabetes mellitus. (*Afr J Reprod Health 2024; 28 [10s]: 411-420*)

Keywords: T2DM; family support; patient experiences; review

Résumé

L'objectif de cette étude était de déterminer comment les expériences des patients en matière de soutien familial pour le diabète sucré de type 2. Nous avons procédé à un examen de la portée de l'étude en utilisant les lignes directrices de l'institut Joanna Briggs et Levac, Colquhoun et O'Brien. Cinq bases de données électroniques, dont PubMed, Scopus, ScienceDirect, ProQuest et Sage Pub, ont fait l'objet d'une recherche systématique par mots-clés de la littérature publiée entre 2013 et 2023. Dix articles ont été retenus pour l'examen final. L'analyse a révélé que le soutien familial est un facteur important pour améliorer le comportement d'autogestion du diabète chez les patients atteints de diabète sucré de type 2. Le soutien familial provient principalement des conjoints et des enfants. Certains obstacles, comme la distance émotionnelle entre les patients et leur famille, peuvent être surmontés en améliorant le partage des connaissances et des compétences en matière d'autogestion. Le soutien familial a également un impact positif sur le contrôle du comportement et les résultats pour la santé des patients atteints de diabète de type 2. (*Afr J Reprod Health 2024; 28 [10s]: 411-420*).

Mots-clés: DT2; soutien familial; expériences des patients; examen

Introduction

Diabetes mellitus is a public health problem categorized as a non-communicable disease. The number and prevalence of cases have continued to increase in recent decades^{1,2}. Estimates indicate that diabetes mellitus will increase to 643 million in 2030 and 783 million in 2045³, with type 2 diabetes mellitus (T2DM) accounting for around 90-95% of cases⁴. In Indonesia, available evidence indicates that the number of T2DM increased from 8,4 million in 2000 to 21,3 million in 2030⁵.

The prevalence of poor glycaemic control have been documented in various parts of the world, and include 80.3% in Ethiopia⁶, 76.6% in India⁷, 74.3% in Malaysia⁸, and 76.9% in Indonesia⁹. Self-management of T2DM is necessary in order to achieve adequate glycaemic control and lessen complication risks. Good self-management which can be conducted include physical activity, monitoring of blood glucose level, taking medications as prescribed, and managing stress^{10,11}.

Several factors negatively influence the self-management behaviour of T2DM sufferers. Some of

these factors include self-perspectives of patients, such as insufficient knowledge and skills about self-management of diabetes mellitus or lack of motivation to for self-management¹². Other factors are external factors, such as family support¹³. The absence, reduction, or loss of family support for T2DM sufferers can hinder behaviour change efforts in implementing T2DM self-management¹⁴

Patients who received family support reported a positive relationship with diabetes self-management¹⁵. When individuals with T2DM feel that they are not supported, they will feel isolated and therefore limit their ability to self-manage diabetes mellitus¹⁶. Family support that can be provided to T2DM sufferers include activities of daily living, support to access health services, preparing food, giving financial support, social attention, and provision of guidance on the nature of the problem¹⁷.

Systematic review research showed that family support is an essential factor in the management of T2DM. However, the way family members can give support on self-management of DM, and practice worldwide is presently not clear,⁸. Specifically, there is no research that documents how family support can be organized in the context of T2DM. This study will determine how patients' experiences in receiving family support for type-2 diabetes mellitus.

Methods

This scoping review followed the five-step framework proposed by Arksey and O'Malley¹⁹, following the suggestions of the Joanna briggs institute (JBI) guidelines²⁰ and Levac, Colquhoun and O'Brien²¹ to synthesize and analysis various literature. Five stages to conduct a scoping review: (1) identifying the research question; (2) identifying relevant studies; (3) selecting studies; (4) charting the data; and (5) collating, summarizing and reporting the results. Steps One to Five are explained below.

Stage 1: Identifying research question

This review was followed by JBI guideline²⁰ to answer the research question "how patients'

experiences in receiving family support for type-2 diabetes mellitus?

Stage 2: Identifying relevant study

Literature search was conducted on 5 electronic databases including PubMed, Scopus, ScienceDirect, ProQuest and Sage Pub. The keywords in literature search are "T2DM Experience" OR t2dm AND "family support" OR "Family supportive" AND "Self-Management" and combined in various ways. Literature search was conducted on July until September 2023. We limited the search period to the last 10 years or 2013-2023 and published in English.

Stage 3: Study selecting

There are 569 articles obtained based on the search results, 235 articles were duplicated in different sources and automatically removed. There are 334 articles screened by title, 160 articles were screened by abstract, 59 articles were screened by full texts, and 10 articles were included in the study. This systematic process is illustrated in Figure 1 PRISMA²².

Stage 4: Charting the data

In this stage, we extracted data from 10 articles and inputted them into a table with headings: author (years), country, purpose, methods, sample, results, and findings related to the study. These steps were carried out to map and extract the data. The first author independently created all charts, meanwhile the other authors reviewed them.

Stage 5: Collecting, summarizing and reporting the results

In this stage, we followed guideline Levac, Colquhoun and O'Brien²¹. The first step involved conducting descriptive analysis of the relevant outcomes. Secondly, we documented the findings according to the research questions, and finally, we considered the relevant findings and recommendations within the study.

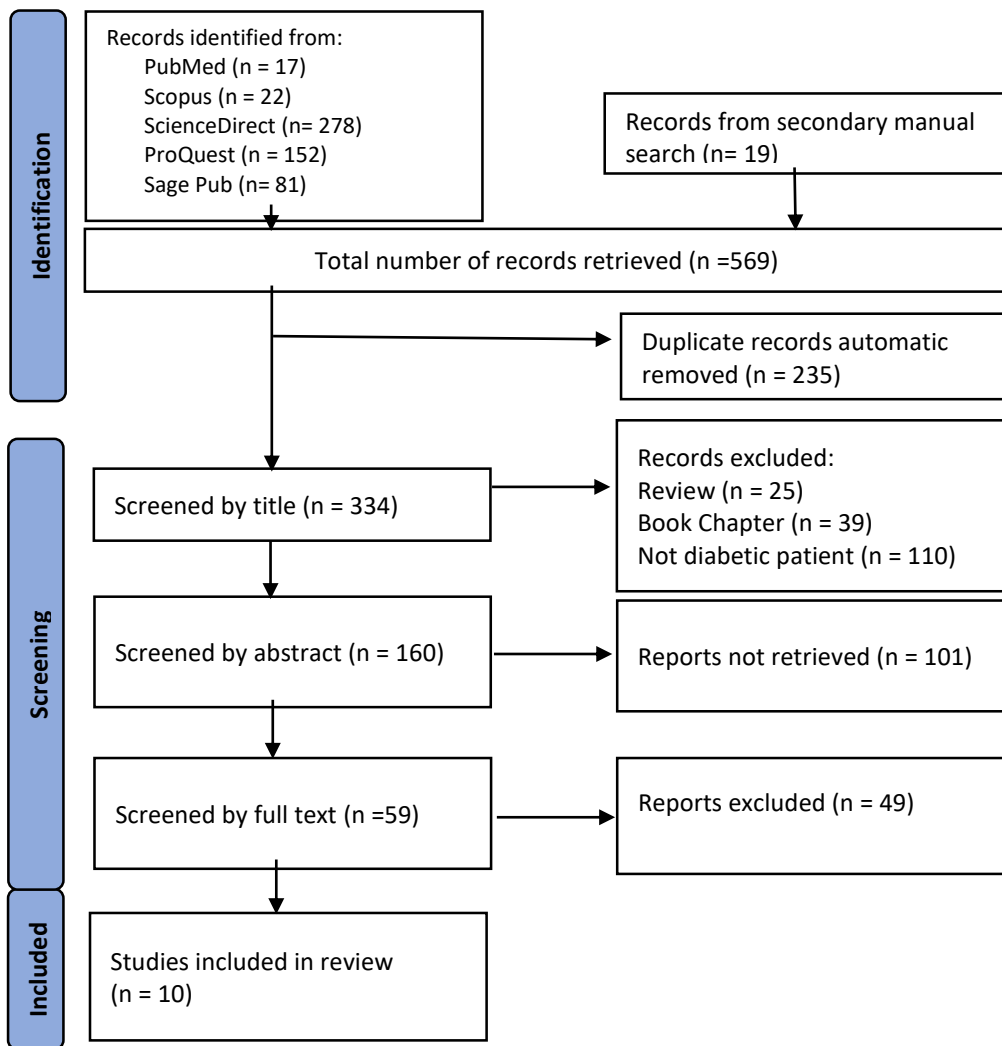


Figure 1: Preferred reporting items for systematic review and meta-analysis (PRISMA)²²

Results

This review determined how Patients’ experiences in receiving family support for type-2 diabetes mellitus. Based on ten articles included in the study, seven articles had qualitative designs²³⁻²⁹, while three articles had quantitative designs. One article was cross-sectional design³⁰; one was quasi experimental design³¹; and another was a single-blind randomized controlled clinical trial design³².

Availability of family support for T2DM patients

The main source of family support was 29,2% from couples, 28,5% from their children and from others family members^{23,24,30}. The supports given were included healthy food, a reminder and accompanying to do physical activities, accompanying to control to healthy provider, reminders on medication adherence, and provision

Table 1: Review articles

Author (Year)	Country	Purpose	Methods	Sample	Results	Findings related to Study
Mphasha, <i>et al.</i> 2022 ²³	South Africa	To explore family support in diabetes management	A qualitative study	17	Family support was perceived as the availability of healthy food, physical activity, and drug taking. Support from wives was fully felt by husbands with T2DM such as the problem of sexual dysfunction complications and the problem of lack of economic income. In contrast, the support provided by the husband was not fully felt by the wife.	Patients with T2DM received fully and partially family support depending on the giver and receiver of support.
Pesantes, <i>et al.</i> 2018 ²⁴	Peru	To know who were the family members providing support	A qualitative study	20	Family support received was received from spouses and children. support provided in the form of instrumental support such as preparing healthy food, reminding taking medication regularly, and sharing physical activities.	The availability of family support came from their spouse and children.
Pamungkas <i>et al.</i> 2021 ²⁷	Indonesia	Exploration of potential unmet needs of family functions to support T2DM self-management practices.	A qualitative study	22	Exploration of potential unmet needs of family functions to support T2DM self-management practices.	There were several family obstacles in providing support to people with T2DM
McEwen <i>et al.</i> 2014 ²⁸	USA	Refining and extending the culture of individual-level self-management to family-level self-management	A qualitative study	24	The categories that T2DM patients felt include: (1) strategies my family could use to support our managing T2DM, (2) be sensitive to my challenges, (3) stop telling me what to eat or do, (4) how could we peacefully coexist, and (5) I felt supported.' Categories of families include: (1) changing behaviours	Families could provide support by valuing, developing knowledge and skills and creating a shared commitment in the management of T2DM.

Author (Year)	Country	Purpose	Methods	Sample	Results	Findings related to Study
Zhao et al. 2022 ²⁵	China	Combining knowledge, attitudes of patients and family members and perceived family support in self-monitoring blood glucose T2DM patients.	A qualitative study	140	<p>together, (2) sharing not controlling, (3) supporting positive behaviours, and (4) your behaviours frustrate me.</p> <p>Different self-management behaviours required different family support</p> <p>The patient needed help from family members, but was reluctant to seek help</p> <p>Family members were still lack of knowledge skills and awareness in providing support, they did not know how to measure blood glucose, or they believed that the blood glucose condition of T2DM patients was fine.</p>	<p>It was needed to open communication among family members and</p> <p>There was still a lack of family knowledge about how to provide support based on the health aspects of T2DM patients.</p>
De et al. 2013 ²⁶	Brazil	Knowing how family participation in managing T2DM health.	A qualitative study	26	<p>Recognizing the importance of family presence in diabetes care</p> <p>Blaming family members who were not compliant with self-care behaviour practices</p> <p>Experience secondary benefits such as feeling cared for by family members</p>	<p>Families were sensitive to the condition of patients with T2DM</p>
Shawon et al. 2016 ³⁰	Bangladesh	Assess the attitude towards diabetes and social and family support among the Bangladeshi type 2 diabetic mellitus (T2DM) patients.	Cross-sectional	144	<p>Perceived family support came from spouses (29.2%), family members (28.5%). Results were seen in adequate blood glucose control vs inadequate blood glucose control on support need scale (4.2 vs 3.8); support received scale (3.7 vs 3.2); support attitude (4.1 vs 3.7) which showed a positive</p>	<p>Family support from spouse and other family members proved significant on self-management behaviour.</p>

Author (Year)	Country	Purpose	Methods	Sample	Results	Findings related to Study
Pamungkas and Chamroonsawasdi, 2020 ³¹	Indonesia	Examine the impact of a family functional-based coaching program on improving the perceived family functioning practice	Quasi experimental	60	relationship between social and family support on self-management behaviour Patients who received family support based on a functional coaching program on family function were shown to significantly improve their health. Problem solve ($p < 0.001$), communication ($p < 0.001$), role in DMSM practice ($p < 0.001$), affective responsiveness ($p < 0.001$), affective involvement ($p < 0.001$), and behaviour control ($p < 0.001$)	Family function -based training in providing family support to T2DM patients was effective on self-management behaviour.
Peleg, et al. 2019 ²⁹	Israel	Exposing family patterns and how to overcome T2DM disease	A qualitative Study	32	familial patterns showed a unified but emotionally disconnected pattern. They described very close and positive family relationships, but they were also reluctant to share emotional burdens. The event triggered stressful or traumatic events and day -to -day stress appeared as leading perceived causes of the illness.	The familial pattern showed a positive pattern, but there was emotional distance, they were reluctant to share their emotional burden. T2DM patients tended to cope with stress on their own and were reluctant to discuss emotional problems
Gomes et al 2017 ³²	Brazil	Evaluation of the contribution of family social support to metabolic control of patients with T2DM	single-blind randomized controlled clinical trial	222	The results showed that the intervention group vs control group on the reduction of systolic blood pressure (6.445 vs 6.002) diastole (5.914 vs 3.667) and HbA1c in 6 months (0.35 vs -0.02) 12 months (0.70 vs 0.41). these results proved the positive impact of family support in controlling the disease.	Family support was effective in reducing glycaemic control on systole and diastole blood pressure and HbA1c.

of financial help^{23,24}. The studies also showed that the main source of family support was couples creating good relation and facing financial problem together while overcoming the difficulties in carrying out diabetes self-management³³.

The differences between support provider and acceptor must be adapted to the condition of T2DM patients^{23,28,30}. The husband felt that the family support included economic difficulties and solutions to complications such as sexual disfunction. Meanwhile, the wife with T2DM felt a half support from her husband²³. Other findings suggest that the wife was always together in every condition³³.

Patients with T2DM admitted the importance of family support in carrying out good self-management. Sometimes the family would blame the family member with T2DM who's not adherence with the treatment, with the patient feeling noticed with their T2DM condition²⁶.

Obstacles in receiving family support for T2DM patients

The family pattern showed positive patterns, however, there was emotional distance. Patients with T2DM were reported to be reluctant to share the emotional burden they felt. T2DM patients tended to deal with stress alone and were reluctant to discuss emotional problems²⁹. In line with this, the family were considered less sensitive to the patient's condition²⁵.

Other constraints faced by family members in providing support, were the lack of knowledge and skills to help the self-management behaviour of patients in medication adherence and helping control blood glucose levels^{25,27}. Families could provide support by valuing, develop knowledge and skills by making a joint commitment to help T2DM patients carry out self-management²⁸.

The positive impact of family support on T2DM patient

The positive impact of family support could be felt by T2DM patients and their families. The perceived impact influenced various aspects such as problem-solving, communication, role in diabetes mellitus

self-management practices, affective responsiveness, affective involvement, and behaviour control³¹. In addition, family support also had a positive impact on improving the physical condition of T2DM patients in reducing blood pressure and achieving better controlled glycaemic control of HbA1c³². Table 1.

Discussion

The results of this review indicate that patients recognize the importance of family support in self-management of T2DM. The support provided were in the form of instrumental support such as preparing healthy food, reminding patients to take medications regularly, and sharing physical activities²⁴. Previous studies have also proven that family support can improve patient's self-efficacy, perceived social support, diabetes knowledge, and diabetes self-care management³⁴. Family members can actively encourage, support, and assist the family member with diabetes and are often asked to share in the responsibility of diabetes management. Family support is critical to face the successful self-care management at home³⁵. Families play important roles in supporting self-management and supporting the psychological burden experienced by people affected with T2DM³⁶.

Some obstacles that still occur between family and diabetics include emotional distance. Emotional distance refers to the gap in emotional support and communication between individuals with diabetes and their family members, which is characterised by fear of burdening the family with emotional issues or lack of open dialogue about the condition. To overcome these obstacles, creating open and empathetic communication within the family is essential. Patients should feel comfortable sharing their experiences, concerns, and needs with their family members. Families can provide support by valuing, developing knowledge, and skills by making a joint commitment to help T2DM patients carry out self-management²⁸.

The positive impact of family support can be felt by T2DM patients and their families. Families providing support can act as agents of change to improve patient behaviour. Studies in Indonesian society indicate that family members are the key

influencers in patients' daily lives and self-management practices due to traditional and cultural beliefs. Patients and family members closely engage in family activities together, especially in daily meal preparation. Affective responsiveness and positive communication between patients and their family members create a pleasant family atmosphere to facilitate behavioural changes in patients and maintain family involvement in patient behaviour control³¹. Furthermore, family support also has a positive impact on improving the physical condition of T2DM patients³². This occurs because family support changes the self-management behaviour of T2DM patients to become controlled. Previous studies also suggest that family support improves self-management behaviours and health outcomes¹⁶.

There are several limitations in this scoping review. Firstly, the inductive nature of scoping review, with diverse sources from various countries with different sociodemographic and cultural conditions, leads to a lack of specificity. Secondly, scoping reviews are conducted without journal quality assessment, hence caution is needed when interpreting findings from studies of poor quality. Thirdly, the family support described is generally depicted without detailed illustration of the specific type of family support intended.

The implications of the findings of this scoping review can serve as a theoretical basis for enhancing knowledge and skills in providing the needed family support for T2DM sufferers.

Conclusion

The availability of family support is an important factor to improve diabetes self-management behaviour for T2DM sufferers. Family members can provide instrumental support such as preparing healthy food, reminding to take medications regularly, participating in physical activities together, and offering emotional support to reduce the emotional burden felt. Some obstacles can be overcome collaboratively between family members and T2DM patients so that they can experience the positive impact of family support. There is a need to increase the knowledge and skills of family members in providing family support to T2DM sufferers.

Contribution of authors

Haris Suhamdani: conceptualized, collected and analysed the data

Ah Yusuf: conceptualized and designed the study

Ernawaty: designed the methodology

Angger Anugerah Hadi Sulisty: reviewed empirical studies.

Acknowledgement

The authors did not receive any specific funding for this work, though the first author is supported through an Beasiswa Pendidikan Indonesia (BPI) to undertake his PhD Studies.

References

1. WHO. *Global Report on Diabetes.*; 2016. Accessed August 14, 2023. <https://apps.who.int/iris/rest/bitstreams/909883/trieve>.
2. WHO. Diabetes. World Health Organization. Published 2023. Accessed March 3, 2023. https://www.who.int/health-topics/diabetes#tab=tab_1
3. IDF. *IDF Clincial Practice for Managing Type-2 Diabetes in Primary Care.*; 2017.
4. CDC. *Type 2 Diabetes.*; 2023. Accessed September 6, 2023. <https://www.cdc.gov/diabetes/basics/type2.html>
5. Wild S, Bchir MB, Roglic G, Green A, Sicree R and King H. *Global Prevalence of Diabetes Estimates for the Year 2000 and Projections for 2030.*; 2004. <http://diabetesjournals.org/care/article-pdf/27/5/1047/566025/zdc00504001047.pdf>
6. Borgharkar SS and Das SS. Real-world evidence of glycemic control among patients with type 2 diabetes mellitus in India: The TIGHT study. *BMJ Open Diabetes Res Care.* 2019;7(1). doi:10.1136/bmjdr-2019-000654
7. Alemu T, Tadesse T and Amogne G. Glycemic control and its determinants among patients with type 2 diabetes mellitus at Menelik II Referral Hospital, Ethiopia. *SAGE Open Med.* 2021;9:205031212110230. doi:10.1177/20503121211023000
8. Amsah N, Md Isa Z and Kassim Z. Poor Glycaemic Control and its Associated Factors among Type 2 Diabetes Mellitus Patients in Southern Part of Peninsular Malaysia: A Registry-based Study. *Open Access Maced J Med Sci.* 2022;10(E):422-427. doi:10.3889/oamjms.2022.8696
9. Mahmudiono T, Setyaningtyas SW, Rachmah Q, Nindya TS, Megatsari H, Indirani D, Rifqi MA and Kriengsinyos W. Self-efficacy in physical activity

- and glycemic control among older adults with diabetes in Jagir Subdistrict, Surabaya, Indonesia. *Heliyon*. 2021;7(7). doi:10.1016/j.heliyon.2021.e07578
10. Eva JJ, Kassab YW, Neoh CF, Neoh CF, Ming LC, Wong YT, Hameed MA, Hong YH and Sarker MMR. Self-care and self-management among adolescent T2DM patients: A review. *Front Endocrinol (Lausanne)*. 2018;9(OCT). doi:10.3389/fendo.2018.00489
 11. Paudel G, Vandelanotte C, Dahal PK, Biswas T, Yadav UN, Sugishita T and Rawal L. Self-care behaviours among people with type 2 diabetes mellitus in South Asia: A systematic review and meta-analysis. *J Glob Health*. 2022;12. doi:10.7189/jogh.12.04056
 12. Pamungkas RA, Chamroonsawasdi K, Vatanasomboon P and Charupoonphol P. Barriers to effective diabetes mellitus self-management (Dmsm) practice for glycemic uncontrolled type 2 diabetes mellitus (t2dm): A socio cultural context of Indonesian communities in west Sulawesi. *Eur J Investig Health Psychol Educ*. 2020;10(1):250-261. doi:10.3390/ejihpe10010020
 13. Pesantes MA, Del Valle A, Diez-Canseco F, Bernabé-Ortiz A, Portocarrero J, Trujillo A, Cornejo P, Manrique K and Miranda JJ. Family Support and Diabetes: Patient's Experiences From a Public Hospital in Peru. *Qual Health Res*. 2018;28(12):1871-1882. doi:10.1177/1049732318784906
 14. Mphasha MH, Mothiba TM and Skaal L. Family support in the management of diabetes patients' perspectives from Limpopo province in South Africa. *BMC Public Health*. 2022;22(1). doi:10.1186/s12889-022-14903-1
 15. Ravi S, Kumar S and Gopichandran V. Do supportive family behaviours promote diabetes self-management in resource limited urban settings? A cross sectional study. *BMC Public Health*. 2018;18(1). doi:10.1186/s12889-018-5766-1
 16. Young CF, Shubrook JH, Valencerina E, Wong S, Lo SNH and Dugan JA. Associations between social support and diabetes-related distress in people with type 2 diabetes mellitus. *Journal of the American Osteopathic Association*. 2020;120(11):721-731. doi:10.7556/jaoa.2020.145
 17. Kristianingrum ND, Wiarsih W and Nursasi AY. Perceived family support among older persons in diabetes mellitus self-management. *BMC Geriatr*. 2018;18. doi:10.1186/s12877-018-0981-2
 18. Pamungkas RA, Chamroonsawasdi K and Vatanasomboon P. A systematic review: Family support integrated with diabetes self-management among uncontrolled type II diabetes mellitus patients. *Behavioral Sciences*. 2017;7(3). doi:10.3390/bs7030062
 19. Arksey H and O'Malley L. Scoping studies: Towards a methodological framework. *International Journal of Social Research Methodology: Theory and Practice*. 2005;8(1):19-32. doi:10.1080/1364557032000119616
 20. Peters M, Godfrey CM, Mcinerney P and Soares CB. *Methodology for JBI Scoping Reviews*.; 2015. <https://www.researchgate.net/publication/294736492>
 21. Levac D, Colquhoun H and O'Brien KK. Scoping studies: Advancing the methodology. *Implementation Science*. 2010;5(1). doi:10.1186/1748-5908-5-69
 22. Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, Shamseer L, Tetzlaff JM, Akl EA, Brennan SE, Chou R, Glanville J, Grimshaw JM, Hróbjartsson A, Lalu MM, Li T, Loder EW, Mayo-Wilson E, McDonald S, McGuinness LA, Stewart LA, Thomas J, Tricco AC, Welch VA, Whiting P and Moher D. The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *The BMJ*. 2021;372. doi:10.1136/bmj.n71
 23. Mphasha MH, Mothiba TM and Skaal L. Family support in the management of diabetes patients' perspectives from Limpopo province in South Africa. *BMC Public Health*. 2022;22(1). doi:10.1186/s12889-022-14903-1
 24. Pesantes MA, Del Valle A, Diez-Canseco F, Bernabé-Ortiz A, Portocarrero J, Trujillo A, Cornejo P, Manrique K and Miranda JJ. Family Support and Diabetes: Patient's Experiences From a Public Hospital in Peru. *Qual Health Res*. 2018;28(12):1871-1882. doi:10.1177/1049732318784906
 25. Zhao Q, Yu X, Feng Y, Zhao Y, Lu J, Gou Y and Li X. Patients' and family members' knowledge, attitudes and perceived family support for SMBG in type 2 diabetes: a fuzzy-set qualitative comparative analysis. *BMJ Open*. 2022;12(12). doi:10.1136/bmjopen-2022-063587
 26. De A, Santos L and Marcon SS. *How People with Diabetes Evaluate Participation of Their Family in Their Health Care*. Vol 31.; 2013.
 27. Pamungkas RA, Chamroonsawasdi K and Usman AM. Unmet basic needs and family functions gaps in diabetes management practice among Indonesian communities with uncontrolled type 2 diabetes: A qualitative study. *Malaysian Family Physician*. 2021;16(3):23-35. doi:10.51866/oa1123
 28. McEwen MM and Murdaugh C. Partnering With Families to Refine and Expand a Diabetes Intervention for Mexican Americans. *Diabetes Educ*. 2014;40(4):488-495. doi:10.1177/0145721714528996
 29. Peleg O, Hadar E and Cohen A. Individuals With Type 2 Diabetes: An Exploratory Study of Their Experience of Family Relationships and Coping With the Illness. *Diabetes Educator*. 2020;46(1):83-93. doi:10.1177/0145721719888625
 30. Shawon MSR, Hossain FB, Adhikary G, Gupta RD, Hashan MR, Rabbi MF and Ahsan GU. Attitude towards diabetes and social and family support among type

- 2 diabetes patients attending a tertiary-care hospital in Bangladesh: A cross-sectional study. *BMC Res Notes*. 2016;9(1). doi:10.1186/s13104-016-2081-8
31. Pamungkas RA and Chamroonsawasdi K. Family functional-based coaching program on healthy behaviour for glycemic control among Indonesian communities: A quasi-experimental study. *Oman Med J*. 2020;35(5):1-11. doi:10.5001/omj.2020.115
32. Gomes LC, Coelho ACM, Gomides D dos S, Foss-Freitas MC, Foss MC and Pace AE. Contribution of family social support to the metabolic control of people with diabetes mellitus: A randomized controlled clinical trial. *Applied Nursing Research*. 2017;36:68-76. doi:10.1016/j.apnr.2017.05.009
33. Kumar L and Mohammadnezhad M. Perceptions of patients on factors affecting diabetes self-management among type 2 diabetes mellitus (T2DM) patients in Fiji: A qualitative study. *Heliyon*. 2022;8(6). doi:10.1016/j.heliyon.2022.e09728
34. Baig AA, Benitez A, Quinn MT and Burnet DL. Family interventions to improve diabetes outcomes for adults. *Ann N Y Acad Sci*. 2015;1353(1):89-112. doi:10.1111/nyas.12844
35. Busebaia TJA, Thompson J, Fairbrother H and Ali P. The role of family in supporting adherence to diabetes self-care management practices: An umbrella review. *J Adv Nurs*. 2023;79(10):3652-3677. doi:10.1111/jan.15689
36. Newson L, Brown JE and Dugdale S. Being the supporter: an interpretative phenomenological analysis of the role of caregivers in the self-management of type 2 diabetes. *Psychol Health*. Published online 2023. doi:10.1080/08870446.2023.2231004.