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REVIEW ARTICLE

A Narrative Review of the Support Structure Available to Newly Diagnosed Individuals with Diabetes

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Abstract:

Background:

The patient is discharged after a diagnosis has been confirmed with instructions to return and begin therapy. Newly diagnosed patients experience substantial emotional hardship, which results in denying the condition, accepting it slowly, and subsequently delaying the start of treatment. Late treatment commencement worsens and becomes expensive to manage. Support systems for newly diagnosed is crucial for patient's well-being; the support system is still not sufficiently developed. As a result, this evaluation seeks to emphasize. This paper aims to provide a broad overview of the resources available to help such people.

Methods:

Using the Narrative Literature Review (NLR) method, information on supporting diabetes patients following diagnosis was located, looked over, assessed, and interpreted. The following databases and search engines were used to locate the literature: electronic databases, search engines, and hand searches. The study included only English publications that were published between 2012 and 2022.

Results:

This investigation includes 49 papers in all. The interval between a patient's diagnosis and the start of treatment must be long enough. The health system and families are thought to be the two most crucial sources of support for people with diabetes who have recently been diagnosed.

Conclusion:

Patients with diabetes who have just been diagnosed must have a strong support system. At first, treating diabetes might seem overwhelming, but with the correct assistance, individuals can gain the information, abilities, and confidence necessary to take control of their disease. Healthcare, family, and peer support are important components of a support system.

Keywords: Newly diagnosed individuals with diabetes, Support system, Families, Treatment, Health care system, NLR.

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1. BACKGROUND

One of the most concerning conditions is diabetes mellitus (DM), a chronic condition that is incurable but manageable [1]. Rapidly more people are being diagnosed with diabetes [2]. Diabetes may lead to complications, particularly when poorly managed. Therefore, regular medical treatment and patient self-management are necessary [3]. These would minimize the risk of complications. Diabetes outcomes and complications could get worse if self-management tasks are not appropriately undertaken. Complications affect the patient's quality of life, shorten life spans, increase mortality, and place a heavy finan-

cial burden on the individual, their family, and society [4]. Additionally, the stress of worrying about the patient's deteriorating condition may have an adverse effect on the health of family members. People with diabetes must make lifestyle changes, such as increasing physical activity, stopping smoking, dietary alterations, and adhering to medication prescriptions, to delay or prevent complications [3]. Improved life satisfaction, reduced complications, and effective glycaemic control are all strongly connected with implementing these self-management strategies or behaviors [5, 6]. It is suggested that people seek health by making routine follow-up visits to healthcare facilities for information related to self-management activities and support on overcoming challenges.

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Health information-seeking activities are how people look for information about their health, illnesses, risks to their health, and ways to promote their health [3, 7]. It has to do with how the illness manifests, spreads, and has an impact [8]. Early planning for managing and treating diabetes also aids in reducing complications and enhancing the quality of life [7]. A person's propensity to use services, enabling or impeding variables, and perceived need for care affect how easily they can obtain and use health services [9]. The sociocultural traits of an individual that exist before their sickness are known as predisposing factors. These traits include their health beliefs, attitudes, age, education, employment, and religion [9]. The logistical factors of getting therapy, such as accessibility, availability, and service costs, are among the enabling factors [10]. The need variables that result from functional and health problems, such as the severity of the illness and the frequency of symptoms, are the main drivers of the use of health services [11]. Despite the referral system, the majority of patients with diabetes regularly disregarded the formal structure for healthcare delivery in the management of their illness. According to an Iranian study conducted in East Azerbaijan, more than half of the patients went straight to the specialist doctor's office [12]. On the other hand, a study conducted in Kenya found that most patients exhibited proper health-seeking behavior and sought treatment from public institutions [13]. Because the majority of patients are asymptomatic when they are initially diagnosed, lack of need and disease denial are important obstacles to controlling the condition [9]. Similarly, a lack of community awareness of diabetes may influence delayed acceptance. Hence it is critical to strengthen community diabetes awareness. Acceptance may linger due to denial and other circumstances, which could prevent therapy from beginning when it should.

The concepts of denial and acceptance are antagonistic [9]. A patient must accept their sickness without feeling powerless or incompetent. Accepting both the good and the bad parts of their condition falls under this category. Patients must accept their illness and have a high level of self-efficacy in order to get therapy and care [14]. A sickness that stops someone from performing their duties and imposes many constraints may drastically alter someone's life overnight [15]. As a result, accepting disorders is difficult. The patient's capacity to accept their situation will enhance their capacity to carry out daily tasks [16]. It was found that acceptance is associated with early insulin administration, which helps to avoid and minimize long-term diabetic problems [17]. Acceptance and patient support networks go hand in hand.

Social support can be used to predict or forecast how diabetes patients would self-care for their health. Therefore, it may be crucial to promote self-care among family members, especially the spouse, while providing patient care [9]. Many studies have emphasized that diabetes may have an impact on a person's family as well [18 - 20]. A chronic illness makes it difficult for a person to maintain independence, affecting their capacity to look after their family and future plans. As a result, they feel different from other people [4]. The constant assistance of the medical profession is crucial and

advantageous. Glycaemic control may be aided by routine medical examinations in a hospital or clinic [21]. Depending on the severity of the disease, managing diabetes may necessitate the involvement of several healthcare experts, including dietitians, social workers, physicians, and other specialists [22]. Patients would be better able to sustain the diversity of essential self-care activities required if a range of healthcare practitioners were engaged in their care.

After diagnosis, individuals are released with instructions to return and start treatment. However, patients receive diagnoses with shock and huge emotional pain. The person's emotional background may interfere with self-care behaviors and treatment compliance [1]. Moreover, diagnosed persons usually deny diagnosis and refuse acceptance of their diabetic status. The development of this adaptive state is the result of gradual behavioral changes that raise self-awareness and encourage acceptance of a chronic illness [23]. A variety of feelings, such as fury, depression, perplexity, worry, and eventually acceptance, may be felt by those who have just received a diagnosis [23]. The absence of distress when considering or discussing one's condition is a sign that one has accepted their illness [24]. The options offered to assist newly diagnosed patients experiencing denial and postponed treatment commencement are disorganized and unclear. The advancement of their particular illnesses and the formation of long-term health problems may be influenced by denial and delayed treatment. This paper seeks to thoroughly review the tools available to assist such individuals.

2. METHODOLOGY

The information providing post-diagnosis support for patients with diabetes was located, analyzed, assessed, and interpreted using the Narrative Literature Review (NLR) technique [25]. The NLR was chosen because it enables the reviewer to access literature from a variety of sources; the reviewer controls the literature of interest and does not review all of the available literature. Only relevant literature is chosen, including those giving different perspectives [25].

2.1. Database Searches

The following databases and search engines were employed to locate literature: Biomed, BMC, PLoS ONE, BMJ Open, Etho Med, Elsevier, Science Direct, and SABINET are electronic databases.

- Google Scholar, UL E-Libraries, Chrome, and Google Books are all search engines.

- Manual searches: Reference lists compiled from retrieved literature

2.2. Key Search Terms

Throughout the literature search, the following keyword combinations were utilized in various combinations:

Publications written in English that are pertinent to the stated key search terms and were published between 2012 and 2022 include publications on support for persons with diabetes, seeking health, and seeking social and familial assistance.

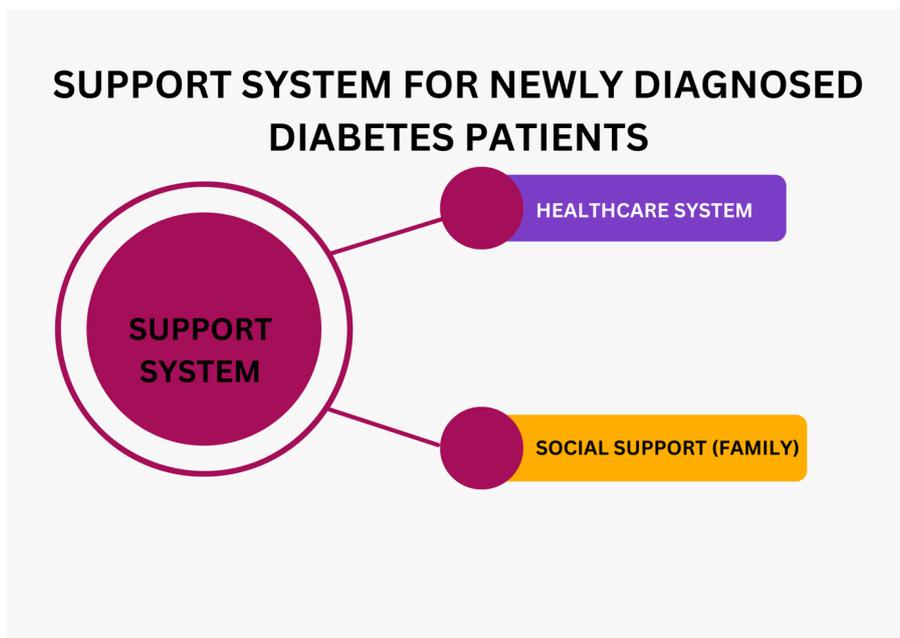


Fig. (1). Support systems for newly diagnosed patients with diabetes.

2.3. Inclusion Criteria

Publications related to the stated key search items, written in English and published between the years 2012 and 2022.

2.4. Findings

The following are the findings of the literature search:

- For the study literature, 43 studies, both quantitative and qualitative, and two books were reviewed.

The following are the themes of the literature:

- (1) Social support.
- (2) Health system.

3. DISCUSSIONS

3.1. Social Support

Social support is defined as knowledge that makes people feel respected and valued, cared for and loved, and a part of a community with shared responsibilities [26]. It involves the resources a social network offers loved ones to help them cope with physical and mental stress. Social support can potentially hasten or slow down the use of medical services [26]. Social support has been associated with improved health results [27, 28], influencing people to access patient support resources easily and impacting how support activities are coordinated [29, 30]. Family, friends, neighbours, and other people can provide social support to patients with chronic conditions in a variety of ways [31], including knowledge, emotional support, and practical assistance such as cooking. Studies have shown that good diabetic self-management, well-being, and family cohesion require strong family support [32, 33]. Patients with diabetes receive most of their care at home, which affects how they manage their condition [34].

The help of loved ones, friends, and family members is

priceless. They can assist in fostering a supportive environment, participate in lifestyle adjustments, and offer emotional support [9]. A patient's general well-being can be greatly impacted by encouragement, comprehension, and participation in diabetes care. Family members can assist patients with self-care activities such as food preparation and consumption, exercise, household chore sharing, keeping doctor's appointments, and generally acting in a way that promotes good health. Patients' families may also provide financial and emotional assistance. Additionally, a family may help patients continue seeing a healthcare provider, purchasing groceries and other essentials, transportation, and other necessities (medical and non-medical). Knowledge about what to do and not to do in the care of patients with diabetes is a basic need for family members.

A medical diagnosis is made public after it is revealed. Disclosure is a critical stage in developing intimacy and deep ties with people, which are linked to advantageous outcomes for one's physical and mental health [34]. The disclosure's context may also influence how one feels, and the recipient's response may affect how much the discloser values their words and whether they will use them again [35]. A married person with a diagnosis should often talk to their spouse first. On the other hand, a person who is single, divorced, or separated may provide information to their parents, kids, and other household members, including acquaintances they share secrets with. Participating in diabetes self-care programs with family members and partners improves patient outcomes, reduces or avoids complications, and improves coping, health, and quality of life [18]. In order to provide diabetes self-management support, which is defined as the aid needed for developing and maintaining coping mechanisms [36], spouses and family members are crucial.

Diabetes patients may encounter stigma that causes them to feel rejected, responsible for, or condemned for having a

chronic illness. Stigmatization happens when there is a perception of a stigma that results in a negative reaction. Stigma is a characteristic of a person that adversely deviates from socially acceptable norms [37]. If a person is not yet prepared to deal with and overcome stigmatization, it is not suggested to disclose their diagnosis to the general public or those who are more likely to do so because doing so could negatively impact health.

3.2. Health System

All organizations, institutions, and resources whose main goal is to enhance health are collectively referred to as a health system [38]. In order to accommodate the rising need for care for chronic illnesses, a health system built for acute care must be modified for issues related to chronic care [39]. Chronic care is all too frequently characterized by limited visits, poorly informed, uncooperative patients engaging with a disorganized health team, and inadequate planning to meet patients' needs [39, 40]. The chronic care model (CCM) was created to offer self-care strategies and tracking tools to patients with chronic diseases, such as those with type 2 diabetes mellitus (T2DM). The concept shows how collaboration between communities and healthcare providers could reimagine healthcare delivery [41]. The model also gathers basic information that can be applied to healthcare systems to enhance the care provided to patients, the community, and clinicians [42]. The CCM is a practical tool for guaranteeing complete coverage of diabetes care and patient participation [40]. Everyone's health and access to care can be significantly enhanced by creating more integrated, people-centered care systems. Better clinical and health outcomes, better patient satisfaction with care, happier healthcare staff, more effective resource use, and lower total costs are also included [43]. To provide better chronic care, there must be connections between the health system and local resources like exercise programs, educational opportunities, or home-care organizations. Several self-management techniques for the illness are possible, including nutrition, exercise, self-measuring, medication use, and adherence. It is possible to learn how to manage chronic diseases [39]. The quality of care will increase as a result of these systems.

The possibility that planned health outcomes would manifest as a result of individual and population health interventions is referred to as the quality of care. It is predicated on specialized knowledge supported by statistics and is crucial for establishing universal health coverage [44]. It is crucial to guarantee that the care provided is efficient, secure, and in line with the interests and needs of both the communities and the individuals being served. Care should be given to all populations promptly and fairly, across the care continuum, and throughout a person's life [45]. Additionally, with the least amount of resource waste possible. Interpersonal relationships, the effectiveness of service delivery, the continuity of services, safety, physical infrastructure, and choice are a few aspects that affect the quality of care. For patients, doctors, and politicians, different quality considerations can be more important [39]. Alternatively, governments can prioritize effectiveness, efficacy, and safety and concentrate on creating standards, regulations, and treatment programs as a result [39]. Legislative bodies and

healthcare institutions should operate similarly, and policies should be in place to enable high-quality care, which could be a driving factor in seeking health. As a result, patients will be eager for their upcoming appointments [39]. Information needs to be produced and assessed in order to achieve quality. Quality needs to be continuously reviewed and evaluated to promote growth because the healthcare industry is constantly evolving [46]. Better patient outcomes are anticipated to result from high-quality chronic care delivery and fruitful interactions between patients and healthcare workers [40]. Involving patients more is now considered essential to providing high-quality care and a common objective for healthcare institutions. These will help to lessen how frequently people with diabetes use medical services.

Due to a variety of reasons, including low socioeconomic status, ignorance of and a negative perception of diabetes, patients are unable to employ the necessary diabetic control services [43]. Patients with diabetes may use services more frequently depending on their income, health literacy, and level of depression [7, 47]. Conflicting requirements, such as those relating to family dynamics and assistance, may further modify it. Successful management of diabetes complications requires support [48]. For persons with diabetes to better control their condition and avoid complications, more people must have access to and use healthcare services. Better health planning requires understanding a patient's knowledge because a patient's awareness of their condition affects how they act while seeking medical attention [49].

Patients should have routine check-ups with their healthcare team to examine how well they manage their diabetes, review blood sugar levels, modify medications as necessary, and check for potential problems [50]. Regular observation and care can help detect problems early and stop additional difficulties. Patients must get diabetes self-management education (DSME) to comprehend their disease, acquire self-care techniques, and make wise health decisions. Information on managing medications, controlling blood sugar, eating well, exercising, and overcoming problems associated with diabetes may be included in DSME programs [51]. Diabetes-specific registered dietitians can assist patients with developing tailored meal plans, comprehending carbohydrate counting, and learning about portion control. Patients who receive ongoing counselling from a nutritionist are more likely to choose healthful foods and hit their blood sugar targets. Diabetes can have a serious influence on a person's mental health. Managing a chronic ailment, dealing with potential complications, and meeting self-care requirements can be difficult [9]. Having access to mental health specialists like psychologists or counsellors can help patients deal with anxiety, depression, or other mental health issues by offering them emotional support. Connecting with others with diabetes or joining a support group can be a great way to get advice, emotional support, and shared experiences. Peer support groups can be established, enabling people to discuss their triumphs, setbacks, and diabetes management techniques [52]. These groups can provide support and lessen feelings of isolation (Fig. 1).

CONCLUSION

Patients with diabetes who have just been diagnosed must have a strong support system. At first, treating diabetes might seem overwhelming, but with the correct assistance, individuals can gain the information, abilities, and confidence necessary to take control of their disease. Healthcare, family, and peer support are important components of a support system. Given that receiving a diabetes diagnosis can be emotionally challenging, the healthcare support system may include mental health support. The type of support system for diabetic patients may change depending on the needs of each patient, the resources at hand, and the healthcare systems. To effectively manage their diabetes, individuals must actively participate in their healthcare team's activities and utilize the available support resources.

CONSENT FOR PUBLICATION

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CONFLICT OF INTEREST

The author declares no conflict of interest financial or otherwise.

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REFERENCES

- [1] Silva JA, Souza ECF, Echazú Böschmeier AG, Costa CCM, Bezerra HS, Feitosa EELC. Diagnosis of diabetes mellitus and living with a chronic condition: participatory study. *BMC Pub Health* 2018; 18(1): 699. [http://dx.doi.org/10.1186/s12889-018-5637-9] [PMID: 29871637]
- [2] International Diabetes Federation. IDF diabetes atlas. 2021. Available at: <https://www.diabetesatlas.org>
- [3] Mengiste M, Ahmed MH, Bogale A, Yilma T. Information-seeking behavior and its associated factors among patients with diabetes in a resource-limited country: a cross-sectional study. *Diabetes Metab Syndr Obes* 2021; 14: 2155-66. [http://dx.doi.org/10.2147/DMSO.S289905] [PMID: 34040402]
- [4] Rad GS, Bakht LA, Feizi A, Mohebi S. Importance of social support in diabetes care. *J Educ Health Promot* 2013; 2(2): 62. [http://dx.doi.org/10.4103/2277-9531] [PMID: 24520558]
- [5] Houle J, Beaulieu MD, Chiasson JL, et al. Glycaemic control and self-management behaviours in type 2 diabetes: results from a 1-year longitudinal cohort study. *Diabet Med* 2015; 32(9): 1247-54. [http://dx.doi.org/10.1111/dme.12686] [PMID: 25581545]
- [6] Amer FA, Mohamed MS, Elbur AI, Abdelaziz SI, Elrayah ZA. Influence of self-efficacy management on adherence to self-care activities and treatment outcome among diabetes mellitus type 2 Sudanese patients. *Pharm Pract* 2018; 16(4): 1274. [http://dx.doi.org/10.18549/PharmPract.2018.04.1274] [PMID: 30637026]
- [7] Weaver JB III, Mays D, Weaver SS, Hopkins GL, Eroglu D, Bernhardt JM. Health information-seeking behaviors, health indicators, and health risks. *Am J Public Health* 2010; 100(8): 1520-5. [http://dx.doi.org/10.2105/AJPH.2009.180521] [PMID: 20558794]
- [8] Vaishnavi B, Mishra AK. Health-seeking behavior of patients with diabetes mellitus: A community-based cross-sectional study in an urban area of pondicherry. *J Curr Res Sci Med* 2021; 33-8. <https://www.jcrsmed.org/text.asp?2021/7/1/33/320509>
- [9] Pakhare A, Nimesh VV, Halder A, et al. Patterns of healthcare seeking behavior among persons with diabetes in Central India: A mixed method study. *J Family Med Prim Care* 2019; 8(2): 677-83. [http://dx.doi.org/10.4103/jfmpc.jfmpc_433_18] [PMID: 30984694]
- [10] Li YN, Nong D, Wei B, Feng QM, Luo H. The impact of predisposing, enabling, and need factors in utilization of health services among rural residents in Guangxi, China. *BMC Health Serv Res* 2016; 16(1): 592. [http://dx.doi.org/10.1186/s12913-016-1825-4] [PMID: 27760531]
- [11] Jahangir E, Irazola V, Rubinstein A. Need, enabling, predisposing, and behavioral determinants of access to preventative care in Argentina: Analysis of the national survey of risk factors. *PLoS One* 2012; 7(9): e45053. [http://dx.doi.org/10.1371/journal.pone.0045053] [PMID: 22984608]
- [12] Jalilian H, Pezeshki MZ, Torkzadeh L, Javanshir E, Moradi A, Zarnaq RK. Health care seeking behaviors in type 2 diabetic patients in east Azerbaijan: *Clinical diabetology Via. Medica. J.* 2019; 292-302.
- [13] Karinja M, Pillai G, Schlienger R, Tanner M, Ogutu B. Care-seeking dynamics among patients with diabetes mellitus and hypertension in selected rural settings in Kenya. *Int J Environ Res Pub Health* 2019; 16(11): 2016. [http://dx.doi.org/10.3390/ijerph16112016] [PMID: 31174248]
- [14] Höglund AT, Carlsson M, Holmström IK, Lännerström L, Kaminsky E. From denial to awareness: A conceptual model for obtaining equity in healthcare. *Int J Equity Health* 2018; 17(1): 9. [http://dx.doi.org/10.1186/s12939-018-0723-2] [PMID: 29357884]
- [15] Farley H. Promoting self-efficacy in patients with chronic disease beyond traditional education: A literature review. *Nurs Open* 2020; 7(1): 30-41. [http://dx.doi.org/10.1002/nop.2382] [PMID: 31871689]
- [16] Gopisetty D, Levine B, Liu N, et al. How does diabetes affect daily life? A beyond-A1C perspective on unmet needs. *Clin Diabet* 2018; 36(2): 133-7. [http://dx.doi.org/10.2337/cd17-0093] [PMID: 29686452]
- [17] Schmitt A, Reimer A, Kulzer B, Haak T, Gahr A, Hermanns N. Assessment of diabetes acceptance can help identify patients with ineffective diabetes self-care and poor diabetes control. *Diabet Med* 2014; 31(11): 1446-51. [http://dx.doi.org/10.1111/dme.12553] [PMID: 25047992]
- [18] Abu Hassan H, Tohid H, Mohd Amin R, Long Bidin MB, Muthupalaniappen L, Omar K. Factors influencing insulin acceptance among type 2 diabetes mellitus patients in a primary care clinic: A qualitative exploration. *BMC Fam Pract* 2013; 14(1): 164. [http://dx.doi.org/10.1186/1471-2296-14-164] [PMID: 24164794]
- [19] Baig AA, Benitez A, Quinn MT, Burnet DL. Family interventions to improve diabetes outcomes for adults. *Ann N Y Acad Sci* 2015; 1353(1): 89-112. [http://dx.doi.org/10.1111/nyas.12844] [PMID: 26250784]
- [20] Mayberry LS, Osborn CY. Family involvement is helpful and harmful to patients' self-care and glycemic control. *Patient Educ Couns* 2014; 97(3): 418-25. [http://dx.doi.org/10.1016/j.pec.2014.09.011] [PMID: 25282327]
- [21] Pesantes MA, Del Valle A, Diez-Canseco F, et al. Family support and diabetes: Patient's experiences from a public hospital in Peru. *Qual Health Res* 2018; 28(12): 1871-82. [http://dx.doi.org/10.1177/1049732318784906] [PMID: 30066604]
- [22] Santos Filho CV, WHC R, Santos RB. Self-care papers - nursing subsidies for the emotional reactions of patients with diabetes mellitus. *Esc Anna Nery Rev Enferm* 2008; 12(1): 125-9. [http://dx.doi.org/10.1590/S1414-8145200800100019]
- [23] Kowalewska B, Cybulski M, Jankowiak B, Krajewska-Kulak E. Acceptance of illness, satisfaction with life, sense of stigmatization, and quality of life among people with psoriasis: A cross-sectional study. *Dermatol Ther* 2020; 10(3): 413-30. [http://dx.doi.org/10.1007/s13555-020-00368-w] [PMID: 32193842]
- [24] Islam SMS, Uddin R, Zaman SB, et al. Healthcare seeking behavior and glycemic control in patients with type 2 diabetes attending a tertiary hospital. *Int J Diabet Dev Ctries* 2021; 41(2): 280-7. [http://dx.doi.org/10.1007/s13410-020-00875-8]
- [25] Jamal A, Khan SA, AlHumud A, et al. Association of online health information-seeking behavior and self-care activities among type 2 diabetic patients in Saudi Arabia. *J Med Inter Res* 2015; 17(8): 1-16. [http://dx.doi.org/10.2196/jmir.4312]
- [26] Coughlan M, Cronin P. *Doing a Literature Review in Nursing, Health and Social Care.* 2nd ed. SAGE Publications 2017.
- [27] Prang KH, Berecki-Gisolf J, Newnam S. The influence of social support on healthcare service use following transport-related musculoskeletal injury. *BMC Health Serv Res* 2016; 16(1): 310. [http://dx.doi.org/10.1186/s12913-016-1582-4] [PMID: 27464878]
- [28] Reeves D, Blickem C, Vassilev I, et al. The contribution of social

- networks to the health and self-management of patients with long-term conditions: A longitudinal study. *PLoS One* 2014; 9(6): e98340. [http://dx.doi.org/10.1371/journal.pone.0098340] [PMID: 24887107]
- [29] Kadirvelu A, Sadasivan S, Ng SH. Social support in type II diabetes care: A case of too little, too late. *Diabet Metab Syndr Obes* 2012; 5: 407-17. [http://dx.doi.org/10.2147/DMSO.S37183] [PMID: 23226028]
- [30] Friedman A, Howard J, Shaw EK, Cohen DJ, Shahidi L, Ferrante JM. Facilitators and barriers to care coordination in patient-centered medical homes (PCMHs) from coordinators' perspectives. *J Am Board Fam Med* 2016; 29(1): 90-101. [http://dx.doi.org/10.3122/jabfm.2016.01.150175] [PMID: 26769881]
- [31] Vassilev I, Rogers A, Kennedy A, Koetsenruijter J. The influence of social networks on self-management support: A metasynthesis. *BMC Pub Health* 2014; 14(1): 719. [http://dx.doi.org/10.1186/1471-2458-14-719] [PMID: 25023948]
- [32] Koetsenruijter J, van Lieshout J, Lionis C, *et al.* Social support and health in diabetes patients: an observational study in six european countries in an era of austerity. *PLoS One* 2015; 10(8): e0135079. [http://dx.doi.org/10.1371/journal.pone.0135079] [PMID: 26305559]
- [33] Kovacs Burns K, Nicolucci A, Holt RIG, *et al.* Diabetes attitudes, wishes and needs second study (DAWN2™): Cross-national benchmarking indicators for family members living with people with diabetes. *Diabet Med* 2013; 30(7): 778-88. [http://dx.doi.org/10.1111/dme.12239] [PMID: 23701236]
- [34] Bennich BB, Røder ME, Overgaard D, *et al.* Supportive and non-supportive interactions in families with a type 2 diabetes patient: An integrative review. *Diabetol Metab Syndr* 2017; 9(1): 57. [http://dx.doi.org/10.1186/s13098-017-0256-7] [PMID: 28736580]
- [35] Mphasha MH, Mothiba TM, Skaal L. Assessment of diabetes dietary knowledge and its impact on intake of patients in Senwabarwana, Limpopo, South Africa. *J of Endocrinol Metabol and Diabet of South Africa* 2021; 26(3): 89-95. [http://dx.doi.org/10.1080/16089677.2021.1927584]
- [36] Pihlaskari AK, Anderson BJ, Eshtehardi SS, *et al.* Diabetes disclosure strategies in adolescents and young adult with type 1 diabetes. *Pat Educ Couns* 2020; 103(1): 208-13. [http://dx.doi.org/10.1016/j.pec.2019.08.019] [PMID: 31447195]
- [37] Powers MA, Bardsley J, Cypress M, *et al.* Diabetes self-management education and support in type 2 diabetes: A joint position statement of the American diabetes association, the American association of diabetes educators, and the academy of nutrition and dietetics. *Clin Diabet* 2016; 34(2): 70-80. [http://dx.doi.org/10.2337/diaclin.34.2.70] [PMID: 27092016]
- [38] Liu NF, Brown AS, Folias AE, *et al.* Stigma in people with type 1 or type 2 diabetes. *Clin Diabet* 2017; 35(1): 27-34. [http://dx.doi.org/10.2337/cd16-0020] [PMID: 28144043]
- [39] White F. Primary health care and public health: Foundations of universal health systems. *Med Princ Pract* 2015; 24(2): 103-16. [http://dx.doi.org/10.1159/000370197] [PMID: 25591411]
- [40] Webb EM, Rheeder P, Wolvaardt JE. The ability of primary healthcare clinics to provide quality diabetes care: An audit. *Afr J Prim Health Care Fam Med* 2019; 11(1): e1-6. [http://dx.doi.org/10.4102/phcfm.v11i1.2094] [PMID: 31714122]
- [41] Cramm JM, Nieboer AP. The importance of productive patient-professional interaction for the well-being of chronically ill patients. *Qual Life Res* 2015; 24(4): 897-903. [http://dx.doi.org/10.1007/s11136-014-0813-6] [PMID: 25267102]
- [42] Stelfox M, Dipnarine K, Stopka C. The chronic care model and diabetes management in US primary care settings: A systematic review. *Prev Chroni Dis* 2013; 10(E26): 120180. [http://dx.doi.org/10.5888/pcd10.120180] [PMID: 23428085]
- [43] Baptista DR, Wiens A, Pontarolo R, Regis L, Reis WCT, Correr CJ. The chronic care model for type 2 diabetes: A systematic review. *Diabet Metab Syndr* 2016; 8(1): 7. [http://dx.doi.org/10.1186/s13098-015-0119-z] [PMID: 26807158]
- [44] World Health Organization. Framework on integrated people-centred health services. 2016. Available at: https://apps.who.int/gb/ebwha/pdf_files/WHA69/A69_39-en.pdf
- [45] World Health Organization. Quality of care. Available at: www.who.int
- [46] Delivering quality health services: A global imperative for universal health coverage. Geneva: Who 2018.
- [47] Bombard Y, Baker GR, Orlando E, *et al.* Engaging patients to improve quality of care: A systematic review. *Implement Sci* 2018; 13(1): 98. [http://dx.doi.org/10.1186/s13012-018-0784-z] [PMID: 30045735]
- [48] Siddique MKB, Islam SMS, Banik PC, Rawal LB. Diabetes knowledge and utilization of healthcare services among patients with type 2 diabetes mellitus in Dhaka, Bangladesh. *BMC Health Serv Res* 2017; 17(1): 586. [http://dx.doi.org/10.1186/s12913-017-2542-3] [PMID: 28830414]
- [49] American Diabetes Association. Standards of medical care in diabetes-2012. *Diabet Care* 2012; 35(Suppl 1): S11-63. [PMID: 22187469]
- [50] Levensgood TW, Peng Y, Xiong KZ, *et al.* Team-based care to improve diabetes management: A community guide meta-analysis. *Am J Prev Med* 2019; 57(1): e17-26. [http://dx.doi.org/10.1016/j.amepre.2019.02.005] [PMID: 31227069]
- [51] Adu MD, Malabu UH, Malau-Aduli AEO, Malau-Aduli BS. Enablers and barriers to effective diabetes self-management: A multi-national investigation. *PLoS One* 2019; 14(6): e0217771. [http://dx.doi.org/10.1371/journal.pone.0217771] [PMID: 31166971]
- [52] Yin J, Wong R, Au S, *et al.* Effects of providing peer support on diabetes management in people with type 2 diabetes. *Ann Fam Med* 2015; 13(Suppl 1): S42-9. [http://dx.doi.org/10.1370/afm.1853] [PMID: 26304971]

