

Perceived Social Support and Self-Care Behaviour among Adults with Type 2 Diabetes Mellitus in Chennai: A Mixed-Methods Study

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ABSTRACT

Type 2 Diabetes Mellitus (T2DM) is a chronic metabolic disorder requiring lifelong self-care practices to achieve optimal glycaemic control and prevent complications. Perceived social support plays a vital role in promoting adherence to diabetes self-management; however, limited evidence exists regarding the barriers influencing self-care among individuals with T2DM in the Indian context.

Aim: To assess perceived social support and self-care behaviour among patients with T2DM, determine the relationship between them, examine their association with selected demographic variables, and explore factors influencing diabetes self-care behaviour.

Methods: A sequential explanatory mixed-methods study was conducted among 115 patients with T2DM attending selected primary healthcare centres in Chennai, Tamil Nadu, using purposive sampling. Quantitative data were collected using a demographic questionnaire, the Multidimensional Scale of Perceived Social Support (MSPSS), and the Diabetes Self-Care Behaviour Questionnaire. Data were analysed using descriptive statistics, Pearson's correlation, and Chi-square tests. Participants with low and moderate levels of perceived social support and self-care behaviour were subsequently selected through criterion-based purposive sampling for the qualitative phase, which included three focus group discussions (n = 18) and twelve in-depth interviews (n = 12). Qualitative data were analysed using inductive thematic analysis.

Results: Most participants reported moderately adequate perceived social support (51%) and moderately adequate self-care behaviour (53%). A moderate positive correlation was observed between perceived social support and self-care behaviour ($r = 0.51$, $p < 0.001$). Education level and duration of diabetes were significantly associated with both perceived social support and self-care behaviour ($p < 0.05$), whereas age, gender, marital status, and weight showed no significant associations ($p > 0.05$). Qualitative analysis identified six major themes influencing self-care behaviour: healthy dietary practices, medication adherence, physical activity, foot care practices, glycaemic monitoring, and family and social support. Participants described barriers including inadequate diabetes knowledge, forgetfulness, physical fatigue, financial constraints, occupational commitments, fear of hypoglycaemia, limited awareness of foot care, and inadequate family support.

Conclusion: Perceived social support was positively associated with diabetes self-care behaviour among patients with T2DM. Strengthening family involvement, improving diabetes education, and addressing psychosocial, financial, and lifestyle barriers may enhance adherence to self-care practices and improve long-term diabetes outcomes.

Keywords: Type 2 Diabetes Mellitus; perceived social support; self-care behaviour; mixed-methods research; diabetes self-management; family support.

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INTRODUCTION

Diabetes mellitus (DM) is one of the fastest-growing non-communicable diseases and a major public health

challenge worldwide. According to the International Diabetes Federation (IDF) Diabetes Atlas, 11th Edition (2025), approximately 589 million adults aged 20–79

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years are living with diabetes globally, and this number is projected to rise to 853 million by 2050. India has one of the highest diabetes burdens, with nearly 90 million adults affected by the disease. Type 2 Diabetes Mellitus (T2DM), the most common form of diabetes, requires lifelong management through appropriate medication, healthy dietary practices, regular physical activity, self-monitoring of blood glucose, and routine foot care. Effective self-care behaviours play a crucial role in achieving optimal glycaemic control, preventing complications, improving quality of life, and reducing healthcare costs.

Successful diabetes self-management extends beyond individual responsibility and is strongly influenced by the level of social support received from family members, friends, healthcare professionals, and the community. Social support provides emotional encouragement, practical assistance, health-related information, and motivation, thereby enhancing adherence to recommended self-care practices. Conversely, inadequate social support may lead to poor treatment adherence, unhealthy lifestyle behaviours, and increased risk of diabetes-related complications. Although previous studies have demonstrated a positive association between social support and diabetes self-care, limited evidence is available regarding the barriers influencing self-care behaviours among individuals with Type 2 Diabetes Mellitus in the Indian context. Therefore, the present mixed-methods study was undertaken to explore the relationship between social support and self-care behaviour and to identify the barriers affecting effective diabetes self-management among patients with Type 2 Diabetes Mellitus in Chennai.

OBJECTIVES

- To assess perceived social support among patients with Type 2 Diabetes Mellitus.
- To assess self-care behaviour among patients with Type 2 Diabetes Mellitus.
- To determine the relationship between perceived social support and self-care behaviour.
- To examine the association between demographic variables and social support/self-care behaviour.
- To explore the factors influencing diabetes self-care.

BACKGROUND OF THE STUDY:

The primary objective of diabetes management is to achieve and maintain optimal glycaemic control, thereby preventing or delaying the onset of acute and chronic complications. Since Type 2 Diabetes Mellitus (T2DM) is a lifelong condition, successful management depends not only on pharmacological therapy but also on consistent adherence to diabetes self-care behaviours. These include healthy dietary practices, regular physical activity, medication adherence, self-monitoring of blood glucose, foot care, healthy coping strategies, and regular follow-up with healthcare providers. Evidence indicates that effective self-care improves glycaemic control, enhances quality of life, reduces hospitalizations, and minimizes the

risk of diabetes-related complications such as diabetic nephropathy, retinopathy, neuropathy, and cardiovascular diseases. However, despite advances in diabetes care, poor adherence to self-care recommendations remains a significant challenge worldwide.

In India, the increasing prevalence of diabetes has created an urgent need to strengthen patient-centered diabetes management strategies.

Previous studies have reported that many individuals with diabetes exhibit inadequate adherence to recommended self-care practices because of limited knowledge, financial constraints, lifestyle challenges, psychological stress, and insufficient social support. Among these factors, social support has emerged as an important determinant of successful diabetes self-management by promoting motivation, treatment adherence, and positive health behaviors.

Nevertheless, limited mixed-methods research has explored how social support influences self-care behaviors and the barriers experienced by patients with Type 2 Diabetes Mellitus in the Indian context. Therefore, the present study was undertaken to examine the relationship between social support and self-care behavior and to explore the barriers influencing effective diabetes self-management among patients with Type 2 Diabetes Mellitus in Chennai. This evidence may contribute to the development of targeted nursing interventions and family-centered strategies aimed at improving diabetes outcomes.

METHODOLOGY

A mixed-methods research design was adopted, consisting of two consecutive phases: a quantitative phase followed by a qualitative phase. The study design was selected to assess the relationship between perceived social support and self-care behaviour among patients with Type 2 Diabetes Mellitus (T2DM) and to further explore the barriers influencing diabetes self-management.

In Phase I (Quantitative phase), a descriptive cross-sectional research design was used to assess perceived social support and self-care behaviour among patients with T2DM. Data were collected using a demographic questionnaire, the Multidimensional Scale of Perceived Social Support (MSPSS), and the Diabetes Self-Care Behaviour Questionnaire. The quantitative data were analysed using descriptive and inferential statistics.

In Phase II (Qualitative phase), a descriptive qualitative research approach was employed to explore the barriers affecting diabetes self-care behaviour and perceived social support. Qualitative data were collected through Focus Group Discussions (FGDs) and in-depth interviews (IDIs). The qualitative data were analysed using thematic analysis following an inductive approach.

The integration of quantitative and qualitative findings was performed during the interpretation phase to provide a comprehensive understanding of social support, self-care practices, and barriers among individuals with T2DM.

Study Setting

The study was conducted among patients diagnosed with Type 2 Diabetes Mellitus in selected primary healthcare in Chennai, Tamil Nadu, India. The selected settings provided access to patients receiving routine diabetes management and follow-up care. Data collection was conducted during the study period after obtaining necessary administrative permissions and ethical approval.

Participants

Quantitative Phase

A total of 115 patients diagnosed with Type 2 Diabetes Mellitus participated in the quantitative phase. Participants were recruited according to predefined eligibility criteria.

Qualitative Phase

Participants for the qualitative phase were selected from the quantitative sample based on their scores of perceived social support and self-care behaviour. A total of 30 participants with low and moderate levels of perceived social support and self-care behaviour were included to explore barriers and challenges related to diabetes self-management.

The qualitative sample included:

- Three Focus Group Discussions (FGDs) consisting of six participants in each group (n=18).
- Twelve individual in-depth interviews (IDIs) (n=12).

Sampling Technique

A purposive sampling technique was adopted for participant recruitment in the quantitative phase based on inclusion and exclusion criteria.

For the qualitative phase, criterion-based purposive sampling was used to select participants who demonstrated low and moderate levels of perceived social support and self-care behaviour. This sampling strategy ensured inclusion of participants who could provide rich information regarding barriers, experiences, and challenges related to diabetes self-management.

Sample Size Justification

The quantitative sample size of 115 participants was considered adequate to fulfil the study objectives and perform planned statistical analyses, including assessment of relationships between perceived social support and self-care behaviour.

For the qualitative component, 30 participants were included. Data collection was continued until data saturation was achieved, where no additional codes, categories, or themes emerged from subsequent interviews and discussions.

Validity and Reliability of the Tools

The tools used for data collection were assessed for validity and reliability before conducting the main study. The demographic questionnaire was developed by the investigator based on an extensive review of literature and expert opinions. The content validity of the demographic questionnaire, Multidimensional Scale of Perceived Social

Support (MSPSS), and Diabetes Self-Care Behaviour Questionnaire was established by a panel of experts comprising nursing professionals, diabetologists, and experts in community health nursing. The experts evaluated the tools for relevance, clarity, appropriateness, and comprehensiveness of the items. The suggestions and modifications provided by the experts were incorporated before the final data collection.

Data Collection Procedure

Data collection was conducted sequentially in two phases.

Phase I: Quantitative Data Collection

Quantitative data were collected from 115 patients with Type 2 Diabetes Mellitus using:

- Demographic questionnaire
- Multidimensional Scale of Perceived Social Support (MSPSS)
- Diabetes Self-Care Behaviour Questionnaire

Participants were approached after obtaining informed consent. Data were collected through face-to-face interaction in a private setting to maintain confidentiality.

Following quantitative analysis, participants demonstrating low and moderate levels of perceived social support and self-care behaviour were identified and invited to participate in the qualitative phase.

Phase II: Qualitative Data Collection

Qualitative data were collected through:

- Three Focus Group Discussions (FGDs) with six participants in each group.
- Twelve individual in-depth interviews.

An interview guide with open-ended questions was developed to explore participants' experiences, perceived barriers, family and social support systems, and challenges influencing diabetes self-care behaviour.

Each FGD and interview was conducted in Tamil or English based on participant preference. Sessions were audio-recorded with permission and supplemented with field notes. The duration of each session was approximately 30–45 minutes.

The recorded interviews were transcribed verbatim, translated where required, and analysed using thematic analysis.

Inclusion Criteria

Participants were included if they:

- Were diagnosed with Type 2 Diabetes Mellitus.
- Were aged 30 years and above.
- Were willing to participate voluntarily.
- Were available during the data collection period.
- Were able to understand and communicate in Tamil or English.

Exclusion Criteria

Participants were excluded if they:

- Were critically ill during the data collection period.

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- Had severe cognitive impairment.

- Had communication difficulties that prevented effective participation.

Statistical analysis

Table-1 Frequency and percentage distribution of demographic variables of Type 2 diabetes mellitus patients.
N=115

S.No	Characteristics	Category	Type 2 diabetes mellitus patients	
			Frequency	Percentage
1	Age	30-40years	41	36%
		41-50years	52	45%
		51-60years	22	19%
		61-70years	0	0%
2	Gender	Male	55	48%
		Female	60	52%
3	Marital Status	Married	101	88%
		Unmarried	3	3%
		Divorced	0	0%
		Widow	11	10%
4	Education Level	Post Graduate/Graduate	16	14%
		High School	39	34%
		Primary Education	28	24%
		Illiterate	32	28%
5	Weight	Under weight	9	8%
		Normal weight	38	33%
		Over weight	56	49%
		Obesity	12	10%
6	Duration of diabetes mellitus	1-3years	56	49%
		4-5years	31	27%
		More Than 5years	28	24%

The above table shows that maximum diabetes patients were in above 41-50 years (45%); Majority of the patients were females (52%); Majority of them Married (88%);

Majority of them completed High School level (34%); Majority of them over weight (49%); Maximum of them have a diabetes for a period of 1-3years (49%)

Table -2: Assessment of social support among type II diabetes mellitus patients using multi-dimensional scale of perceived social support

LEVEL OF SOCIAL SUPPORT	FREQUENCY	PERCENTAGE
INADEQUATE SOCIAL SUPPORT	16	14%
MODERATELY ADEQUATE SOCIAL SUPPORT	59	51%
ADEQUATE SOCIAL SUPPORT	40	35%

Table-3 Assessment of self-care behavior among type II diabetes mellitus Patients.

LEVEL OF SELF-CARE BEHAVIOUR	POSTTEST	
	FREQUENC Y	PERCENTAG E
INADEQUATE SELF-CARE BEHAVIOUR	49	43%
MODERATELY ADEQUATE SELF-CARE BEHAVIOUR	61	53%
ADEQUATE SELF-CARE BEHAVIOUR	5	4%

Table-4 Correlation of social support and self-care behavior among Type II diabetes mellitus patients.

VARIABLES	CORRELATION COEFFICIENT
PERCEIVED SOCIAL SUPPORT & SELF CARE BEHAVIOUR	r=0.51

TABLE -4 A **moderate positive and statistically significant correlation** was observed between perceived social support and self-care behavior among patients with Type II Diabetes Mellitus ($r = 0.51$). This indicates that patients with higher levels of perceived social support tended to exhibit better self-care behavior.

Associate the level of social support and self-care behavior among type II diabetes mellitus patients with selected demographic variables.

There was no statistically significant association ($p > 0.05$) between perceived social support and age, gender, marital status, and weight of patients with Type II Diabetes Mellitus. Regarding association Education level ($\chi^2 = 13.21$) and duration of diabetes mellitus ($\chi^2 = 10.56$) showed statistically significant associations with perceived

social support. Age, gender, marital status, and weight were not significantly associated ($p > 0.05$).

Education level ($\chi^2 = 14.38$) and duration of diabetes mellitus ($\chi^2 = 11.84$) showed statistically significant associations with self-care behaviour. Age, gender, marital status, and weight were not significantly associated ($p > 0.05$).

Qualitative analysis

Qualitative data obtained from **12 in-depth interviews** were analysed using thematic analysis. Six major themes with corresponding subthemes emerged, reflecting the barriers and facilitators influencing self-care behaviour among patients with Type 2 Diabetes Mellitus.

Table 5. Themes, Subthemes and Representative Findings

Theme	Subthemes / Barriers Identified
Healthy Dietary Practices	Poor knowledge of meal planning, difficulty changing dietary habits, overeating during social gatherings, occupational constraints, lack of family support for dietary modification
Medication Adherence	Forgetfulness, shift work, fear of adverse drug effects, complex medication regimen, inadequate motivation, absence of family reminders
Physical Activity	Fatigue, body pain, co-existing illnesses, lack of motivation, fear of hypoglycaemia, unfavourable weather
Foot Care Practices	Poor awareness of foot care, misconception that foot care is necessary only after ulcer development, financial barriers to preventive care
Glycaemic Monitoring	High cost of glucometers and strips, fear of finger-prick pain, frustration with persistently high glucose values
Family and Social Support	Emotional encouragement, practical assistance, family conflicts, inadequate support, lack of shared responsibility in diabetes management

Theme 1: Healthy Dietary Practices

Most participants reported that maintaining a healthy diet was challenging because of inadequate knowledge regarding diabetic meal planning and portion control. Long-standing food preferences, particularly rice-based meals, made dietary modification difficult. Many participants also found it challenging to adhere to dietary recommendations while attending family functions or eating outside. Occupational commitments and limited time for meal preparation further reduced adherence. A few participants indicated that family members were not always supportive of dietary changes.

Representative quote

"I know I should avoid certain foods, but I don't know what I should eat every day. During family functions, it is difficult to follow my diet."

Theme 2: Medication Adherence

Forgetfulness emerged as the most common barrier to medication adherence. Participants working in shifts or travelling frequently often missed their medication timings. Some expressed concerns regarding adverse drug effects and frustration despite taking medicines regularly. A few participants also reported that they lacked family members who reminded or encouraged them to take medications.

Representative quote

"Because of my work schedule, I sometimes forget my tablets. Nobody reminds me when I am busy."

Theme 3: Physical Activity

Many participants experienced physical discomfort such as fatigue, joint pain and other chronic illnesses that limited regular exercise. Psychological factors, including lack of motivation and fear of hypoglycaemia, also reduced participation in physical activity. Weather conditions and occupational commitments were additional barriers.

Representative quote

"After work I feel too tired to exercise, and I worry that exercise will make my sugar drop."

Theme 4: Foot Care Practices

Several participants believed that foot care was necessary only when a foot ulcer developed. Limited awareness regarding preventive foot care and financial constraints prevented regular foot examinations and appropriate footwear use.

Representative quote

"I thought checking my feet was necessary only if there was a wound."

Theme 5: Glycaemic Monitoring

Participants reported that the cost of glucometers and test strips limited regular self-monitoring of blood glucose. Some avoided frequent testing because they considered finger-prick procedures painful. Repeated high glucose readings also caused frustration and discouraged regular monitoring.

Representative quote

"Checking sugar regularly is costly, and seeing high readings makes me feel discouraged."

Theme 6: Family and Social Support

Family support emerged as an important facilitator of diabetes self-management. Participants who received encouragement, reminders and practical help from family members reported better adherence to dietary recommendations, medication and hospital follow-up. However, a few participants experienced family conflicts or inadequate emotional support, which negatively influenced their motivation for self-care.

Representative quote

"My family reminds me about medicines and helps me prepare healthy food, which makes it easier to manage my diabetes."

Table 6. Integration of Quantitative and Qualitative Findings

Quantitative Findings	Qualitative Findings	Integrated Interpretation
Most participants had moderately adequate perceived social support (51%) and adequate social support (35%).	Participants described that emotional encouragement, family reminders, practical assistance with meal preparation, medication, and hospital visits enhanced their confidence and motivation, whereas inadequate family involvement and interpersonal conflicts reduced adherence to self-care.	The qualitative findings indicate that the quality of family interactions and emotional support plays a crucial role in motivating patients to engage in diabetes self-management, highlighting family involvement as an important facilitator of sustained self-care.
The majority of participants demonstrated moderately adequate self-care behaviour (53%).	Participants identified barriers such as poor dietary knowledge, forgetfulness, physical fatigue, financial constraints, low awareness of foot care, occupational commitments, and lack of motivation that limited consistent self-care practices.	The qualitative findings suggest that despite patients' willingness to manage their condition, multiple personal, social, and economic barriers hinder the consistent adoption of recommended self-care behaviours, indicating the need for individualized patient support.
A moderate positive correlation ($r = 0.51$) was observed between perceived social support and self-care behaviour.	Participants consistently reported that encouragement, reminders, and practical assistance from family members improved medication adherence, healthy eating, physical activity, and regular follow-up, while inadequate support reduced motivation for self-care.	The qualitative findings demonstrate that family support enhances patients' motivation, confidence, and adherence to recommended diabetes management practices, illustrating how supportive relationships facilitate effective self-care.
Education level showed a statistically significant association with perceived social support and self-care behaviour ($p < 0.05$).	Participants with limited educational backgrounds expressed difficulty understanding meal planning, medication schedules, blood glucose monitoring, and preventive foot care, often relying on family members or healthcare professionals for guidance.	The qualitative findings suggest that health literacy influences patients' ability to understand and implement diabetes self-management recommendations, emphasizing the importance of individualized education tailored to patients' learning needs.

Duration of diabetes was significantly associated with perceived social support and self-care behaviour ($p < 0.05$).	Participants explained that, over time, they learned to adjust their daily routines, developed coping strategies, and relied more on family members and healthcare professionals to manage their condition effectively, although some challenges remained.	The qualitative findings indicate that experience with living with diabetes promotes gradual adaptation and confidence in self-management, particularly when ongoing family and professional support is available.
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DISCUSSION

The present study found that the majority of patients had moderately adequate social support (51%) and moderately adequate self-care behaviour (92%), indicating that most participants practiced diabetes self-management at an acceptable level. These findings are consistent with previous studies, which have reported that family and social support positively influence diabetes self-care practices, including medication adherence, healthy diet, physical activity, and follow-up care. Similar to earlier research, inadequate knowledge, forgetfulness, financial constraints, and limited family involvement emerged as major barriers to effective self-care. However, unlike some previous studies that reported a moderate or strong relationship between social support and self-care behaviour, the present study demonstrated only a weak positive correlation ($r = 0.51$). This difference may be due to the influence of other factors such as health literacy, occupational commitments, physical limitations, socioeconomic status, and individual motivation. Qualitative findings further revealed that poor dietary knowledge, fatigue, body pain, fear of medication side effects, financial difficulties, and inadequate family support negatively affected adherence to self-care practices. These findings emphasize that diabetes self-management is influenced by multiple personal, social, and environmental factors rather than social support alone. The study highlights the need for comprehensive, patient-centred interventions that include continuous diabetes education, family participation, behavioural counselling, and regular follow-up. Nurses should assess barriers to self-care during routine consultations and provide individualized education and support. Strengthening family involvement and community-based diabetes education programmes may enhance self-care behaviours, improve glycaemic control, and reduce the risk of long-term diabetes-related complications.

Limitations of the study

The study was conducted among patients with Type 2 Diabetes Mellitus attending selected primary healthcare centres in Chennai; therefore, the findings may have limited generalizability to patients in other geographical regions or healthcare settings. The study relied on participants’ perceptions of social support rather than objective measurement of family or community support, which may differ from actual support received.

CONCLUSION

This sequential explanatory mixed-methods study demonstrated that perceived social support has a moderate positive association with self-care behaviour among

patients with Type 2 Diabetes Mellitus. Although most participants reported moderately adequate social support and self-care practices, the qualitative findings revealed important barriers, including limited diabetes knowledge, financial constraints, poor dietary adherence, inadequate physical activity, low awareness of foot care, and insufficient family support. These findings indicate that diabetes self-management is influenced by a combination of social, behavioural, and environmental factors. A patient-centered approach that incorporates individualized diabetes education, shared decision-making, family engagement, psychosocial support, and regular follow-up is essential to enhance self-care behaviours and improve long-term glycaemic outcomes. Nurses and other healthcare professionals should routinely assess patients’ support systems and self-care challenges to develop tailored interventions that promote sustainable diabetes self-management and reduce the risk of diabetes-related complications.

CONFLICT OF INTEREST

NIL

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