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Experience of Diabetic Patients About Self-Insulin Administration (SIA) Attending Out Patient Department, Tertiary Hospital, South India: A Qualitative Descriptive Study

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Abstract: ***Background:*** *Diabetes Mellitus (DM) is a group of metabolic disorder characterized by hyperglycemia. It is a public health problem which affects the individual, family and society at large. One of the most effective management strategies to have glycemic control is Insulin therapy. Insulin is the oldest valuable antidiabetic medication which helps to reduce hyperglycemia when used in appropriate doses. Patients with Type 1 & 2 DM are mostly treated with multiple -dose insulin therapy. It is recommended that all patients with Diabetes aim for glucose control with HgbA1c less than 7% in order to reduce the risk for developing complications (ADA, 2016a) (4). Despite this, one-third of patients fail to take their regular insulin and 20 % of adults deliberately miss their insulin doses (5).* ***Aim:*** *To explore the experiences of diabetic patients about self-insulin administration.* ***Methods:*** *A qualitative descriptive research design was used. The researcher used a phenomenological approach to explore the experiences of persons with DM who were taking Insulin by themselves. Participants willing to share their experiences were selected using purposive sampling technique included in the study. A total of 8 males and 12 females participated in the interview. The in-depth individual interview was conducted using semi-structured questions followed by a few trigger questions to help the participants share their experiences. The interviews were conducted in the Endocrinology outpatient department. Interviews were audio-recorded and transcribed verbatim. The data were read and reread, and coding units were developed.* ***Results:*** *A total of 8 males and 12 females participated in the study, with their ages ranging from 38 to 71 years but majority from 60-71 years (Nos.=11). Majority (Nos. =13) of them were taking Insulin for1-5 years of duration, 13 of them used syringe for taking Insulin and 6 were using pen device and 1 participant used both syringe and pen device. The study findings, which identified six emerging themes from the data, are of significant importance. These themes, including emotional response to insulin use, acquisition of knowledge and skills, barriers to self-administration, facilitators and support systems, adaptation and self-efficacy and impact on daily life.* ***Conclusion:*** *This study highlights that self-insulin administration is a multifaceted experience shaped by emotional, educational, social, and practical factors. Patients initially encounter fear, anxiety, and uncertainty, particularly related to needle use and self-injection techniques. However, with proper guidance and repeated practice, many develop confidence and gradually adapt to the routine.*

Keywords: qualitative descriptive study, diabetic patients, self-insulin administration

1. Introduction

Diabetes is a chronic non communicable disease which exerts a substantial burden on patients, families, society and health care system. The global prevalence of Diabetes Mellitus (DM) has been predicted to increase from 537 million in 2021 to 643 million in 2030 among adult population from 20 to 79 years (1).

Increased prevalence in India is attributed to the lifestyle transition coupled with urbanization, industrialization and lifestyle changes. Evidence shows that Type 2 DM threatens DM related complications, such as micro and macro-vascular complications, whose rates are 27.2% and 53.5% respectively (2). Theoretically, these complications can be prevented by modifying lifestyle, medication including insulin therapy and implementing self-care activities (3).

Successful self-management in Diabetes helps the patients feel better. The therapeutic goal for diabetes management is to achieve normal blood glucose. Insulin therapy is an essential component of medication used in the treatment of Diabetes and is the cornerstone of Diabetes treatment. Patients often face many challenges due to complexities associated with its intricate use. Poor awareness and practices on insulin self-administration among diabetic patients are some of the important variables influencing the progression of diabetes and its complications, which are largely preventable. Therefore, educating patients on self-administration of insulin and to examine the views and experiences of adults with diabetes regarding the challenges faced with self-administration of insulin therapy which will help the health team members and control diabetes effectively (6)

Information on the key areas of insulin therapy and how they manage insulin self-administration from the patients' perspectives is also lacking. Therefore, the investigator has a great interest to conduct a qualitative study to examine the views and experiences related to insulin self-administration of adult diabetic patients. The aim of this study is to explore the views and experiences of adults with both type 1 and 2 diabetes mellitus in terms of storage of insulin, site of administration, rotation of site, dose adjustment, issues with insulin device (pen/syringe) and glycemic control.

2. Methodology

Study setting

Participants were recruited from the Out Patient Department (OPD) of Tertiary Hospital, South India, using a purposive sampling technique based on the inclusion criteria. Diabetic persons (Type 1&2) age between 19-59 year with more than six months' duration of illness and are taking Insulin by themselves attending the OPD for a review are included. Participants and family members are taken to a separate quiet room in the same OPD once they consented to participate in the study

Operational definitions:

1) **Persons with Diabetes Mellitus-**Participants who are diagnosed to have Diabetes Mellitus (Type 1 &2) with or without other disease conditions
2) **Insulin self-administration:** Taking the prescribed amount and type of Insulin by the participant himself/herself into the subcutaneous tissue using both syringe method and pen device
3) **Experiences:** Participant who has actually experienced, encountered or personally undergone the experiences with Insulin self-administration

Participants and Sampling

Participants who could comprehend and communicate well with Tamil and English languages, and who agreed to an audio-taped interview. Willing participants signed an informed written consent before the interview were included in the study. Participants who were acutely ill with co-morbid conditions such as malignancy, transplanted organ/tissue status, renal disease and dialysis and peri-operative period and who were vulnerable including pregnant mothers with Gestational diabetes were excluded from the study.

Interview Framework and Data Collection

The participants were approached by the Principal Investigator (PI) during their outpatient clinic visits, explained about the aim and objectives of the study, and emphasized the voluntary nature of participation, the confidentiality and anonymity of the study findings. It took an average of 45 to 50 minutes to complete the interview.

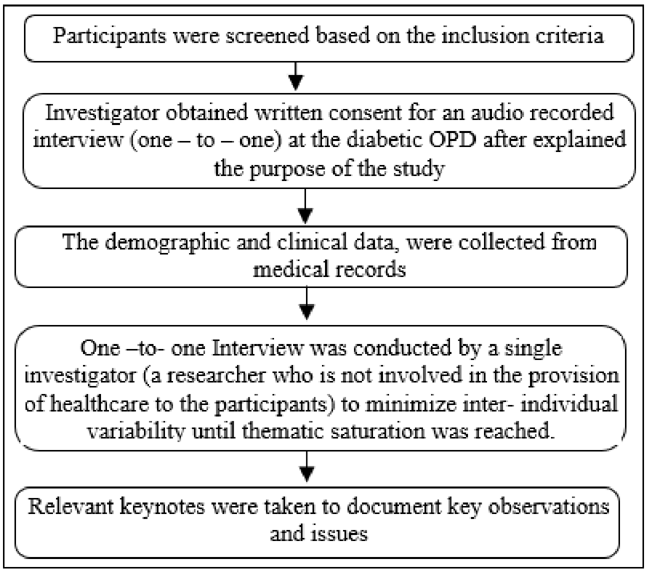

Figure 1: Interview framework

Interview process

Participants were encouraged to share their experiences through semi-structured and open-ended interviews. Interviews lasted 45 -50 minutes and were audio recorded. The interviews started with an overarching general question such as "Can you tell me how it has been for you since the time you were taking Insulin by yourself?" followed by appropriate probing questions to promote elaboration of ideas and descriptions to get all possible responses. The audio recording was transcribed verbatim and was subsequently translated into English.

3. Data analysis

A total of 28 patients were screened. 2 patients denied participating in the study due to lack of time and 6 patients did not want to audio record their data. Therefore, 20 participants were finally included for the study until the saturation of data reached.

A total of 8 males and 12 females participated in the study, with their age ranging from 38 to 71 years but majority from 60-71 years (Nos.=11). Three were graduates; three were post graduates and others did their higher secondary with 4 professionals, 4 retired from service, 2 were business men and 6 were homemakers. 3 reside in rural areas and 17 from urban.

The majority (Nos.=18) of the participants had Type 2 DM, for the duration of 2.6 years to 32 years, majority (Nos.=7) had 5-10 years and 5 of them were living with DM for 10-20 years. 16 had the family history of DM, with the HbA1c level ranging between 8-13 (Nos.=18), 8 of them were overweight, 1 had class III obesity and 2 had class I obesity. Majority (Nos. =13) of them were taking Insulin for1-5 years of duration, 13 of them used syringe for taking Insulin and 6 were using pen device and 1 participant used both syringe and pen

Interview data were analysed using the constant comparative method. Investigator read and reread the transcripts independently and conducted line-by-line coding describing key aspects of the transcript content; codes were identified and grouped into broader categories. Sampling was continued until the researchers agreed that saturation was reached.

Ethical consideration

The study was approved by the IRB and Ethics Committee (Meeting minute no: 43/11.11.2022). Written consent was obtained prior to all interviews.

4. Results and Discussions

The study's findings, which identified six emerging themes from the data, are of significant importance (Figure 2). These themes, including emotional response to insulin use, acquisition of knowledge and skills, barriers to self-administration, facilitators and support systems, adaptation and self-efficacy and impact on daily life.

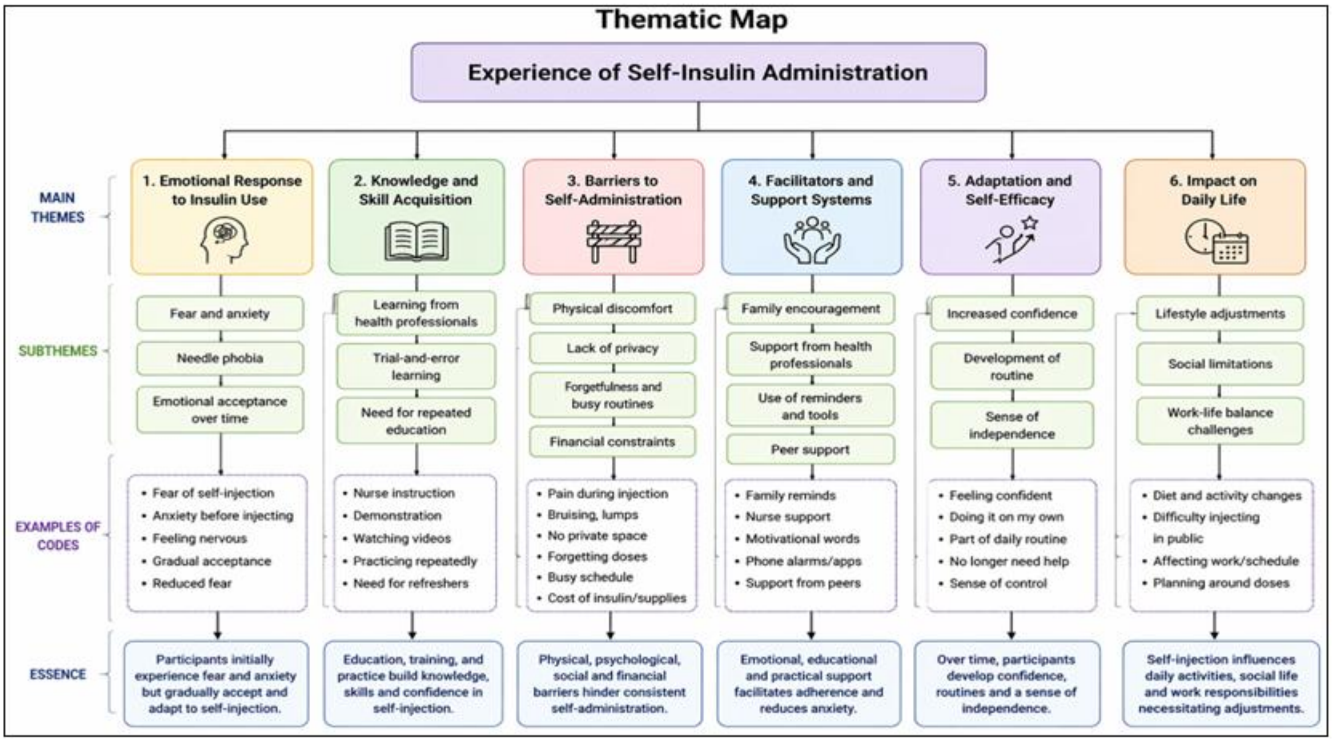

Figure 2: Thematic Map represents the experiences of Self- Insulin administration

1) Emotional response to Insulin use

Persons living with DM need to be on Insulin therapy for temporary or permanent purpose. They often experience a range of emotional responses related to long term Insulin therapy include fear and anxiety, needle phobia and emotional acceptance of injecting Insulin by themselves over a period of time (7). In this study participants said that

"I was scared in the beginning when I was told that I need to be on Insulin to control DM, because I fear about needles" (P7)

"I work in the office and I feared that my colleagues will come to know if I need to take Insulin at the office (P6)"

"I thought taking injection every day is no way as my wife is sick and I need to manage everything" (P10)

"I was so scared to think of having Insulin injection everyday as I was scared of others what if they think about me whether I would have committed any secret sins to suffer like this in my life" (P11)

"I was feeling sad when I heard the doctor said I need to be on Insulin injection because it is a painful procedure, I can't take it in the public as I am a female and I need to expose my abdomen in the public places and others might see me differently and mentally I was not feeling good and I wished to take medicines rather than injection" (P12)

"I started taking Insulin at the age 12 and I did not know anything about DM and Insulin but I was so scared of getting painful injections every day multiple times" (P13)

"I was hesitant to take Insulin because I am a health care professional and I worry that it might affect my work but gradually I was able to adapt to the life style since my husband was very supportive" (P15).

Participants had expressed that they went through lot of emotional trauma in the beginning and gradually they got used to it. These expressions of patient's feelings and experiences need to be addressed counselling them at the very beginning while explaining about the DM and the need for Insulin therapy.

2) Knowledge and skill acquisition

Knowledge is power. Most often persons with DM try to get the knowledge from the health care professionals, or by reading the materials from social media but they do lack practical skills in loading and administering the correct dose of Insulin. There is a huge gap between these two which complicate the effective management of DM (8).

In this study, majority of the participants were elderly and had their higher secondary level of education. They expressed that the information and the training received from the health care professionals was inadequate and incomplete. The time spent on their education and training was very short and needed frequent and more number of sessions at the very beginning of their treatment. Participants said,

"Doctor said I need to be on Insulin injection every day to control my DM otherwise I would end up in problems later and asked me to see the special Nurse (Diabetes educator) but I couldn't understand or comprehend anything when the Nurse explained to me at that time" (P3)

"I often wasted Insulin a bit as I was loading it incorrectly and repeatedly checking the dosage by checking the number of lines in the syringe" (P13).

"Though I was scared but I had no other way except learning to take Insulin on my own which made me to acquire skill in giving Insulin to myself" (P5)

"I was confident in taking my Insulin because I used to give Insulin to my in-laws" (P8).

"I got admitted several times at the beginning of my illness and Insulin therapy as I was not taking it correctly using the syringe but later I used Pen device which was more convenient and useful than syringe" (P4)

There are challenges in learning about loading and administering Insulin therapy for persons with DM due to various factors. It includes anxiety, lack of preparedness or readiness to accept the illness and need for long term Insulin therapy, difficulty in understanding, negative thoughts and feelings about Insulin use such as a sign of diabetes progression and last resort in diabetes management.

Therefore, it is essential to have more frequent sessions about DM, demonstration and trial and error learning about Insulin therapy which can improve their confidence in self-injection is recommended.

3) Barriers to self-administration

Insulin therapy is the most effective management of advanced DM. Despite there are several criteria need to be considered such as compliance and acceptance for its effectiveness (9). In this study, there were few factors identified as barriers to self-administration of Insulin. It includes

3.1. Myths about Insulin therapy

"I was advised to take Insulin at my 42 years of age, many friends told me that if I take Insulin my kidney would fail and eat up the cells in the leg and I would die". So I stopped taking Insulin without the doctor's advice and I took oral medicines double the dose to compensate Insulin. Therefore, I developed complications such as Neuropathy and unable to do any self-care activities" (P1)

"Before taking Insulin I had severe leg pain but now I don't have it" (P2)

3.2. Painful injections

"I am an elderly widow and I use syringe to give Insulin for myself, since I am depending on my son for bearing the cost of the Insulin and other medicines, I use same syringe for more than 4-6 times and I end up in having pain and bruises at the site of injection. Therefore, I stop taking Insulin for some days and become irregular" (P3).

"I use syringe for taking Insulin and I change the syringe after 4-6 times or 2-3 days being used. It is painful but once I experience sever pain then I change the syringe" (P5)

"I am a homemaker, live in a joint family and my husband is very supportive. I am feeling guilty that I am the cause for spending his money in buying the syringes and Insulin. I change the syringe after being used for 5-6 days or 12 times for giving Insulin. It is painful but I am happy that I am able to help my family in a small way" (P8)

3.3 No private space

"I started taking Insulin when I was 26 years old during my perinatal period and for the past 27 years I have been taking Insulin. I always regret to take Insulin as I was young and faced difficulties in the past attending social events and family functions when I was embarrassed to take Insulin in front of others as I did not have a separate place. Sometimes I have taken Insulin inside the toilet as well" (P2, P7)

"I am a working woman and I feel taking Insulin three times a day is awful. I need to look for a storage space in the work environment and a flask with ice. I don't want my colleagues and friends to know that I am taking Insulin. Though Insulin is useful in controlling my DM, it is better with two times or once a day so that I can take care of it at home itself" (P6)

"I am a homemaker, taking Insulin for 3 years but yet I want to take only oral medicines and not injection. I can't take injection in the public. I have to wait for 20-30 minutes before taking the food. When I attend the social events or travel around taking Insulin is difficult. I am not feeling good mentally anyway" (P12)

3.4. Busy schedule

"I am not scared to take Insulin but I am often being with my work and the timing is not convenient based on my work schedule" (P9)

3.5 Cost of Insulin

"I am an elderly pensioner, I don't have any other job and income. It is difficult to spend Rs. 3,500 to 5,000 every month for medicines and injections" (P3, P17 & P19).

Health care workers (HCWs) need to consider the barriers while counselling individuals and families towards the Insulin administration and effective DM management.

1) Facilitators and support systems

Supporting the person who is taking Insulin for a long term period is essential to facilitate towards adherence and successful outcomes. In this study the facilitators and support systems identified were,

"My children are helping me every month to get the supplies and medicines to manage DM" (P2)

"I am a working woman and health professional, I take Insulin for 7 years and I am very much satisfied with Insulin therapy using pen device as it is helpful in controlling my glucose level and I have no pain at the injection site" (P4)

"I am 67 years old, I am on Insulin for the past 2 years, I work every day for my earning. I am happy that my family is my strength and biggest support. My wife prepares food for me and take care of everything" (P18)

"I am 53 years old, I am taking Insulin for 32 long years. I am a health care professional. My husband is a non-medical person. When I was admitted with Pancreatitis, I was on Insulin therapy and my husband did not know anything about Insulin therapy. But senior doctor counselled him multiple times spent enough time to explain the advantages and care and compassion required. Therefore, I was able to get enough support from him" (P15)

It is important to provide adequate support and assurance from friends, family and health care professionals to all individuals who are on Insulin therapy to relieve anxiety and to improve adherence.

2) Adaptation and self-efficacy

Adaptation is the process by which the individual make adjustment in his/her life to adapt to the life situation and lifestyle behaviours due to Insulin therapy. Self-efficacy is a critical factor in Insulin therapy, influencing adherence to treatment and overall glycemic control.

"I am 60 years old working woman and I am taking Insulin for 7 years. I am confident to take Insulin by myself and I take my food on the way while I travel to the workplace. I feel Insulin safer than oral antidiabetic agents" (P4)

"I used to fear needles in the beginning but now I take less time to inject myself and it has become part of my routine daily life" (P2)

"I am 71 years elderly man, I am taking Insulin for the past 2 years. I feel that I can control DM and I am more confident to reduce glucose. I do regular exercise by having 30 minutes walk daily and following 3 meals and 3 snacks regimen as per the information by the special Nurse in Endocrinology OPD. I am telling others about the diabetic management" (P19)

"This is not something anyone did not take before. Insulin is like a medicine or chemical which is needed to control my blood sugar" (P20)

3.6 Impact on daily life

Self-insulin administration affects patients' everyday routines, social interactions, work life, and overall lifestyle. Managing Insulin often requires continuous adjustments that influence both personal and professional life.

"I carry glucose packet along with me everywhere. Storing Insulin vial is challenging as I don't have a fridge at home. So, I store the Insulin vial in a closed container and put it inside the mud pot to maintain a cold chain. But recently I was advised to buy a small flask and put ice inside while I travel" (P13)

"I am taking Insulin three times a day for 32 years and I discard the syringe every day. I don't want to end up in complications. I don't take food outside at all. I am able to survive today because of the understanding heart and love from my team members and colleagues" (P15)

"I am a 62 years old woman, for the past one year I have been taking Insulin by myself. I don't have a way out. Therefore, I have taken interest to grow kitchen garden and I visit the garden whenever I feel stressful to put my mind at ease" (P9)

"I do not have time for doing exercise as I am involved in house hold activities every day. I have gained weight gradually. I monitor my glucose weekly once. I read and understand about Insulin therapy from social media and manage DM" (P8)

"I had loss of appetite and GI upset when I was taking oral anti diabetic agents. But after taking Insulin, now I am happy that I am able to eat well without any GI symptoms" (P5).

"Insulin has saved my life. I was able to control my sugar and now I travel around with my family as I know and confident to manage myself with Insulin. It does not restrict me going outside or traveling any distances. If I do not take Insulin for 4 days imagine what would have been my situation. I understand the calorie required for my daily demand and I eat accordingly" (P6)

Self-insulin administration significantly affects patients' everyday lives by requiring strict routines, including scheduled meals, regular injections, and continuous monitoring of blood glucose levels. These demands often lead to lifestyle adjustments and reduced flexibility in daily activities.

Nurses play a critical role in improving patients' ability to self-administer insulin by combining **education, emotional support, skill training, and continuous follow-up**, ultimately leading to better adherence and quality of life.

Recommendations for future practice include the following:

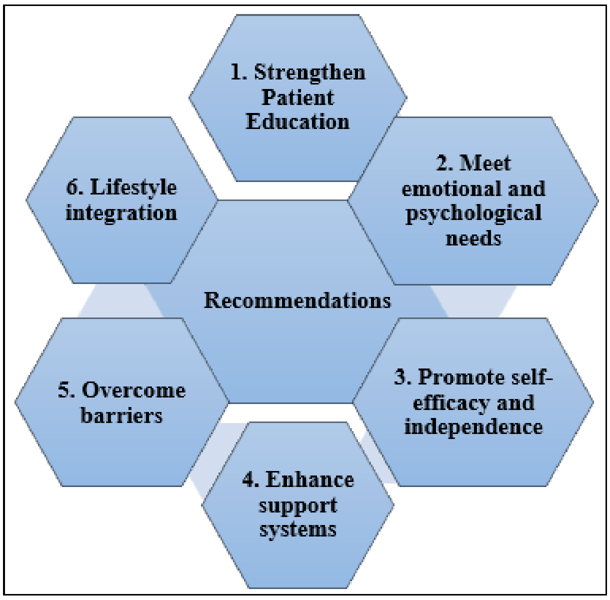

Figure 3: Recommendations

5. Summary

This qualitative study on the experiences of Diabetic patients about their self-Insulin administration highlights some of the challenges and demands of the individuals with self-insulin therapy. Patients may experience **social limitations**, such as embarrassment or discomfort when injecting Insulin in public, which can restrict participation in social events. **Work-related challenges** are also common, as maintaining insulin schedules can interfere with job responsibilities and time management.

Additionally, patients must follow **dietary and physical activity modifications**, which can feel restrictive. The ongoing need for self-care contributes to a **psychological burden**, with patients frequently thinking about their condition and feeling dependent on insulin. Overall, while patients gradually adapt to these changes, self-insulin administration imposes continuous physical, social, and emotional adjustments in daily life.

6. Conclusion

This study highlights that self-insulin administration is a multifaceted experience shaped by emotional, educational, social, and practical factors. Patients initially encounter fear, anxiety, and uncertainty, particularly related to needle use and self-injection techniques. However, with proper guidance and repeated practice, many develop confidence and gradually adapt to the routine. The findings also reveal that insulin therapy significantly impacts daily life, requiring structured routines, lifestyle modifications, and continuous self-monitoring, which may create both physical and psychological burdens.

Overall, improving patient education, providing emotional support, and strengthening follow-up care are essential to enhance self-efficacy, adherence, and quality of life among patients on insulin therapy.

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