RESEARCH PAPER

A Study To Assess The Knowledge And Practice Regarding Self-Insulin Administration Among Diabetic Patients In SGT Hospital, Gurugram

Isha[1], Sushmita[2], Pushp Kumar[3], Punit[4], Tamanna[5]

[1,2,3,4] Bsc Nursing 4thyear, SGT University
[5] PG Tutor, Adult Health Nursing, SGT University

ABSTRACT

Diabetes Mellitus is one of the most common chronic illnesses that become an important public health concern worldwide. The increasing rate of diabetes has resulted in increasing dependency rate on insulin therapy for maintaining blood sugar levels and avoid any complications. Successful insulin therapy highly depends on patient's ability to administer insulin properly and safely. Proper knowledge about insulin storage, dose preparation, injection technique, site rotation and disposal of syringes plays an important role in having effective sugar contol. However, in hospital or clinic, it is commonly observed that many diabetic patients have incomplete knowledge and follow incorrect practices while administering insulin.

The current study was conducted to assess the knowledge and practice about self-administration of insulin among diabetic patients attending SGT Hospital. A quantitative approach with a non-experimental descriptive research design was used for the study. The sample contains diabetic patients taking insulin therapy who fulfilled the inclusion criteria and consented to participate in study. Data were collected using structured knowledge questionnaire and observation checklist prepared.

The results of the study shows that a majority of participants had average knowledge whereas several patients shows deficiencies in practical aspects such as site rotation, maintenance of aseptic precautions and proper insulin storage. The study also shows that educational status and duration of insulin therapy had an effect on level of knowledge and practice among participants.

Keywords: Diabetes Mellitus, Insulin administration, Knowledge, Practice, Patient education, Nursing care.

How to cite this article: Isha, Sushmita, Kumar P, Punit, Tamanna. A Study To Assess The Knowledge And Practice Regarding Self-Insulin Administration Among Diabetic Patients In SGT Hospital, Gurugram. Int J Drug Deliv Technol. 2026;16(54s): 1652-1656. DOI: 10.25258/ijddt.16.54s.155

INTRODUCTION

Diabetes Mellitus is one of the most chronic disorders affecting individuals across all age groups. It is characterized by continuous high blood sugar because of impaired insulin secretions, resistance to insulin action, or a combination of both. Over the past few decades, the incidence of diabetes has increased due to rapid city growth, sedentary lifestyles, unhealthy dietary patterns, stress, obesity and genetic predisposition.

India continues to carry a burden of diabetes cases and is considered among countries with highest number of diabetic patients. The chronic nature of disease needs lifelong management and active participation of patients.in their self care. Improper management of diabetes may lead to many complications involving heart-related, renal, nervous and visual systems, thereby affecting the quality of life of individuals.

Insulin therapy remains an essential component in treatment of Type 1 diabetes mellitus and is also prescribe for patients with uncontrolled Type 2 diabetes mellitus. Since insulin is commonly administered by patients at home, proper knowledge and skill regarding self-administration become very important. Patients are expected to understand various aspects of insulin administration, including preparation of dose, timing of administration, maintenance of hygiene, selection and rotation of injection sites, storage of insulin and identification of complications related to therapy.

In many healthcare settings, it has been observed that diabetic patients often develop incorrect techniques due to improper education or lack of regular supervision.

Repeated use of same injection site, improper needle disposal, inaccurate dosage preparation, and improper storage practices are commonly problems. Such practices may disturb sugar control and increase the risk of complications.

Objectives:

1. To assess the level of knowledge of diabetic patients regarding self-insulin administration
2. To assess the practices followed by diabetic patients in self-administration insulin.
3. To find the association between knowledge and selected demographic variables.
4. To find the association between practices and selected demographic variables

METHODOLOGY

The current study was conducted using a quantitative research approach with a non-experimental descriptive research design to assess the knowledge and practice regarding self-insulin administration in diabetic patients attending SGT Hospital Gurugram, Haryana. The study was done in diabetic outpatient departments and medical wards where patients take insulin therapy on daily basis visited for treatment and follow-up care. The target population included all diabetic patients on insulin therapy, whereas the accessible population contains diabetic patients available during the period of data collection who complete the inclusion criteria. Participants aged 18 years and above, who were self-administering insulin and were able to understand Hindi or English language, were included in the study. A non-probability consecutive sampling technique was used to select the participants who consented to participate in the study. Data were collected using a structured tool developed after extensive review of literature and consultation with experts. The tool consisted of three section including demographic variables, a structured knowledge questionnaire, and a practice observation checklist related to self-insulin administration. Content validity of tool was done through expert opinion from specialist in medical-surgical nursing, and important modifications were done according to their suggestion. A pilot study was conducted on a small sample to assess the feasibility and clarity of tool, through which minor modifications were made. The collected data were organized and analyzed using descriptive and inferential statistics to interpret the findings of study.

RESULTS

SOCIO-DEMOGRAPHIC VARIABLES

Most the of participants [37.5%] were aged between 41-60 years. Males composed 52.5% of sample. Most participants had secondary education [37.5%] and 70% were diagnosed with Type 2 diabetes.

A significant proportion [72.5%] had received training for insulin administration mainly from doctors[51.7%] and nurses [48.3%].

Figure1: Distribution of participants according to educational level regarding self- insulin administration

Knowledge Level:

The results shows that:

- 56.3% had average knowledge.
- 25.0% had poor knowledge.
- 18.7% had good knowledge.

The mean knowledge score was 5.81+1.97, showing a moderate level of knowledge.

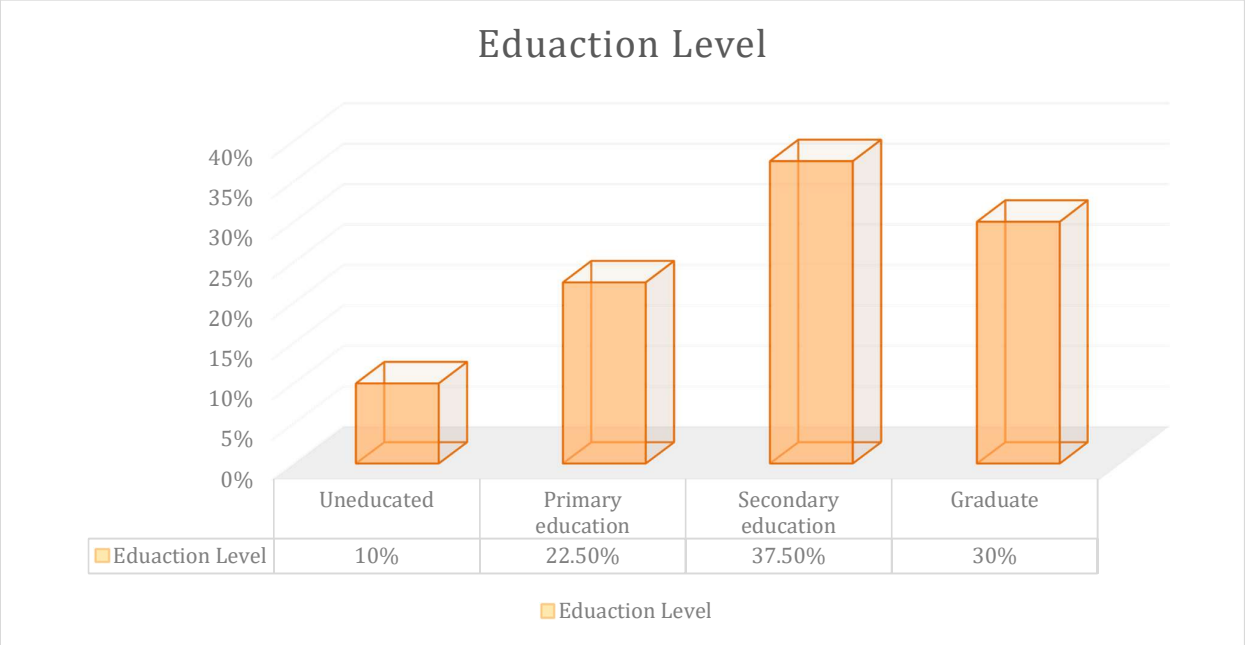

Figure 2: Distribution of participants according to knowledge level regarding self-administration of insulin

Practice Level:

Regarding practices:

- 52.5%had average practice.
- 32.5% had good practice.
- 15.0% had poor practice.

The mean practice score was 6.53+ 2.0, showing moderate practice. Most patients follows basic steps like hand washing and using new needles. However, important steps like removal of air bubbles and site rotation were often neglected.

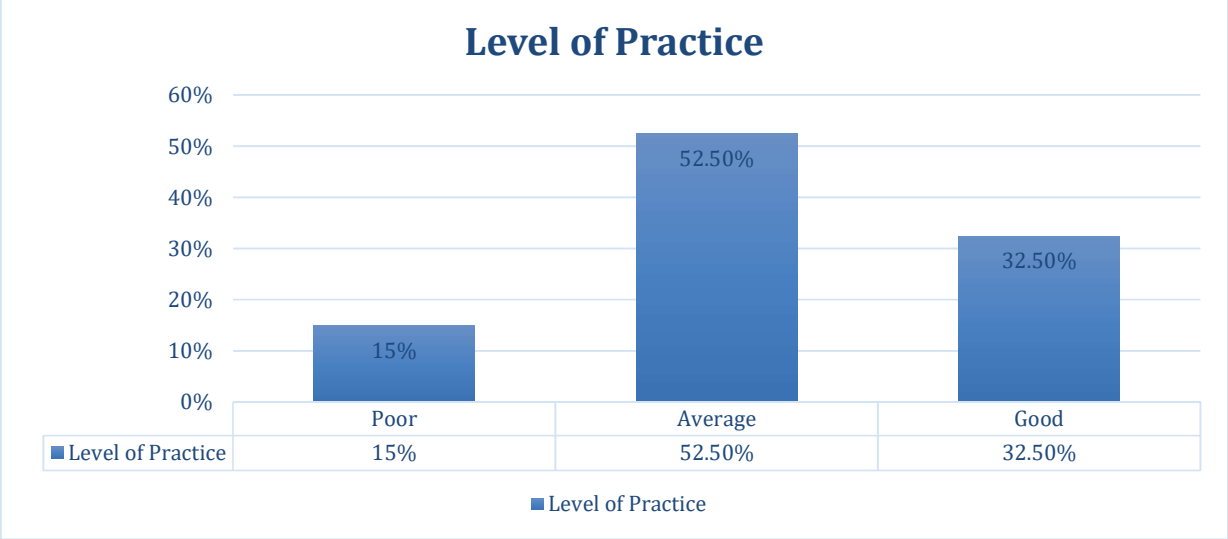

Figure3 : Distribution of participants according to practice level regarding self-insulin administration

Association Findings:

- Significant association between training and knowledge [p=0.0004]
- Significant association between training and practice [p=0.009]
- Training provider also showed significant association.
- No significant association found with age, gender, or duration of diabetes.

DISCUSSION

The study findings show that diabetic patients have a moderate level of knowledge and practices regarding self-insulin administration. Although most patient are aware of basic procedures, gaps exist in important steps such as site rotation and air bubble removal.These findings are constant with previous studies showing that patients mostly lack detailed knowledge of proper insulin administration techniques. The important association between training and improved knowledge and practice presents the importance of structured educational interventions. Despite receiving treatment for longer durations, many participants continued to practice unsafe techniques. This shows that periodic reinforcement and practical demonstration are important even for experienced insulin users. The findings underline the importance of strengthening diabetic education programmes within healthcare institutions. The results also focus on the role of healthcare professionals, especially nurses, in patient education and skill development

IMPLICATION

- Educational : The study point out the need for structured educational programmes about self-insulin administration in diabetic patients.Nurses and healthcare professionals should provide proper teaching about insulin preparation, injection storage, and disposal of syringes. Practical demonstrations, return demonstrations and reinforcement during follow-up visits can improve patient understanding.
- Service : The results shows the need for strengthening diabetic care services within healthcare institutions. Nurses should actively participate in monitoring and guiding patients during hospital visits and follow-up care. Continuous supervision and individual counselling can help improve practices, reduce errors and promote better sugar control in diabetic patients.
- Research : The study recommend the need for future research related to self-insulin administration practices among diabetic patients. Same study can be conducted on larger sample for better generalization of findings. Further research can also explore barriers affecting proper insulin administration and assess long-term outcomes of diabetic educational interventions.

LIMITATIONS

1. Study is limited to patients attending SGT Hospital.
2. Data collection time is limited to a short duration of 2 weeks.
3. Only patient who are available and willing to participate are included..

RECOMMENDATIONS

- Similar study may be conducted on a larger sample for better generalization of results
- Structured teaching programmes may be developed to improve insulin administration practices.
- Comparative studies can be occurred between rural and urban diabetic populations.
- Follow-up studies may be conducted to evaluate long-term maintenance of knowledge and practices.

CONCLUSION

The study concluded that diabetic patients possessed varying levels of knowledge about self-administration of insulin, with many participants demonstrating improper practice during insulin administration. Improper techniques related to site rotation, storage, and insulin handling were observed in many patients. The results shows that the need for continuous education, supervision, and reinforcement about insulin administration techniques. Effective diabetic education programmes organized by healthcare professionals, specially nurses, can contribute towards improving self-care practices, ensuring better sugar contol, and reducing complications associated with diabetes management.

REFERENCES

1. Shrivastava SR, Shrivastava PS, Ramasamy J. Role of self-care in management of diabetes mellitus. J Diabetes Metab Disord [Internet]. 2013 [cited 2026 Apr 20];12:14. Available from: https://link.springer.com/article/10.1186/2251-6581-12-1

2. Frid AH, Kreugel G, Grassi G, et al. New insulin delivery recommendations. Mayo Clin Proc [Internet]. 2016 [cited 2026 Apr 20];91(9):1231-1255. Available from: https://www.mayoclinicproceedings.org/article/S0025-6196(16)30310-7/fulltext

3. Kalra S, Mithal A, Sahay R, et al. Indian Injection Technique Study. Diabetes Ther [Internet]. 2017 [cited 2026 Apr 20];8(3):637-657. Available from: https://pubmed.ncbi.nlm.nih.gov/28289893/

4. Nasir BB, Buseir MS, Muhammed OS. Knowledge, attitude and practice towards insulin self-administration among diabetic patients. PLoS One [Internet]. 2021 [cited 2026 Apr 20];16(2):e0246741. Available from: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0246741

5. Jarab AS, Al-Qerem WA, Alqudah S, et al. Insulin-self administration among individuals with diabetes: Implications for improved practices. PLoS One [Internet]. 2025 [cited 2026 Apr 20];20(6):e0324846. Available from: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0324846
6. Stacciarini TSG, Pace AE, Haas VJ. Insulin self-administration technique with disposable syringe among patients with diabetes mellitus. Rev Lat Am Enfermagem [Internet]. 2009 [cited 2026 Apr 20];17(4):474-480. Available from: https://pubmed.ncbi.nlm.nih.gov/19820853/
7. Spollett G, Edelman SV, Mehner P, et al. Improvement of insulin injection technique: examination of current issues and recommendations. Diabetes Educ [Internet]. 2016 [cited 2026 Apr 20]. Available from: https://journals.sagepub.com/doi/10.1177/0145721716648017
8. Saltiel-Berzin R, Cypress M, Gibney M. Translating the research in insulin injection technique: implications for practice. Diabetes Educ [Internet]. 2012 [cited 2026 Apr 20]. Available from: https://journals.sagepub.com/doi/10.1177/0145721712455107
9. Choudhary A, Chouhan J, Gulati S, et al. Practice of insulin injection techniques among persons with diabetes in central India. Int J Adv Med [Internet]. 2021 [cited 2026 Apr 20]. Available from: https://www.ijmedicine.com/index.php/ijam/article/view/2863
10. Chawla R, Shunmugavelu M, Makkar BM, et al. Practical guidance on insulin injection practice in diabetes self-management in the Indian setting. Clin Diabetol [Internet]. 2019 [cited 2026 Apr 20]. Available from: https://www.researchgate.net/publication/334375499_Practical_guidance_on_insulin_injection_practice_in_diabetes_self-management_in_the_Indian_setting_an_expert_consensus_statement
11. Knowledge and practice of insulin-self-injection among diabetic patients. Ann Endocrinol [Internet]. 2023 [cited 2026 Apr 20]. Available from: https://www.sciencedirect.com/science/article/abs/pii/S0003426623005139
12. Kalra S, Pathan F, Kshanti IAM, et al. Optimising insulin injection techniques to improve diabetes outcomes. Diabetes Ther [Internet]. 2023 [cited 2026 Apr 20]. Available from: https://link.springer.com/article/10.1007/s13300-023-01460-y
13. American Diabetes Association. Standards of Care in Diabetes [Internet]. 2024 [cited 2026 Apr 20]. Available from: https://diabetesjournals.org/care/issue
14. World Health Organization. Diabetes [Internet]. Geneva: WHO; 2024 [cited 2026 Apr 20]. Available from: https://www.who.int/health-topics/diabetes
15. International Diabetes Federation. IDF Diabetes Atlas [Internet]. 2024 [cited 2026 Apr 20]. Available from: https://diabetesatlas.org
16. Centers for Disease Control and Prevention. Diabetes Management Guidelines [Internet]. 2024 [cited 2026 Apr 20]. Available from: https://www.cdc.gov/diabetes/index.html
17. Strauss K, De Gols H, Hannet I, et al. A pan-European epidemiologic study of insulin injection technique. Pract Diabetes Int [Internet]. 2002 [cited 2026 Apr 20]. Available from: https://onlinelibrary.wiley.com/doi/10.1002/pdi.314
18. Polonsky WH, Fisher L. Emotional and quality-of-life aspects of diabetes management. Curr Diab Rep [Internet]. 2011 [cited 2026 Apr 20]. Available from: https://link.springer.com/article/10.1007/s11892-010-0176-7
19. American Association of Diabetes Educators. Insulin Administration Guidelines [Internet]. [cited 2026 Apr 20]. Available from: https://www.diabeteseducator.org
20. Brunner & Suddarth's Textbook of Medical-Surgical Nursing [Internet]. Available from: https://shop.lww.com/Brunner---Suddarth-s-Textbook-of-Medical-Surgical-Nursing/p/9781975193064