

DEVELOPING AN INFORMATION BOOKLET TO ENHANCE KNOWLEDGE ON HYPOGLYCEMIA MANAGEMENT AMONG DIABETIC CLIENTS: A NURSING EDUCATION INITIATIVE

Mrs. Rashmi Behera* | Dr. Darshan Kaur Sohi** | Dr. Manjubala Dash***

*Research Scholar, Himalayan University, Itanagar, Arunachal Pradesh, India.

**Research Supervisor, Himalayan University, Itanagar, Arunachal Pradesh, India.

***Co-Supervisor, Himalayan University, Itanagar, Arunachal Pradesh, India.

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ABSTRACT

Background: Hypoglycaemia is one of the most common and potentially dangerous complications faced by individuals with diabetes, particularly those on insulin therapy or strict glycaemic control. Despite its significance, many patients remain unaware of the causes, symptoms, and proper management strategies.

Aim: This study aimed to develop a structured, patient-friendly information booklet to enhance diabetic clients' knowledge and self-management of hypoglycaemia.

Methods: A descriptive cross-sectional survey was conducted among 300 diabetic clients attending a tertiary hospital in Cuttack, Odisha. Data on demographic characteristics, knowledge, management, and preventive behaviours regarding hypoglycaemia were collected using a structured questionnaire. The booklet was developed based on identified knowledge gaps, validated by experts, and pre-tested for clarity and usability.

Results: The survey revealed that 60% of participants had adequate knowledge about hypoglycaemia, whereas 40% demonstrated inadequate understanding, particularly regarding management and prevention strategies. The booklet addressed these gaps with easy-to-read explanations, checklists, and practical guidance.

Conclusion: The developed information booklet offers a practical educational tool for diabetic clients, supporting improved self-care, timely recognition, and appropriate management of hypoglycaemia. Wider implementation of such patient-centered educational resources can enhance safety and reduce diabetes-related complications.

Keywords: Hypoglycaemia, Diabetes Mellitus, Patient Education, Nursing Intervention, Information Booklet.

ABOUT AUTHORS:



Author, Mrs. Rashmi Behera is a Ph.D. Scholar at Himalayan University, Itanagar, Arunachal Pradesh, India. Her academic interests include diabetes management, patient education, and prevention of metabolic complications. Through her research, she aims to enhance clinical awareness and empower diabetic clients to manage hypoglycaemia effectively through structured educational interventions.



Dr. Darshan Sohi is a distinguished research supervisor at Himalayan University, Itanagar, Arunachal Pradesh, India. She possesses extensive research experience across multiple domains of nursing and healthcare sciences. Over the years, she has successfully guided numerous postgraduate and Ph.D. scholars in clinical and educational research, with a strong emphasis on evidence-based nursing practices, patient-centered care, and innovative teaching methodologies. Her academic vision focuses on promoting high-quality nursing research, and enhancing professional competency among emerging scholars. Through her mentorship, Dr. Sohi continues to contribute significantly to advancing the standards of nursing education and research in India.



Dr. Manjubala Dash is a dedicated nursing educator and researcher with extensive experience across diverse domains of nursing and healthcare sciences, including maternal and women's health. She has successfully guided numerous postgraduate and Ph.D. scholars in clinical and educational research, emphasizing evidence-based practices, patient-centered care, and preventive healthcare interventions. Committed to nurturing critical thinking and professional excellence, Dr. Dash continues to advance the standards of nursing education and research.

INTRODUCTION

Diabetes mellitus (DM) is a chronic metabolic disorder affecting millions worldwide and remains a significant public health challenge. Hypoglycaemia, defined as a blood glucose level below 70 mg/dL, is one of the most critical acute complications encountered in diabetes care. While tight glycaemic control is essential to prevent long-term complications, it paradoxically increases the risk of hypoglycaemia, particularly in patients on insulin therapy or intensive oral hypoglycaemic regimens (Kalra et al., 2023). An information booklet is needed for this study because many diabetic clients still lack clear understanding about how to recognize, manage, and prevent episodes of hypoglycaemia in their daily lives. Although they may be aware of diabetes as a condition, most do not receive regular, practical education on what to do when blood sugar drops suddenly or how to avoid such episodes through balanced meals, medication timing, and lifestyle adjustments. A simple, easy-to-read booklet serves as a constant guide that patients and their families can refer to at home, helping them make informed decisions and act quickly in emergencies. By reinforcing key messages about self-care, diet, medication use, and early symptom recognition, the information booklet empowers patients to manage their condition safely, reduces the risk of complications, and improves overall quality of life. Hypoglycaemia not only causes immediate physical symptoms such as sweating, palpitations, dizziness, and tremors but can also lead to severe consequences like cognitive impairment, seizures, cardiac arrhythmias, and even sudden death if left untreated. Recurrent hypoglycaemic episodes may generate fear and anxiety, reducing patients' confidence in self-management and adherence to therapy. Developing an information booklet for diabetic clients is essential in promoting self-management and preventing complications such as hypoglycaemia. Educational materials enable patients and their families to understand the importance of lifestyle modifications, medication adherence, and early recognition of warning signs (Watson, 2002).

Evidence suggests that empowering patients through accessible educational tools significantly enhances compliance and reduces hospital readmissions (Williams & Pickup, 2004). Comprehensive nursing resources, such as *Brunner & Suddarth's Textbook of Medical-Surgical Nursing*, emphasize that health education is a cornerstone of diabetes care and patient-centered nursing practice (Smeltzer et al., 2008). Furthermore, studies highlight that information booklets simplify complex clinical knowledge into practical steps, fostering confidence in day-to-day disease management (Suleiman et al., 2019). In this context, developing a structured and culturally sensitive information booklet becomes a key nursing intervention aimed at improving awareness, preventing hypoglycemia, and enhancing quality of life among diabetic clients (American Diabetes Association, 2023).

Also Evidence suggests that in resource-limited settings such as Eastern India, a lack of structured diabetes education contributes significantly to poor awareness of hypoglycaemia. Many patients fail to recognize early warning signs or know how to respond appropriately, which can exacerbate complications and hospitalizations. In response to these findings, this study aimed to develop a structured, patient-centered information booklet for diabetic clients, addressing identified gaps in hypoglycaemia awareness, management, and prevention. By combining survey data with best-practice guidelines, the booklet provides an educational tool that is accessible, practical, and directly applicable to daily self-care.

METHODOLOGY

Study Design and Setting : A descriptive, cross-sectional survey was conducted among 300 diabetic clients attending both outpatient and inpatient services at a tertiary care hospital in Cuttack, Odisha.

Sampling and Participants : Participants were selected using purposive sampling to include a diverse range of ages, educational levels, and treatment modalities. This ensured the booklet would be relevant and understandable for the target population.

Data Collection

A structured questionnaire was used to collect information on:

- **Demographics:** age, gender, educational status, duration of diabetes, and type of treatment (insulin or oral agents).
- **Knowledge of hypoglycaemia:** symptoms, severity, causes, and risk factors.
- **Management practices:** immediate corrective measures, dietary adjustments, medication awareness.
- **Preventive behaviours:** regular monitoring, meal planning, exercise, and emergency readiness.

Data were analysed using descriptive statistics and chi-square tests to explore associations between knowledge levels and demographic variables.

MAJOR FINDINGS

Table 1: Demographic Characteristics of Study Participants (N = 300)

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	160	53.4
	Female	140	46.6
Age (years)	18–30	60	20.0
	31–40	115	38.3
	41–50	80	26.7
	>50	45	15.0
Educational Status	Illiterate	30	10.0
	Primary	120	40.0
	Secondary	110	36.7
	Graduate	40	13.3
Type of Diabetes Treatment	Oral hypoglycaemic agents	200	66.7
	Insulin	100	33.3

Table 2: Knowledge Level of Participants Regarding Hypoglycaemia (N = 300)

Knowledge Aspect	Inadequate (n, %)	Moderately Adequate (n, %)	Adequate (n, %)
General knowledge	40 (13.3)	195 (65.0)	65 (21.6)
Management knowledge	125 (41.6)	65 (21.6)	110 (36.6)
Prevention knowledge	50 (16.6)	170 (56.6)	80 (26.6)

The survey revealed that knowledge gaps were most pronounced in management and preventive strategies, highlighting the need for structured patient education.

Development of the Information Booklet

The booklet was designed to be patient-friendly, visually engaging, and easy to understand. The content was informed directly by the survey findings, focusing on areas where knowledge was inadequate.

Table 3: Classification of Hypoglycaemia in the Booklet

Severity	Blood Glucose Level	Symptoms	Management Strategy
Mild	<70 mg/dL	Sweating, shaking, palpitations, hunger, nervousness	15 g oral carbohydrate; retest in 15 min; repeat if necessary
Moderate	<60 mg/dL	Blurred vision, mental confusion, lack of concentration, hunger	15 g oral carbohydrate; retest and repeat if needed
Severe	<50 mg/dL	Loss of consciousness, convulsions	Call emergency services; administer carbohydrate after recovery

Table 4: Quick-Acting Carbohydrates Recommended in the Booklet

Food Item / Preparation	Approx. Carbohydrate Content (g)
4 oz fruit juice	15 g
Glucose tablets (3–4 tablets)	15 g
Glucose gel (1 tube)	15 g
Small hard candies (4–6 pieces)	15 g
Honey (1–2 tablespoons)	15 g
Table sugar (3 tsp dissolved in water)	15 g

Table 5: Booklet Content Overview

Section / Chapter	Key Topics Covered
Introduction & Definition	Importance of awareness, definition of hypoglycaemia
Classification of Hypoglycaemia	Mild, moderate, severe; corresponding symptoms and blood glucose levels
Causes & Risk Factors	Missed meals, medication errors, exercise, alcohol, anxiety, weight gain
Symptoms	Physical, cognitive, and behavioural manifestations; night-time hypoglycaemia
Hypoglycaemia Management Checklist	Recognition, differentiation, treatment, emergency response
Preventive Measures	Meal planning, glucose monitoring, exercise precautions, carrying sugar, bedtime snack
Complications	Seizures, cognitive impairment, coma, death

DISCUSSION

The survey confirmed significant gaps in hypoglycaemia management and prevention knowledge, particularly regarding emergency response and daily preventive measures. These gaps highlight the critical role of patient education in improving safety and reducing complications.

The information booklet serves as a structured educational intervention, translating clinical knowledge into practical guidance. By addressing symptoms, risk factors, treatment strategies, and preventive measures, the booklet empowers patients to recognize early warning signs, act promptly, and prevent recurrence.

Educational tools like this are especially valuable in resource-limited settings, where patients may have limited access to diabetes education programs. A structured booklet can supplement clinical consultations, reinforce instructions, and serve as a reference for patients and caregivers.

The findings support integrating patient-centered educational materials into routine diabetes care to improve self-management, adherence, and quality of life.

CONCLUSION

Hypoglycaemia remains a major limiting factor in diabetes management. Structured patient education, including tools like information booklets, is essential for improving awareness, preventing complications, and supporting safe glycaemic control. The developed booklet provides a practical, accessible means to empower diabetic clients in Cuttack, Odisha, and can be adapted for broader use in similar settings.

Implications for Nursing Practice:

- Nurses play a pivotal role in educating patients about hypoglycaemia risks, recognition, and management.
- Information booklets can complement bedside teaching, counselling, and routine follow-ups.
- Adoption of patient-friendly educational tools can enhance self-care, reduce complications, and improve patient safety.

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