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Case Report

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Application of Orem's Self-Care Deficit Theory to Guide Family-Centered Education of Older Adult with Complex Chronic Conditions: A Case Report

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Abstract

Background: The global rise in chronic conditions, such as Type 2 Diabetes Mellitus, poses significant self-management challenges for older adults, particularly those with low health literacy. Effective management often relies on the capacity of family caregivers. This case report demonstrates the novel application of Dorothea Orem's Self-Care Deficit Nursing Theory as a framework to systematically structure a family-centered educational intervention for a complex geriatric patient.

Case presentation: An 89-year-old, illiterate male with a 20-year history of Type 2 Diabetes Mellitus and multiple comorbidities, including chronic kidney disease and hypertension, was admitted to the hospital. He presented with severe hyperglycemia, delirium, and an infected sacral pressure ulcer. A comprehensive nursing plan was developed based on Orem's theory, utilizing wholly, partly, and supportive-educative compensatory systems. The intervention focused on identifying self-care deficits and empowering the patient's son as the primary self-care agent through structured, theory-guided education on insulin administration, glucose monitoring, wound care, and nutritional management. The intervention resulted in stabilized blood glucose levels, progressive wound healing, and enhanced caregiver competency and confidence.

Conclusions: Applying Orem's Self-Care Deficit Nursing Theory provides a robust and practical framework for managing complex chronic care in geriatric patients with significant self-care limitations. This theory-driven, family-centered approach can improve clinical outcomes, build sustainable caregiver capacity, and support successful aging in the community. It serves as a replicable model for translating nursing theory into effective practice.

Keywords: Case Report, Geriatric Nursing, Orem Self Care Model, Family-Centered Nursing, Diabetes Mellitus.

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List of abbreviations

T2DM: Type 2 Diabetes Mellitus
SCDNT: Self-Care Deficit Nursing Theory
HTN: Hypertension
HLP: Hyperlipidemia
CKD: Chronic Kidney Disease
BPH: Benign Prostatic Hyperplasia
BMI: Body Mass Index
HbA1c: Hemoglobin A1c
BUN: Blood Urea Nitrogen
ESR: Erythrocyte Sedimentation Rate

Background

Type 2 Diabetes Mellitus (T2DM) is a global health crisis, affecting over 589 million people, with projections estimating an increase to 852.5 million by 2050 [1]. Accounting for the vast majority of diabetes cases, T2DM disproportionately affects low- and middle-income countries, where 80.6% of cases are concentrated, and healthcare expenditures are significantly lower, limiting access to resources [2]. The complexity of T2DM management, involving nutritional therapy, exercise, and pharmacotherapy, poses significant challeng-

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es, particularly for older adults with comorbidities and reduced functional capacity [3].

Older adults with T2DM frequently rely on family caregivers due to difficulties in self-care stemming from low health literacy and multiple health conditions [4]. The lack of targeted interventions to support family caregivers may contribute to variability in care delivery and increased caregiver burden when supporting patients with chronic, life-limiting illnesses [5]. This gap underscores the need for systematic approaches to empower caregivers to effectively support T2DM management in community settings.

This case report explores the application of Dorothea Orem's Self-Care Deficit Nursing Theory (SCDNT) to address these challenges through a family-centered educational intervention [6]. By leveraging SCDNT's supportive-educative system, this study demonstrates how nurses can enhance caregiver competence, enabling effective T2DM management for an older adult with comorbidities. This approach highlights the potential of theory-driven interventions to improve health outcomes in community-based care.

Case Presentation

Patient Information

The patient, an 89-year-old married man, a retired farmer, illiterate, and residing with his son's family in a rural village, was admitted to the hospital with uncontrolled hyperglycemia (blood glucose 400–500 mg/dL) and a worsening 5x5 cm sacral wound with purulent discharge that had appeared approximately one week prior. Diagnosed with Type 2 Diabetes Mellitus (T2DM) for 20 years and on insulin for 10 years, he also had hypertension, hyperlipidemia, chronic kidney disease, benign prostatic hyperplasia, and diabetic retinopathy. His surgical history included cataract surgery. Due to illiteracy and frailty, he depended entirely on his son for medication administration and glucose monitoring.

Clinical Findings and Diagnostic Assessment

On admission, the patient exhibited delirium, leg weakness, and vomiting, with blood glucose at 550 mg/dL, HbA1c at 9.9%, blood urea nitrogen at 122 mg/dL, serum creatinine at 3.15 mg/dL, and erythrocyte sedimentation rate at 47 mm/hr, indicating poor glycemic control, severe renal impairment, and inflammation [7]. Physical examination revealed a BMI of 33.79 kg/m² (Class 1 obesity), decreased foot sensation, absent posterior tibial and dorsalis pedis pulses, and prolonged capillary refill (>3 seconds). The sacral wound, initially a small lesion, had worsened due to manipulation.

A nursing assessment using Orem's Self-Care Deficit Nursing Theory (SCDNT) identified significant self-care deficits across multiple domains [8]:

Universal Self-Care Requisites

- Nutrition: Inadequate dietary adherence due to consumption of high-carbohydrate, high-fat foods (e.g., rice, saturated fats), exacerbated by illiteracy and cultural dietary preferences.
- Fluid Balance: Risk of dehydration from vomiting and polyuria due to uncontrolled hyperglycemia.
- Elimination: Urinary urgency and nocturia linked to benign prostatic hyperplasia.
- Activity and Rest: Limited mobility due to frailty and neuropathic leg weakness, restricting physical activity.
- Solitude and Social Interaction: Dependence on family for daily care, with limited health literacy impacting communication.

Developmental Self-Care Requisites

- Age-related frailty and cognitive decline (delirium) hindered self-care capacity, necessitating caregiver support.

Health Deviation Self-Care Requisites

- Disease Management: Poor glycemic control (HbA1c 9.9%) and medication non-adherence due to lack of knowledge and dependence on family.
- Complication Prevention: Infected sacral wound and risk of further diabetic complications (e.g., neuropathy, retinopathy).
- Health Maintenance: Inadequate knowledge of T2DM management, wound care, and infection prevention.

Therapeutic Intervention

The patient received comprehensive medical and nursing care. Medical management included an intravenous insulin protocol, broad-spectrum antibiotics (Meropenem, Linezolid), and chronic medication adjustments [3]. Nursing interventions were structured using Orem's three systems [8]:

- **Wholly Compensatory System**: In the acute phase, nurses managed complex tasks, including intravenous insulin administration, wound debridement, and hourly glucose monitoring, due to the patient's inability to perform self-care [9].
- **Partly Compensatory System:** As the patient stabilized, nurses collaborated with the family, involving the son in tasks like meal preparation (guided by a dietitian's culturally tailored plan) and routine dressing changes under supervision [10].
- **Supportive-Educative System**: The primary focus was empowering the son as a self-care agent. Education, tailored for low health literacy, used visual aids (e.g., Eatwell Guide) and hands-on training in insulin administration, glucose monitoring, wound care, and light physical activity. The Michigan Diabetes Knowledge Test guided educational content to address knowledge gaps [11].

Follow-up and Outcomes

Over six days, the patient's blood glucose stabilized (70–150 mg/dL), renal markers improved (BUN reduced to 70 mg/dL), and the sacral wound showed healing with reduced discharge. The son achieved 90% proficiency in insulin administration and wound care, and the family adhered to the nutritional plan in 80% of instances, enabling successful transition to community-based care. This case underscores SCDNT's efficacy in structuring family-centered interventions to address self-care deficits, enhancing T2DM management and caregiver competence in resource-limited settings.

Discussion and Conclusions

This case report details the successful application of Dorothea Orem's Self-Care Deficit Nursing Theory (SCDNT) to structure the care and family education for an 89-year-old man with complex, poorly controlled T2DM and multiple comorbidities. The

patient's presentation with severe hyperglycemia, an infected pressure ulcer, and delirium is a stark example of the potential consequences when self-care demands exceed the capacity of an older individual, particularly one with low health literacy living in a rural setting [12]. The core innovation of our approach was not merely the involvement of the family, but the systematic application of a formal nursing theory to guide the assessment, planning, and transfer of care responsibilities to the patient's son.

The management of chronic diseases in the geriatric population is a well-documented challenge [13]. Standard educational models for diabetes management often assume a level of patient literacy and functional ability that may not be present in older adults with type 2 diabetes, particularly those with age-related limitations such as frailty [14]. This case highlights how such models can fail, leading to poor glycemic control and severe complications, as evidenced by the patient's HbA1c of 9.9%. Our intervention directly addressed this gap by shifting the focus of the supportive-educative system from the patient to his primary caregiver. By using Orem's framework, we were able to transition logically from a wholly compensatory nursing system during the acute crisis to a partly compensatory and finally a supportive-educative system that empowered the son to become a competent self-care agent [8]. This theory-guided approach provided a clear pathway for building caregiver skills and confidence in tasks ranging from insulin administration to nutritional planning.

The use of culturally-sensitive and literacy-appropriate tools, such as visual food guides and hands-on demonstrations, was critical to the success of the educational component [15]. This aligns with literature advocating for tailored educational strategies in low-literacy populations [16]. The significant improvement in the patient's clinical markers—stabilization of blood glucose and improvement in renal function—demonstrates the direct impact of this empowered and structured family care.

In conclusion, this case report provides three main takeaways for the field of geriatric nursing. First, it reaffirms the practical utility of formal nursing theory; Orem's SCDNT is not merely an academic concept but a powerful tool for structuring complex care. Second, it presents a replicable model for systematically integrating and training family caregivers, which is essential for the sustainable, long-term management of chronic disease in the community. Third, it underscores that for geriatric patients with significant self-care deficits, the target of education must often be the family unit. By empowering the caregiver, we ultimately enhance the patient's health, safety, and ability to age in place. This approach holds significant potential for improving outcomes, reducing caregiver burden, and preventing costly hospital readmissions.

Declarations

Ethics approval and consent to participate

Written informed consent was obtained from the patient's son, who is his primary caregiver and legal next-of-kin, for participation in this case study. As this manuscript is a retrospective case report of a single patient, the need for formal ethics approval was waived by the Institutional Review Board of Tabriz University of Medical Sciences.

Consent for Publication

Written and signed consent to publish all clinical details and any accompanying information was obtained from the patient's son. A copy of the consent form is available for review by the Editor of this journal upon request.

Availability of Data and Materials

All data generated or analysed during this study are included in this published article.

Competing Interests

The authors declare that they have no competing interests.

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Authors' Contributions

FRM, FPB, HT, SA, SA was involved in the direct nursing care of the patient, applied Orem's theory, collected the data, and was the major contributor in writing the manuscript. SA contributed to the revision of the manuscript. All authors read and approved the final manuscript.

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