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Case Report

Managing Diabetes on the Autism Journey: Guidance through the McGill Nursing Model

Otizm Yolculuğunda Yeni Diyabet Tanısı Almak: McGill Hemşirelik Modeli ile Destek

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ABSTRACT

This study presents the case of a 14-year-old diagnosed with autism spectrum disorder (ASD) following a new diagnosis of Type 1 diabetes, focusing on the nursing care and support provided during this transition. Autism is a neurodevelopmental disorder, typically beginning in the pre-school years, characterized by challenges in social communication and interaction, as well as repetitive behaviors. Type 1 diabetes, on the other hand, is a chronic condition commonly seen in children, characterized by the autoimmune destruction of pancreatic beta cells. Managing these two coexisting conditions poses unique challenges, adding complexity to healthcare management for both the individual and their parents. In this context, the McGill Model of Nursing, which emphasizes leveraging the strengths of both the individual and their parents, is applied to promote their health potential and well-being. The McGill Model of Nursing assumes that all families have inherent health potential, and their capacity to overcome health-related challenges is central to promoting overall family well-being. The model seeks to enhance, empower, and sustain the health and resilience of individuals and families. It prioritizes developing, supporting, and complementing their abilities to manage current health conditions, diseases, challenges, and obstacles effectively. This study thoroughly examined the patient's hospitalization and treatment process, focusing on diabetes management, education, the discharge period, and post-discharge follow-up. The findings revealed that theory-based care significantly supported the adaptation process for both the child and the family.

Keywords: *mcgill nursing model, type 1 diabetes, autism spectrum disorder.*

ÖZET

Bu çalışma, Otizm Spektrum Bozukluğu tanısı almış olan 14 yaşındaki bir bireyin Tip 1 diyabet tanısı almasının ardından yaşadığı süreci ve bu süreçte uygulanan hemşirelik bakımını ele almaktadır. Otizm, genellikle okul öncesi dönemde başlayan ve sosyal iletişim ve etkileşimde zorluklar ile tekrarlayıcı davranışlarla karakterize edilen bir nörogelişimsel bozukluktur. Tip 1 diyabet ise pankreas beta-hücrelerinin otoimmün destruksiyonundan kaynaklanan ve çoğunlukla çocuklarda görülen kronik bir hastalıktır. Bu iki durumun bir arada bulunması, hastanın ve ailenin sağlık yönetimini daha karmaşık hale getirebilir. Bu bağlamda, McGill Hemşirelik Modeli'nin uygulanması, hemşirelik bakımında birey ve ailenin güçlü yönlerine odaklanarak, onların sağlık potansiyellerini geliştirmeyi hedeflemektedir. Bu modelin varsayımlarına göre, tüm aileler sağlık potansiyellerine sahiptir ve sağlıkla ilgili problem çözme yetenekleri, aile sağlığını geliştirme sürecini yansıtır. Model, birey ve ailesinin sağlıklarını artırmayı, güçlendirmeyi ve sürdürebilmeyi amaçlar. McGill Hemşirelik Modeli'nde hastaların mevcut sağlık durumları, hastalıkları, engelleri ve diğer sorunlarla başa çıkmalarını desteklemek için birey ve

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ailelerin yeteneklerini geliştirmek, desteklemek ve tamamlamak ön plandadır. Çalışmada, Olgunun hastaneye yatışı ve tedavi süreci detaylı bir şekilde incelenmiş, diyabet yönetimi, eğitimleri ve taburculuk dönemi ile taburculuk sonrası dönem kapsamlı bir şekilde ele alınmıştır. Sonuç olarak, teori temelli bakımın hem çocuğun hem de ailenin uyum sürecine olumlu katkı sağladığı gözlemlenmiştir.

Keywords: *mcgill nursing model, tip 1 diyabet, otizm spektrum bozukluğu*

INTRODUCTION

Autism spectrum disorder (ASD) is a collection of neurodevelopmental disorders that usually emerge during the pre-school years, characterized by challenges in social communication and interaction, as well as restricted and repetitive behaviors. According to the American Psychiatric Association, the severity and nature of symptoms in individuals with ASD can vary considerably. These challenges often lead to significant difficulties in daily life and are managed through various therapeutic and educational interventions [1]. According to the Centers for Disease Control and Prevention (CDC), the prevalence of ASD has increased from 1 in 44 children two years ago to 1 in 36 in 2023 [2]. The American Academy of Pediatrics recommends screening children for ASD at 18 and 24 months of age [3]. Although comprehensive studies on the prevalence of ASD in Türkiye are limited, the trend seems to follow global patterns [4]. It is estimated that approximately 1,142,586 individuals with autism, aged 0 to 14, live in Türkiye [5].

Type 1 diabetes is characterized by elevated blood sugar levels, hyperglycemia, due to insulin deficiency caused by the loss of pancreatic beta cells. It is a prevalent chronic condition among children and adolescents [6-8]. Both Type 1 diabetes and neurodevelopmental disorders are prevalent chronic conditions in childhood and adolescence, with the presence of one potentially increasing the risk of developing the other [7]. The global prevalence of diabetes continues to rise steadily. As of 2017, there were 451 million adults living with diabetes worldwide, and this number is expected to increase to 693 million by 2045 [9].

Adjusting to a new diagnosis of Type 1 diabetes can be especially difficult for both the child and the family, particularly when ASD is also present. Therefore, effective health management, family education, and comprehensive disease management are essential for supporting the child and family during this challenging time.

In this process, care delivered through a theory-based model of nursing can facilitate adaptation for both the child and the family. Nursing provides a structured framework for addressing individual health needs, managing treatment, and enhancing quality of life [10].

The McGill Nursing Model

The McGill Model of Nursing (MMN) was developed in the 1970s under the guidance of Dr. Moyra Allen and Mona Kravitz at the McGill School of Nursing in Canada. Originally referred to as "Responsive Nursing," "Allen's Model of Nursing," or "Complementary Nursing," the model was eventually refined and became recognized as the "Developmental Model of Health and Nursing" [11,12].

The McGill Model of Nursing is a holistic nursing model that places the individual and their parents at the center of care. It encourages individuals and families to take an active role in managing and improving their health. The model promotes a collaborative, empowering approach that enhances the overall well-being of both patients and their families [11,13,14].

The model defines the four key concepts of person, health, environment, and nursing, with nursing being viewed as an essential part of the environment [10,11,15].

Person: In the McGill Model of Nursing (MMN), the individual is viewed as a dynamic being who undergoes continuous changes from birth to death, adapting to these changes along the way. The individual, along with their significant relationships, is seen as a whole and as an open system that constantly interacts with and responds to its environment [16].

Health: Health is seen as a dynamic and multidimensional process. It is influenced by the daily life experiences of the individual and their parents, with a deep connection to developmental stages and the changes that occur over time. [12,17].

Environment: The environment plays a crucial role in helping the individual learn and adopt healthy behaviors. The nurse is responsible for creating supportive learning environments or adapting the existing environment to facilitate this process [12].

Nursing: Nursing is conceptualized as a science focused on promoting health and fostering positive interactions. The nurse's role involves helping individuals and families realize their potential, thereby contributing to overall health promotion [18,19].

In the MMN, nursing is described as a practice focused on collaborative and health-promoting interactions. Such interactions enable nurses to actively participate in the ongoing processes of change and learning experienced by individuals and their families. The nurse takes on a collaborative, facilitative, and motivating role, working alongside individuals and their families to support the development of healthy living habits. This process utilizes various techniques, including observation and knowledge sharing, asking awareness-raising questions, effective communication and active listening, information collection and dissemination, setting goals, decision-making, planning, testing out ideas, and collaboratively evaluating outcomes over time [17].

The most important concept in MMN is the '*Empowerment of the Family*.' Some nursing models adopt a deficit-based approach, whereas others, including certain theorists, emphasize the concept of 'empowerment.' Newer frameworks like the MMN place empowerment at their core. In the MMN, nurses are encouraged to focus on the strengths of individuals and families, helping them recognize and utilize their own resources [13,20].

Assumptions of the Model:

1. Every family has inherent health potentials, including strengths, motivation, and resources, which serve as the foundation for health-promoting behaviors.
2. A family's ability to address health-related challenges and accomplish its goals demonstrates its progress in the health promotion process.
3. The outcomes of effective health promotion include enhanced competence in health-related behaviors and an overall improvement in health status [21,22].

This model seeks to improve the well-being of individuals and families by fostering active family involvement in nursing care. It views health as a dynamic process, with nurses supporting individuals and families in addressing and enhancing their health-related challenges [23].

It is widely recognized that various nursing models are used to manage chronic diseases. In pediatric patients with chronic conditions, family-centered care, self-management, and efficient resource utilization are essential for both the child and their family. Hence, we opted for the McGill Model of Nursing, which emphasizes empowering patients and their families and enhancing their capacity to deliver care.

CASE REPORT

A 14-year-old male patient was diagnosed with ASD at the age of two. He has no known additional medical conditions and was born at term after an uneventful pregnancy. His medical history has been otherwise unremarkable until the age of two. The patient attends a special education school twice a week and participates in inclusive education at a state high school five days a week. Additionally, he takes computer and music courses at a private center twice a week after school. The patient's mother is a housewife, and the father is retired. The patient has no siblings and lives near downtown, with relatives nearby.

The patient had two episodes of nocturnal enuresis the week prior to hospitalization and was taken to the Family Health Center (FHC) by his mother. Blood tests at the FHC revealed a fasting blood glucose level of 170 mg/dL. Following episodes of nausea and vomiting, the patient was taken to the pediatric emergency department. Urinalysis showed 3+ ketones, and a blood glucose was 378 mg/dL. The HbA1c level was 12.4% (normal range: 4-6%).

The patient was evaluated at the pediatric endocrinology clinic. Following fasting and postprandial blood sugar monitoring, subcutaneous insulin therapy was initiated, consisting of bolus insulin administered three times daily and basal insulin once daily. During their hospital stay, the parents received education on managing type 1 diabetes. Blood glucose levels were monitored four times a day, and the patient was transitioned to a basal-bolus insulin regimen. Upon discharge, the patient and his parents were equipped with diabetes self-management skills and given instructions for follow-up appointments. Tables 1 and 2 present the implementation of the McGill Model of Nursing practice.

Informed written consent was obtained from the parents, who were informed that the case would be used exclusively for scientific purposes.

Table 1. Strategies to Identify the Individual's Strengths Using the McGill Model of Nursing

Strategies to Identify the Individual's Strengths	
A) Identifying Strengths and Providing Feedback	*Identifying Strengths:* The individual's involvement in inclusive education five days a week, along with special education twice a week, reflects a strong learning motivation and a willingness to engage in social interactions. Participation in computer and music courses reflects the individual's interest in technology and art, suggesting potential talents in these areas. The support systems within the family, with the mother being a housewife and the father retired, indicate that the patient receives strong parental support, and the family dynamics appear to be healthy and nurturing. *Feedback:* The parents were informed that their support is a key factor in the individual's achievements in education and social activities, emphasizing the vital role of parental involvement in fostering progress and success for individuals with ASD. The parents were asked if they were aware of the individual's strengths. They reported that the individual has good communication with classmates in special education classes, is capable of forming relationships, and can independently stay at home. The individual's recognition as the top borrower and reader of books from the library at the inclusive school brought great joy to the family. This accomplishment has also significantly boosted the individual's self-confidence. In conclusion, the parents recognize the individual's development and strengths, including achievements in inclusive education, engagement in various activities, and maintaining positive communication within the family. Although the diagnosis of a new illness was initially concerning, the individual's active participation in diabetes education sessions has been instrumental in fostering their understanding and effective management of the condition.
B) Developing Strengths	*Supportive Interactions:* The parents reiterated the positive impact of the individual's attendance at courses and educational sessions on their overall development. *Education and Information Provision:* During diabetes education: Day 1: General education on diabetes was provided to the parents, covering key topics such as the different types of diabetes, the causes of the condition, available treatment options, and the importance of monitoring blood glucose levels. Day 2: Instruction was provided on how to measure blood glucose, including training the parents on using the glucose meter, choosing finger-prick sites, and handling test strips and lancing devices. Training was also given on the use of insulin pens and proper insulin injection sites. The patient actively participated in these sessions and demonstrated full cooperation. The parents started administering insulin with the nurse's assistance. Day 3: Information was provided on hypoglycemia, covering its significance, how to recognize the symptoms, and how to respond in hypoglycemic situations. The patient was educated about the possible signs of low blood glucose, such as dizziness, hand tremors, and sweating. Feedback was received to ensure understanding and readiness to manage these situations effectively. Day 4: Education on hyperglycemia was provided, covering its causes and offering dietary guidance. The parents were informed about the appropriate actions to take in case of hyperglycemia and when to seek medical attention based on blood glucose levels. Feedback was collected from the parents to ensure they understood the information and felt confident in managing hyperglycemia. Day 5: Parents answered written and multiple-choice questions to provide feedback after a review of the training. To confirm their understanding, they then reiterated the information to the nurse.

Table 1. Strategies to Identify the Individual's Strengths Using the McGill Model of Nursing

Strategies to Identify the Individual's Strengths	
C) Enabling Patients to Discover Their Strength	*Raising Awareness:* The patient and parents were complimented on their excellent learning abilities, social interaction skills, and hospitalization management. The parents were reassured that that they would be able to handle the diabetes diagnosis with the same resilience and support that they had used to successfully manage the condition when the patient was diagnosed with autism at the age of two years old. To alleviate fears related to diabetes management at home, the contact details of the diabetes educator were shared, ensuring ongoing support for any concerns related to diabetes management.

Table 2. Strategies to Mobilize the Individual's Resources Using the McGill Model of Nursing

Strategies to Mobilize the Individual's Resources	
1. Resource Identification	*Individual Resources:* The individual's personal skills, including technological skills, musical talents, reading habits, and continuous education. *Family Resources:* The parents' openness to information and education, their ability to manage chronic illnesses, and their proximity to close relatives. *Environmental Resources:* The proximity of parents' home to downtown, the presence of a regular school, available courses, and a healthcare facility providing diabetes management education. *Social Resources:* Support groups with parents in special education classes and upcoming group sessions on diabetes. The parents were reassured that they were not alone and had many resources available to them, emphasizing the crucial role these resources play in effectively managing the process.
B) Utilizing and Mobilizing Resources	*Education and Information:* The parents were introduced to the child diabetes education modules offered by the Ministry of Health. The parents learned about the presence of other children with diabetes through the special education group. *Access to Resources:* The parents discussed and evaluated the individual's blood glucose levels with the pediatric endocrinologist. The patient's parents were advised by the hospital dietician, who gave them advice on how to switch to a healthy diet and what foods to avoid. *Collaborative Approach:* Because insulin injection times and class schedules did not coincide well, the parents worked with the teacher to adjust class schedules, and meal times were organized around class schedules. Hospital's contact details were provided to access support outside their scheduled appointments, along with information on hospital follow-up times.
C) Ensuring Regular Use of Resources	*Monitoring and Evaluation:* Appointment dates were scheduled for ÖY and the parents, who were informed that blood glucose levels and insulin dosage tracking charts should be kept up to date for the check-ups. *Support and Encouragement:* Mechanisms were created to make it easier for the individual and his parents to access healthcare professionals, community support groups, and social services as needed, including setting appointment dates and providing contact numbers. *Education and Information:* During follow-up visits, the patient and his parents will receive ongoing training on diabetes care and novel treatment methods, including information on continuous glucose monitoring devices, insulin pumps, etc.

DISCUSSION

This case report discusses the care of a child with ASD and newly diagnosed Type 1 diabetes, using the McGill Model of Nursing (MMN). The MMN focuses on identifying both individual and family strengths and encourages the effective use of these resources to provide holistic care.

A theory-based care model was applied to the case, with parents receiving education on diabetes management skills. The patient was discharged after five days, during which insulin dose adjustments, blood glucose measurement, and management approaches for hypoglycemia and hyperglycemia were reviewed. Nutritional education additionally reinforced diabetes management. On the second day at home, the patient experienced hypoglycemia (blood glucose was 64 mg/dl) and contacted us by phone. The insulin dose

Adjustments were made to align insulin administration and blood glucose monitoring times with school breaks, and an additional snack was introduced on school days. One week later, during a follow-up visit, it was noted that both the child and the parents had successfully adapted to managing diabetes.

This approach fosters collaboration and holistic care in disease management. Diabetes self-management education, parental guidance, and regular use of resources significantly contributed to enhancing the child's quality of life. Structuring nursing care using theory-based models is essential for protecting and improving individual health. The application of evidence-based models, such as the McGill Model of Nursing (MMN), empowers patients and families, and promotes healthier lifestyles. This case report suggests valuable strategies for supporting children with chronic health needs and their parents, providing practical guidance for effective disease management and care.

Patient Consent Form / Hasta Onam Formu

The parents' of this patient consent was obtained for this study.

Conflict of Interest / Çıkar Çatışması

The authors declared no conflicts of interest with respect to authorship and/or publication of the article.

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