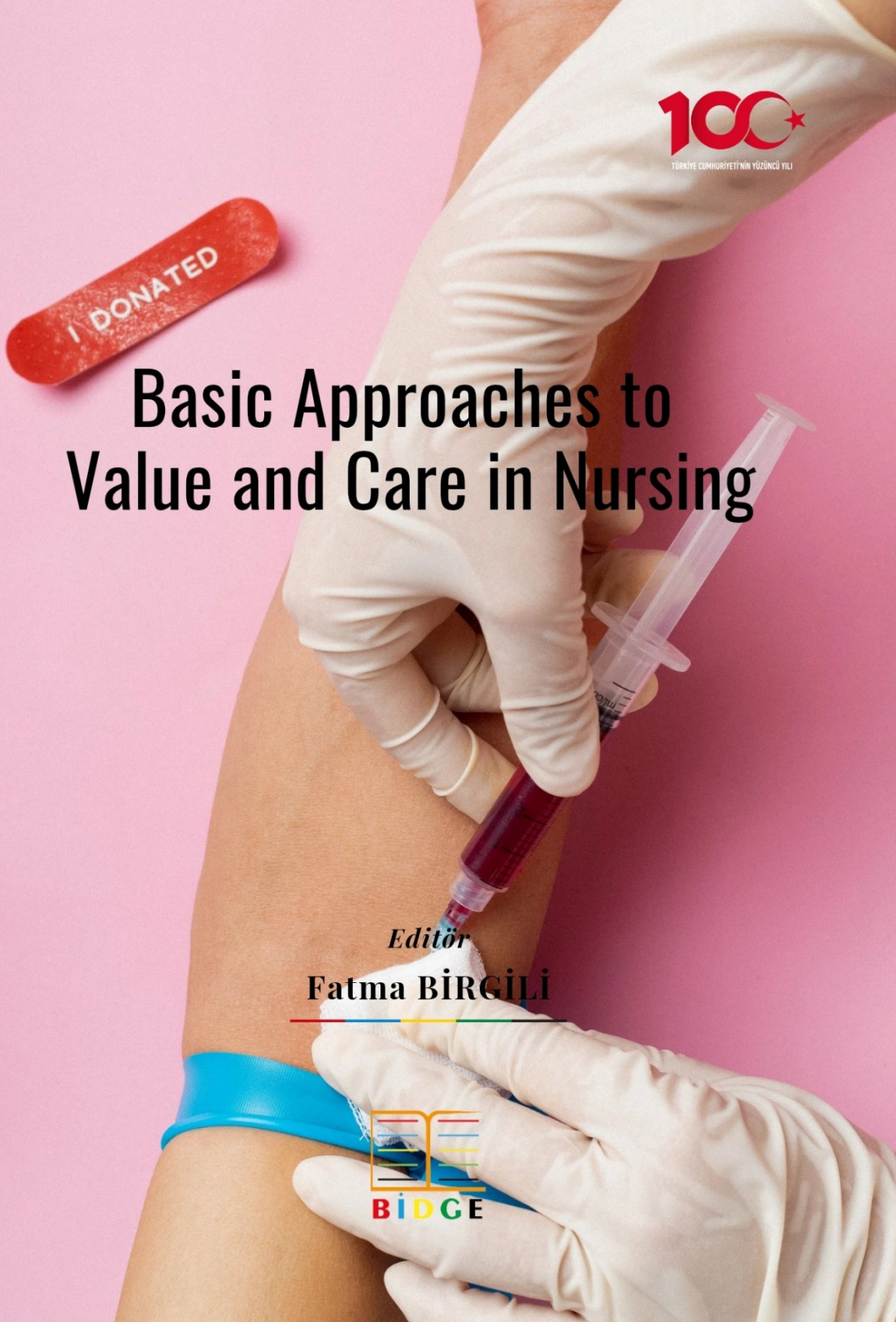

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Fatma BİRGİLİ

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CHAPTER I

Importance of Diabetic Foot Examination

Berna DİNCER[1]
Nefise BAHÇECİK[2]

Introduction

Definition of Diabetes

DM is a lifelong chronic metabolic disease. The Turkish Society of Endocrinology and Metabolism (TEMD) defines diabetes as "a chronic metabolic disease in which the organism cannot make adequate use of carbohydrates, fats and proteins due to insulin deficiency or defects in insulin action, requiring continuous medical care". Diabetes is a chronic disease that is lifelong, has acute and chronic complications, imposes financial and moral responsibilities and burdens on the individual, his/her environment, family and

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society, has negative effects on life span and requires a multidisciplinary approach (TEMD, 2021).

Prevalence of Diabetes

With the rapid change in lifestyle, the prevalence of diabetes, especially type 2 diabetes, is increasing rapidly in all developed and developing societies. In 2017, it was reported that approximately 425 million people between the ages of 20-79 had diabetes in the world, while 629 million people are expected to have diabetes in 2045 (IDF, 2017). The number of people with diabetes is 58 million in Europe, and Turkey accounts for the majority (12.1%) of this number (IDF, 2017). The prevalence of type 2 diabetes was found to be 13.7% in the Turkish Diabetes Epidemiology (TURDEP-II) study (Satman, 2013). According to the National Burden of Disease Study 2013 data, with a 60% increase in the burden of disease between 2000 and 2013, diabetes ranked 10th in 2000 and 4th in 2013 (http://www.hips.hacettepe.edu.tr/UHYCSunumu_06122016.pdf, Access date: October 22, 2017).

With the rapid change in lifestyle, the prevalence of diabetes, especially type 2 diabetes, is increasing rapidly in all developed and developing societies. Diabetes is the 8th leading cause of death worldwide after ischemic heart disease, stroke, lower respiratory tract infections, chronic obstructive pulmonary disease (COPD), diarrhea-related diseases, HIV/AIDS (human immune deficiency virus/acquired immune deficiency syndrome) and respiratory cancers (World Health Organization, 2017). It has been reported that approximately 5 million people worldwide have died due to diabetes and its complications. Approximately half of these deaths occur in

patients aged 60 years and younger, which is up to 75% in less developed regions (IDF, 2015).

Uncontrolled diabetes leads to hyperglycemia, affecting all systems of the body and causing many complications. In addition, the risk of developing infections is higher in individuals with diabetes than in those without diabetes. The prevalence, incidence and mortality of cardiovascular diseases are 2-8 times higher in individuals with diabetes compared to those without diabetes (Marks and Raskin, 2000; THSK, 2014a; THSK, 2014b). Diabetes is the leading cause of renal failure and non-traumatic amputation worldwide. The risk of lower extremity amputation is 25 times higher in individuals with diabetes compared to those without diabetes. Especially in developed countries, diabetes is the most common cause of vision loss (THSK, 2014a; THSK, 2014b).

In addition to being a chronic disease that threatens human health, diabetes has a high cost to both the individual and the health system of countries. Globally, the cost of diabetes and related diseases is estimated at 727 billion US dollars (IDF, 2017). In order to reduce the burden of diabetes on the individual and society, the disease and the complications that may develop should be recognized as early as possible and care and treatment should be provided appropriately.

Classification of Diabetes

The American Diabetes Association (ADA) classifies diabetes into four main groups.

Type 1 Diabetes Mellitus; Type 1 Diabetes Mellitus, also called 'juvenile diabetes' and 'childhood-onset diabetes' in the past,

is a chronic disease characterized by absolute insulin deficiency due to autoimmune damage to pancreatic beta cells.

Type 2 diabetes mellitus accounts for more than 90% of all diabetics and is the most common form of diabetes. The basis of the disease is insulin resistance triggered by lifestyle in genetically predisposed individuals and gradually increasing insulin resistance and decreasing insulin release over time.

Gestational diabetes mellitus (GDM) is glucose intolerance that first occurs during pregnancy. In the long term, women with gestational diabetes have a high risk of developing type 2 diabetes, with a 30-40% risk of developing impaired glucose tolerance or type 2 diabetes within 10-20 years.

Other Specific Types; Some conditions other than Type 1, Type 2, Getational Diabetes Mellitus may also cause diabetes or some rare diseases may be accompanied by diabetes.

Genetic defects in beta cell function, genetic defects in insulin action, exocrine pancreatic diseases, endocrinopathies, infections due to drugs and chemicals, rare forms of immune-induced diabetes, and other genetic syndromes sometimes associated with diabetes (Alkan and Enç, 2014; Hogan et al., 2015).

Complications of Diabetes

Acute complications

Hypoglycemia

Hypoglycemia is an acute complication seen in people with diabetes. It is more common in insulin users. Symptoms include shivering, cold sweating, anxiety, nausea, palpitations and hunger. In hypoglycemia, 15-20 g glucose is given orally. Parenteral

treatment should be applied to unconscious individuals with impaired chewing and swallowing function. Glucagon injection is applied. Administering more insulin than needed, excessive exercise or not taking enough carbohydrates may lead to hypoglycemia (Özcan, 2001; THSK, 2014b).

Hyperglycemia

It is an increase in blood glucose levels above normal levels. It is an acute complication. If the blood glucose level is often above 140 mg/dl in fasting and 180mg/dl in postprandial, sugar (+) in urine and HbA1c is 8% or higher, blood glucose is high and should be treated. If left untreated, hyperglycemia can lead to diabetic ketoacidosis (DKA) or hyperosmolar nonketotic coma syndrome (HNKS). When not kept under control, it leads to microvascular complications in the long term (Özcan, 2001; Görpe & Özyazar, 2012).

Ketoacidosis

Ketoacidosis, also called diabetic coma, is a severe condition due to insulin deficiency. Since sugar in the blood cannot enter the cell due to insulin deficiency, the cell uses fats as an energy source and ketone bodies are formed. It is common in people with type 1 diabetes (Özcan, 2001; Görpe & Özyazar, 2012).

Lactic acidosis

Lactic acidosis is the accumulation of lactic acid in the body. Cells make lactic acid when they use non-glucose fuel for energy. If too much lactic acid remains in the body, the balance is disturbed and the person starts to feel unwell. This less common condition

usually affects people with type 2 diabetes (Özcan, 2001; Görpe & Özyazar, 2012).

Bacterial / fungal (fungal) infections

Individuals with diabetes become more prone to bacterial and fungal infections in all organs, especially in the skin and nails. Especially high blood glucose levels facilitate the reproduction of bacteria and fungi (Özcan, 2001; Görpe and Özyazar, 2012).

Chronic complications

Complications of diabetes can be analyzed under three headings.

Microvascular complications: retinopathy, nephropathy, neuropathy (peripheral and autonomic).

Macrovascular complications: Atherosclerotic heart disease, peripheral arterial disease, cerebrovascular disease

Other complications: Skin, diabetic foot, joint, bone, brain problems (dementia, Alzheimer's), psychological problems, sexual problems, etc.(Özcan, 2001; Görpe and Özyazar, 2012; THSK, 2014a; THSK, 2014b).

Neuropathy

It is caused by prolonged diabetes causing damage to peripheral and autonomic nerves. It affects the feet, legs, arms, hands, eyes, heart, gastrointestinal system, especially the stomach and intestines. Diabetic neuropathy develops in 50-70% of diabetics. The longer the duration of the disease, the more likely it is to develop. Involvement of the peripheral nervous system can be divided into focal, multifocal or diffuse. Examples of focal

involvement are polyneuropathy (diffuse and symmetrical involvement of peripheral nerves) and multifocal involvement is mononeuropathy multiplex (involvement of more than one peripheral nerve together). DM can affect nerves in all three ways. Although the exact cause is not known, it has been reported that high blood sugar or insulin deficiency are the most important factors. In addition, insufficient oxygen supply to the organs as a result of changes in the blood vessels may also cause neuropathy to progress. In general, it has been reported in the literature that high HbA1c levels and sorbitol accumulation in the nerves may contribute to the development of neuropathy (Görpe and Özyazar, 2012; THSK, 2014b).

If nerves in the hands and feet are affected by neuropathy, numbness, burning, tingling, pain and weakness may occur. Neuropathy involves the muscles in the foot, leading to muscle weakness and impaired weight distribution on the sole of the foot. A significant part of the body weight starts to be carried by the front part of the foot and a thick callus (callus) forms in this area. During walking, ulcers develop in the soft tissue squeezed between the callus and the bone. Neuropathy also affects the sensory nerves, causing symptoms such as numbness, pain and heat perception. As a result, the person may not be able to recognize physical and chemical trauma. The perception of vibration and the sense of touch are reduced. Loss of sweating as a result of autonomic neuropathy can also lead to dry and cracked skin and ulcer development. Charcot joint is a painless deformity of the foot. Hyperglycemia should be controlled in the treatment of neuropathy. If pain is present, appropriate analgesic use should be provided and conditions that

increase pain should be controlled (Olgun, 2012; Biçer & Çelik, 2016; Adam et al., 2017).

Passive movements and, if necessary, physical therapy should be applied in muscle atrophies due to neuropathies. Neuropathy is also an important risk factor for the development of diabetic foot. Patients are exposed to foot trauma due to loss of sensation in the lower extremities. Therefore, patients with peripheral neuropathy should be protected from trauma, appropriate foot care should be provided, feet should be examined routinely, and patients should be given comprehensive education (Olgun, 2012; Biçer and Çelik, 2016; Adam et al., 2017).

Diabetic Foot

Diabetic foot (DF) is one of the most serious and common complications resulting from diabetic neuropathy and/or vascular insufficiency. Every diabetic patient has a 12-15% lifetime risk of developing diabetic foot. It has been determined that 50%-70% of non-traumatic foot amputations are due to diabetic foot. Studies have shown that the relative risk of death increases approximately 2.5 times in diabetics with new ulcers on their feet (TEMD, 2017). Diabetic foot problems are the reason for hospitalization more than other complications of diabetes and account for 50% of hospitalizations due to diabetes. Diabetic foot ulcers are a serious complication with a risk of affecting 4-10% of diabetic patients throughout their lives. Despite appropriate treatment, this rate still results in amputation in around 15%. Apart from the risk of amputation, it is an important socioeconomic problem that leads to increased morbidity, deterioration of patients' quality of life and high treatment costs. The financial resources allocated to the treatment of

diabetic patients are extremely high, and the treatment of foot wounds accounts for 24-31% of these expenditures, and the financial burden increases further depending on the depth of the wound, accompanying infections and circulatory problems (Yetkin, 2016; Adam et al., 2017).

The main goal in the approach to diabetic foot is to provide primary prevention. For this purpose, it is necessary to identify risk groups, teach the patient how to take care of his/her feet from the time of diagnosis, contribute to the development of preventive health behaviors, and perform foot examination and regular follow-up at each control. In many studies, it has been shown that trainings on diabetic foot care provide significant reductions in wound formation and amputations (Çetin et al., 2004; Clayton and Elasy, 2009; Çelik and Öztürk, 2009; Demirel, 2011).

Effective factors in diabetic foot formation

Diabetic foot is a clinical picture characterized by impaired skin function due to peripheral neuropathy, peripheral vascular disease or a combination of both, which may lead to ulcerations in the advanced stage. Feet are organs that are vulnerable to injury, trauma and infection in all individuals with or without diabetes. Feet are at risk due to decreased protective sensation in the feet and fingers, slowing of blood circulation in the feet, dryness and cracks as a result of loss of sweating, peripheral vascular disease and visual impairment (Yüksel, 2002). Diabetic foot infections are the most important cause of non-traumatic foot amputations (Özcan, 2001; Boike and Hall, 2002; Görpe and Özyazar, 2012; Hogan et al., 2015).

Neuropathy due to impaired blood glucose regulation, vascular insufficiency and infection due to impaired neutrophil

function are the prominent factors in the pathogenesis of diabetic foot. Pathologic events are caused by a combination of different mechanisms such as neuropathic degeneration (autonomic, motor, sensory), vasculopathy (micro- and macroangiopathy), uncontrolled infection, and prolonged wound healing due to impaired collagen production. These factors affect the innervation, nutrition and maintenance of foot integrity (Sorensen et al., 2012).

Diabetic foot classification

Various classifications for diabetic foot ulcers have been defined so far. However, no classification has been made to reveal the characteristics of the diabetic foot. The PEDIS (Perfusion, extent/size, depth/tissue loss, infection, sensation) classification is infection-oriented and classifies the wound according to five clinical conditions: perfusion, surface, depth, infection and sensation. The University of Texas classification is based on the depth of the wound and the presence of infection and ischemia. The recently published Kobe classification directs treatment according to physiopathology. However, its effectiveness has not yet been fully proven and is open to debate (Tetiker, 2016).

The most widely used classification is the Wagner Classification, which also guides treatment. In this system, ulcers are evaluated between Stage 0 and Stage 5.

Wagner Classification

Stage 0 No skin lesions.

Stage 1 Superficial ulcer present and clinically uninfected.

Stage 2 Deep ulcer, often infected but no osteomyelitis.

Stage 3 Deep ulcer, abscess and osteomyelitis also present

Stage 4 Localized gangrene of the toes and soles.

Stage 5 Gangrene involving the whole foot.

The basic approach in the treatment of diabetic foot is to identify the patient at risk and take precautions before the foot wound develops, and if the wound has developed, to prevent it from progressing to the point that it requires limb amputation. If amputation is inevitable, it should be decided on time and intervention should be performed at the most appropriate functional level (Schaper, 2004).

Diabetic Foot Examination

According to the diabetic foot international consensus report, examination of the at-risk foot and regular inspection are the cornerstones of diabetic foot management. In the evaluation of the diabetic foot, the patient's age, how many years he/she has had diabetes, the state of glycemia regulation, whether he/she uses insulin, the presence of previous diabetic foot wounds, and whether amputation has been performed are questioned in the anamnesis. Subsequent physical examination, radiology, vascular and neurologic examination are important. Pain, tingling, burning sensitivity, loss of sensation, ulcer formation in the foot are asked. The skin of the foot is evaluated for temperature control, discoloration, edema, atrophy, dryness due to loss of sweating, cracks, calluses and foot ulcers. A sensory test is performed on the foot (Van Baal, 2004).

A comprehensive foot examination is important for individuals with diabetes. First of all, the patient's **history** should be taken by questioning whether the patient has had previous wounds,

amputation, whether he/she has received foot care training, the people he/she lives with, those who support the care, foot care regimen, how often he/she has control examinations, smoking/alcohol use, lifestyle, social status, complaints related to vascular causes, neuropathic complaints (such as pain, tingling, burning, tenderness), ulcer causes if there is an ulcer, insulin use. A comprehensive **dermatologic evaluation** should be performed at the next stage. At this stage, inspection should be performed including between the fingers to detect ulcerated, erythematous or infective areas.

Hardening, thickening, nail deformities, paronychia (nail inflammation) should be evaluated and recorded. **Temperature control** should be done in the continuation of the examination. Both ankles of the patient should be evaluated in terms of hot/cold with the back of the hand up to the ankle level. A decrease in temperature is an indication of insufficient blood circulation. An increase is a condition that may occur in the presence of infection. In Charcot deformity, the increase in temperature may be higher than in the other foot (Boike, 2002; Boulton et al., 2008).

In the evaluation of **color control**; pale, cyanotic, reddened skin should be checked starting from the ankle to the fingertips. In circulatory failure, the skin is usually pale or cyanotic. Redness is also a sign of infection. Pale and cyanized skin is a sign of ischemia. Nails should be examined for thickening, ingrowth, length and nail cut. Ingrown nails are among the most important factors causing wound formation. On the other hand, one of the most common problems is fungal infections of the nail. **Volume** should also be evaluated in terms of atrophy and edema. Edema examination should

be performed starting from below the knee. The presence of edema is a risk factor for wounds (Kravitz et al., 2003). **In textural evaluation**, the skin may be dry due to loss of sweating.

It is a sign of autonomic involvement of peripheral nerves. Exfoliation of the skin may be a sign of hydration deficiency or fungal infection (Frykberg et al., 2006). **Foot ulcers** should be evaluated in terms of pressure ulcer, traumatic ulcer and vascular pathology. The most important factor in the development of pressure ulcers is the change in pressure areas due to deformities. In the area where the pressure increases, first callus, then subcutaneous bleeding, cracked skin and deep infection (osteomyelitis) occur. If the patient has an ulcer on the foot, the reason for its formation and how long it has been present should be investigated; the location and size of the ulcer should be recorded on the examination form. Measuring its diameter facilitates the evaluation of wound healing (Oyibo et. al., 2001; Yüksel, 2002; Biçer and Çelik, 2016).

Musculoskeletal evaluation of the foot and diagnosis of deformities should be performed during the foot examination. Muscle atrophy due to motor muscle involvement leads to foot deformities and the presence of neuropathy leads to traumatization of bones and joints. Therefore, the presence of deformities such as hammer toe, hallux valgus, hallux limitus, equnus, forefoot amputation, below-knee amputation, charcot deformity, low foot, etc. due to diabetes should be evaluated. Hallux valgus is an adduction deformity of the thumb at the metatarsophalangeal joint. Charcot deformity is a foot deformity defined as neuro-osteo-arthropathy in which the medial arch of the foot collapses or large ulcers may form underneath, which is hot, red, swollen, mostly

painless. Calluses formed as a result of diabetic neuropathy are formed in areas subjected to pressure and are generally specific to the diabetic foot (Yüksel, 2002; Yılmaz, 2005; Boulton et al., 2008; Edmonds et al., 2008).

In **neurologic evaluation,** neuropathic findings (burning pain that increases at night, hypersensitivity in the form of socks, numbness, etc.) should be questioned. Needle, reflex hammer, diaposon, monoflamnet test are applied to detect the presence of central nerve damage. **In Semmes-Weinstein Monoflamnet test**; peripheral nerve damage is evaluated. If there is a loss of sensation with this filament that gives 10 grams of pressure to the foot, the patient has lost protective sensation. The nylon monoflament used is manufactured to bend when 10 grams of force is applied. The patient is asked to close his/her eyes during the application. The monofilament is touched to the determined areas of the foot with 10 grams of pressure (until it looks like the letter C). The patient is expected to answer yes or no to the monofilament pressure. If sensory loss is present, it is marked as negative (-). Avoid applying the monoflament to areas with callus, as this will lead to inaccurate assessment. The same monofilament should not be applied to more than 10 patients within 24 hours because it will bend. **In the diapozone test, the** perception of vibration in the big toe is evaluated as present, decreased or absent with a 128 Hz diapozone. It is both a cheap and easy method for clinical application.

In the pinprick test, pressure is applied with a needle on the dorsal surface of the hallux just proximal to the nail, and if the pinprick is not felt, it is recorded as an abnormal test finding (Boulton et al., 2008; Edmonds et al., 2008; Biçer and Çelik, 2016).

In **vascular evaluation;** color, temperature and edema of the foot are evaluated for both feet. Symmetrically, dorsalis pedis pulses on the dorsum of the foot and tibialis poterior pulses under the medial malleolus should be taken and evaluated as normal, weak or absent. Ankle-brachial index (ABI) is calculated by dividing the tibialis posterior pressure by the brachial artery pressure. Its normal value is close to 1. The index decreases in ischemia. High values can be obtained in calcifications (Watkins, 2003; Edmonds et al., 2008; Biçer and Çelik, 2016) (Table 1).

Table-1 Ankle Arm Index (ABI) Measurement Values

ABI Değeri	Yorum
0,90-1,30	Normal
0,70-0,89	Hafif Obstrüksiyon
0,40-0,69	Orta Obstrüksiyon
<0,40	Ağır Obstrüksiyon
>1,30	Medikal Kalsinoz/ Hatalı Ölçüm*

*Daha ileri vasküler değerlendirme

Toe Brachial Index (TBI) can be measured when ABI is not sufficient due to arterial calcification. A TBI >0.70 or a transcutaneous oxygen pressure (TcPO2) >40 mmHg measured from the area adjacent to the wound suggest that arterial flow in the foot is sufficient (Türkaslan and Altındaş, 2004; TEMD, 2011).

Evaluation of footwear; when the patient comes to the control, the shoes he/she is wearing must be evaluated. Unsuitable shoes are a risk factor for ulcer and wound formation. Leather or cloth shoes that allow the feet to breathe, do not absorb moisture, are suitable and comfortable for the feet, and do not squeeze the feet should be preferred. The risk of ulcer, infection and amputation is reduced when shoes specially prepared for diabetics are used. Shoe width should be as wide as the width of the foot. Shoes with pointed

front, high heels, open toes, shoes that will squeeze or disturb the foot should never be used. The inside of the shoes should be checked before wearing them.

Sandals or slippers that get between the toes should not be preferred. When new shoes are purchased, they should be worn and changed in short periods of time until the foot gets used to them. The old shoe should be carried with the patient until he/she is sure of the comfort of the new shoe (Efe, 2001; Hogan, 2015; Adarmouch et. al, 2017). With the completion of the foot examination, the patient should be **educated** about diabetic foot care. It is known that diabetic foot amputations are reduced by 49-85% as a result of good patient education, multifaceted foot ulcer treatment and regular follow-up (Yüksel, 2002). Education on this subject is of great importance.

The Importance of Education in Diabetes and Diabetic Foot Care

Since diabetes is a lifelong chronic disease, individuals need to manage the disease and provide self-care skills. Continuous monitoring and education are important in the development of self-care and self-management skills of individuals. The success of individuals with diabetes in drug treatment, physical activity and nutrition program is evaluated through regular health checks and necessary measures are taken at this stage. Thanks to these evaluations, necessary arrangements are made and trainings are planned. Diabetes education generally includes topics such as general diabetes knowledge, acute and chronic complications of diabetes, insulin use and oral anti-diabetes medication use, nutrition, physical activity, self-care and problem-solving skills (ADA, 2017). The importance of patient education is also emphasized in the 2017

guideline of the Turkish Society of Endocrinology and Metabolism. It is stated that individuals diagnosed with diabetes should be directed to diabetes centers and after glycemia control is achieved, the importance of participating in the training program given by the physician, nurse, dietician and physiotherapist and that the training should be repeated at regular intervals. Recommendations with high level of evidence in terms of evidence-based practices in diabetes education are also included in the guideline. Providing diabetes education to individuals with diabetes and their families at the appropriate time to increase their knowledge and skills in diabetes self-management, teaching them to measure peripheral glucose at home, and providing training to make treatment changes in accordance with peripheral glucose results are recommended as evidence-based [Class A, Level 1A Evidence (1)] practices (TEMD, 2017). Information, education and counseling services about diabetes are now available in many health centers via internet and mobile devices. One of the most important topics within the scope of education is diabetic foot care.

The main goal in diabetic foot care is to provide primary prevention. For this purpose, it is necessary to identify risk groups, to teach the patient how to take care of his/her feet from the time of diagnosis, to contribute to the development of preventive health behaviors, to perform foot examination and regular follow-up at each control. In many studies, it has been shown that trainings on foot care focused on preventing complications of diabetes have been shown to provide significant reductions in wound formation and amputations (Çetin et al., 2004; Ragnarson and Apelqvist, 2004; Younes et al., 2004; Clayton and Elasy, 2009).

Diabetic foot care and taking preventive measures is a condition that the patient should maintain for life. The individual should manage this care himself/herself, make it a lifestyle and take responsibility for daily foot care. Nowadays, due to the limited duration of hospitalization of individuals diagnosed with diabetes, diabetic foot care is briefly presented in a diabetes education program that includes topics such as self-monitoring of sugar, insulin applications, diet and exercise in a limited time interval. It is essential for diabetes nurses to make a training plan for diabetic foot care and preventive measures. However, diabetes nurses need to prevent acute complications that may develop, provide care for complications that occur, and continue their educational activities (Batista and Pinzur, 2005; Arsand et al., 2012). In addition to all these efforts, it is difficult to provide education on foot care and emphasize its importance (THSK, 2014a).

Nurses, one of the most important members of the diabetes team, are the most appropriate person to plan and maintain preventive care (Saltoğlu et al., 2015; Orhan and Bahçecik 2017). Diabetes nurses must create an education plan for diabetes, diabetic foot care and preventive measures. In addition to planning, implementing and evaluating the process for diabetes and diabetic foot care of individuals, many responsibilities such as providing patient-oriented education with appropriate techniques, evaluating and maintaining the gains belong to diabetes nurses (Batista and Pinzur, 2005). Nurses have great duties in preventive education practices of patients and their relatives. A planned and structured education that will increase motivation and skill, provide the patient with self-skills, and increase care responsibility is very important.

The patient must be taught to recognize foot problems and be aware of what to do (Sözen, 2009).

A structured and planned education program plays an important role in establishing foot care behavior and preventing complications. The aim of education is to increase the patient's motivation and skills. Adult education principles should be taken into consideration while providing education. The important thing in patient education is to create behavioral change in the desired way. In the education given, it is important to be person-centered and to create physical comfort and a dynamic environment. Adults enjoy different educational techniques and are more motivated (Merriam, 2001; Çelik & Öztürk, 2009). They are more open to learning when they are ready and in line with their needs. Designing different materials in different teaching environments is widely used in adult education, and the use of audio-visual tools to enrich teaching environments also increases the effectiveness of education. Multimedia used in instructional technology appeals to multiple senses and ensures the permanence of learning (Güner, 2005; Demirel, 2011; Avşar, 2012).

Conclusion

Diabetic foot care and taking preventive measures is a lifelong condition for individuals with diabetes. Diabetic foot care is an important issue that should be emphasized in individuals with diabetes. It is known that the majority of diabetic wounds are preventable. Considering all these, a comprehensive foot examination is essential for both healthcare professionals and patients. Following the diabetic foot examination, it is essential to educate patients on how to perform foot examination at home. It has

been reported that good patient education, sensitivity and education of healthcare professionals, multifaceted foot ulcer treatment and regular follow-up will greatly reduce foot amputations. Especially for diabetic foot examination, foot care training is vital in this context. The individual needs to manage his/her own care, change his/her lifestyle and take responsibility for daily foot care. In this context, healthcare professionals should provide effective training programs that will provide knowledge and skills for diabetic foot examination of individuals with diabetes and their relatives. The way to prevent diabetic foot ulcers is through diabetic foot examination and patient education.

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CHAPTER II

Monkeypox In Pregnancy And Nursıng Care

Remzi KARASUNGUR[1]
Orhan POLAT[2]

Introduction

Monkeypox (Mpox), a rare zoonotic disease today, emerged from the monkeypox virus belonging to the Poxviridae family, Chordopoxvirinae subgroup and Orthopoxvirus genus (Bunge & et al., 2022). Studies have reported that Mpox disease, which is closely related to smallpox, is 85% protected against Mpox disease with smallpox vaccination (Bunge, & et al., 2022). The World Health Organization (WHO) declared the outbreak a public health emergency of international importance in August 2024. In the statement made by WHO; it was reported that the number of cases seen in the Democratic Republic of Congo alone in 2024 was 15,600

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and the number of patients who died was 537 (TTB, 2024). WHO announced that it has upgraded the emergency situation, which it had declared at the "continental" level before the above statement, to the "global" level (TTB, 2024). The situation is alarming given the high rate of atypical person-to-person transmission of the virus, suggesting that it has evolved into an established human pathogen (Dashraath et al., 2022). Pregnant women are at risk of vertical transmission of Mpox virus due to immunocompromised immune systems and natural depletion of population immunity to Mpox among women of reproductive age, and because orthopoxviral cell entry mechanisms can overcome the typically virus-resistant syncytiotrophoblast barrier within the placenta (Dashraath et al., 2022). Studies on pregnancy outcomes after Mpox infection are scarce, but there are data on miscarriage, intrauterine death, preterm birth and congenital infection (Dashraath et al., 2022).

Epidemiology

Mpox virus was first seen in a monkey in Denmark in 1950 (Cuérel et al., 2022). It was first identified in humans in 1970 in a 9-year-old child in the Democratic Republic of Congo (Cuérel et al., 2022). Between 1970 and 1990, over 400 cases of Mpox were detected in Africa. Most of these patients were diagnosed in the Democratic Republic of the Congo, while the remaining patients were diagnosed in the Central African Republic, Cameroon, Nigeria, Ivory Coast, Liberia and Gabon. In 1999, more than 500 Mpox patients were reported in the Democratic Republic of Congo (Huang et al., 2022). Outside Africa, Mpox disease first appeared in the United States of America in 2003, attracting the world's attention (Reynolds et al., 2007; Reed et al., 2004). In 2003, 47 cases were

detected in the United States and all of these cases were reported to have been infected through contact with domestic prairie dogs (Reynolds et al., 2007; Reed et al., 2004). The dogs were found to be infected due to their close proximity to imported small mammals in Ghana. Between 2010 and 2018, varying numbers of Mpox cases were reported in various African countries, including the Democratic Republic of Congo, Central African Republic, Cameroon, Liberia, Sierra Leone, and Cameroon (McCollum et al., 2015; Nolen et al., 2016; Durski, 2018; Sadeuh-Mba et al., 2019; Beer & Rao, 2019; Li et al., 2017). In addition, there was an outbreak in Nigeria in 2017, 122 confirmed cases of Mpox and 6 deaths were recorded in this outbreak (Yinka-Ogunleye et al., 2019; Kabuga & El Zowalaty, 2018). In 2022, thousands of people around the world, especially in states such as the USA, UK, Singapore, Israel, outside Africa, were infected with Mpox outbreak (Hobson et al., 2021; Vaughan et al., 2020; Vaughan et al., 2018; Yong et al., 2020; Cohen-Gihon et al., 2020). On October 30, 2022, WHO announced a total of 76,871 Mpox cases and 36 deaths worldwide (WHO, 2022). Eventually, WHO declared a global public health emergency in 2023 in order to control the disease by taking the necessary resources and measures for diagnosis, surveillance, immunization and treatment. As a result of these measures, the outbreak was brought under control and WHO ended the global public health emergency in May 2023 (TTB, 2024). Although the outbreak ended, towards the end of 2023, the outbreak of Type (Ib) Mpox, which belongs to the subgroup of Type I (Clade I), which can cause a more serious infection, started. As of January 2024, 15 thousand cases and 461 deaths were observed in Congo alone. It is also known to have spread to the neighboring countries of Burundi, Rwanda and Uganda. For this reason, the African Center

for Disease Control and Prevention declared an international public health emergency for the Mpox outbreak on August 13, 2024 and WHO declared an international public health emergency for the Mpox outbreak on August 14, 2024 (WHO, 2024). According to WHO's report, a total of 934 Clade Ib Mpox cases and 4 deaths were reported from 26 countries until June 2024. The number of cases in the regions where Clade Ib Mpox virus has spread in the world is as follows: Africa 567 cases, Americas 175 cases, Europe 100 cases, Western Pacific 81 cases and Southeast Asia 11 cases. From January 1, 2022 to June 30, 2024, the total number of laboratory-confirmed cases is 99,176, the number of deaths is 208 and the number of countries is 116 (WHO, 2024). The Ministry of Health did not provide information on the number of cases in Turkey. According to data from the US Centers for Disease Control and Prevention (CDC), 12 cases have been identified in Turkey since 2022 (TTB, 2024).

Pathogen

Mpox Virus is a double-stranded DNA virus. The virus is of the same species as variola (smallpox agent) and vaccinia viruses (virus used in smallpox vaccine) (General Directorate of Public Health, 2024).

There are two different genotypes of the Mpox virus. As of August 2022, WHO has named the Central African lineage seen in Central Africa as Type I (Clade I) and the Congo Basin / West Africa lineage seen in West Africa as Type II (Clade II). Type II is divided into Type IIa and Type IIb. Historically, the strain seen in Central Africa has caused more serious diseases than the strain seen in West Africa and has been observed to be relatively more contagious. While the Mpox virus that emerged in 2022 and affected the whole

world is defined as Clade IIb, the strain seen after September 2023 and affecting the Democratic Republic of Congo and the surrounding countries belongs to Type II. The Type I strain, which emerged in June 2024, was named Type Ib by the WHO due to the clinical differences it showed. It is thought that this strain may be more contagious and the clinical course may be more severe (General Directorate of Public Health, 2024).

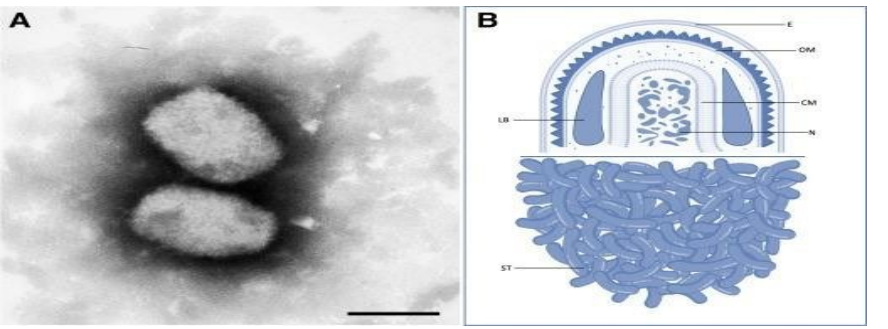

Figure 1: Mpox virus

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Pathophysiology

The stages of Mpox virus are closely related to the signs and symptoms of infection (Luna et al., 2022; Happi et al., 2022). The virus can be transmitted via the oropharynx, nasopharynx, direct contact with skin lesions, respiratory droplets from saliva and sexually (due to the presence of Mpox in semen) (Beer & Rao, 2019; Thornhill et al., 2022). The virus initially replicates in the infected area before spreading to the lymph nodes. Mpox enters the bloodstream from the infected site, producing a primary viremia. The duration of primary viremia is 5-21 days, which is the incubation period of the Mpox virus. Further reproduction of the virus produces

a secondary viremia lasting about 2 days, characterized by fever, headache, myalgia and tender lymphadenopathy. Secondary viremia produces a 1-4 cm nodule in the cervical or inguinal area, which is typical for Mpox. It reaches the skin and mucous membranes where lesions appear approximately 1 to 3 days after the onset of fever (Bayer-Garner, 2005).

Clinical Signs and Symptoms

Mpox disease causes fever, headache, fatigue, generalized body aches, lymphadenopathy and skin lesions (rashes). It is usually seen as oral and/or genital ulcers without systemic symptoms (Sharma et al., 2023; Hammerschlag et al., 2022; van Furth et al. 2022). Symptoms appear on average within 1-2 weeks (5-21 days) after contact with the virus (Guzzetta et al., 2022).

In the first 5 days of the disease, fever, severe headache, lymphadenopathy, back pain and extreme weakness are observed. Since many of these signs and symptoms can be seen in many diseases, the differential diagnosis of Mpox is lymphadenopathy. Lymphadenopathy is an important symptom that distinguishes Mpox from diseases such as smallpox, chickenpox and measles (Walter & Malani, 2022; Cheema et al., 2022). Generally, skin rashes start 1-3 days after the onset of fever. Skin rashes are seen on the face, arms and legs rather than the trunk. Lesions can be seen on the palms and soles of the feet, inside the mouth, genital area and eyes. The number of lesions is variable, ranging from a few to several thousand lesions (Yinka-Ogunleye et al., 2019; Erez et al., 2019; McCollum & Damon, 2014). The lesions start as a flat rash (macule), become raised (papule), and then fill with clear fluid and appear as "vesicles". The clear fluid inside the vesicles turns into a yellowish colored fluid

and "pustules" form. The pustules form crusts and the lesions disappear when the crusts fall off. This process usually takes 2-4 weeks and heals spontaneously (Petersen et al., 2019; Singhal, Kabra & Lodha, 2022). Complications of Mpox include encephalitis, keratitis, pneumonitis and secondary bacterial infections (Petersen et al., 2019; Patrocinio-Jesus & Peruzzu, 2022).

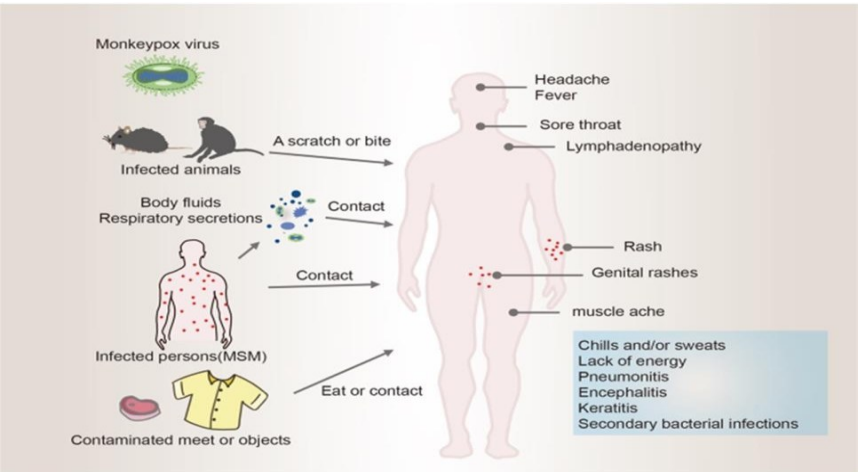

Figure 2: Schematic representation of the transmission and clinical features of monkeypox

Source: Monkeypox: epidemiology, pathogenesis, treatment and prevention

Figure 3: Monkeypox rash

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Figure 4: Mpox, macules, papules and vesicles

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Mpox Disease in Pregnancy

There are very few studies reporting Mpox infection among pregnant women. One possible reason for this may be that the virus is found in rural areas of Africa (Rimoin et al., 2010). Another reason may be that it mostly affects young men and infection among pregnant women is rare (Martínez et al., 2022).

In a study conducted by Mbala et al. in the Democratic Republic of Congo between 2007 and 2011, based on 222 symptomatic Mpox positive patients, 4 pregnant women reported that two of them contracted Mpox infection during the first trimester, both had a moderate to severe course of the disease and spontaneous abortion within 14 to 24 days after the onset of fever. In these two patients, the embryos were not analyzed, so the exact results were not reported. In one of the remaining two patients, it was determined that she contracted Mpox infection at 14 weeks of gestation and gave birth to a healthy newborn at full term due to a mild disease course. The last patient was infected with Mpox at 18 weeks of gestation and the pregnancy ended in spontaneous abortion 21 days after the onset of fever. Examination of the fetus showed maculopapillary lesions over large areas of the body associated with hydrops fetalis and hepatomegaly. No malformations were identified. Analysis of the placenta showed images of diffuse hemorrhage on the maternal side. DNA of Mpox was detected in both the placenta and the fetus by PCR technique, suggesting that the infection could be transmitted between mother and fetus through the placenta. Interestingly, fetal death occurred after the mother reported less sensation of fetal movements as a result of a rapid increase in viremia from day 21 to

day 23 after the onset of fever (D'Antonio et al., 2023; Mbala et al., 2017).

In a study, it was observed that a healthy newborn born to a family that was later found to be infected with Mpox developed a vesico-pustular rash after the 9th day of life and this newborn rapidly developed respiratory failure requiring 4 weeks in the neonatal intensive care unit with invasive ventilation. A retrospective family history revealed that both the father and the mother developed the rash 9 days before and 4 days after the birth of the baby, respectively. The mother and newborn were positive for Mpox and concurrent infection with an adenovirus was also diagnosed in the newborn. This suggested that the infection may have been acquired in utero or during labor (Ramnarayan et al., 2022; Khalil et al., 2022).

Although data are limited, these cases suggest that, similar to other well-known diseases such as Varicella zoster virus or Herpes Simplex viruses, Mpox has the potential to be transmitted through the placenta or vertically during delivery (Fuentes-Zacarias et al., 2022; Fahrni & Choudhary, 2022). However, further studies are needed to elucidate the risk factors and effects on the fetus. Assuming that vertical transmission is comparable to most vertically transmissible viruses, if the mother is infected, the risk of transmission may depend on the number of weeks of gestation. As with other viruses, the likelihood of transmission may increase as pregnancy progresses. The third trimester has a higher risk of transmission than the first trimester and the highest risk during labor, especially in the presence of active maternal lesions (Mussi-Pinhata et al., 2009).

While the few available case reports are reassuring, caution is also needed in terms of maternal complications. Indeed, prior to vaccination, smallpox infection in pregnant women is associated with a high mortality rate, especially during the third trimester. In a retrospective meta-analysis, overall case fatality was estimated to be between 31.4% and 37.1% and the rate of miscarriage or preterm delivery among infected women was between 36.5% and 43.2% (Nishiura, 2006; Vouga et al., 2022).

Diagnosis

The diagnosis of Mpox disease can be made in combination with clinical symptoms, epidemiologic information and laboratory tests. In the anamnesis, we need to distinguish patients potentially exposed to Mpox virus. First of all, individuals who have been in contact with Mpox-infected patients and have been attacked by a wild mammal should be identified. The physician should be educated about the distinguishing symptoms of Mpox virus. If mucous membranes or skin lesions are visible, a PCR swab test can be performed on the lesions. Otherwise, an oropharyngeal swab can be performed in combination with PCR testing of body fluids (blood, vaginal discharge, urine) (Adler et al., 2022). To exclude different infections with similar clinical manifestations, varicella, syphilis, herpes virus and haemophilus ducreyi should be tested simultaneously.

According to WHO recommendations, nucleic acid amplification test (NAAT) was performed for the detection of Mpox virus. Compared to other diagnostic methods, real-time PCR provides high throughput, high sensitivity and rapid results. Furthermore, the recombination polymerase amplification (RPA)

method has proven to be an alternative to real-time PCR. The Mpox virus-RPA method was reported to be particularly sensitive with a limit of detection (LOD) of 16 DNA molecules per microliter, targeting the tumor necrosis factor binding protein gene (Davi et al., 2019). Recently, a high-throughput molecular test method for Mpox virus was established (Nörz et al., 2022). This test method may help to reduce the detection time and increase the detection capacity of the virus (Claro et al., 2022; Cohen-Gihon et al., 2020; Vandenbogaert et al., 2022).

Treatment

Several antiviral drugs may be effective in treating Mpox infections. However, these drugs have been approved for the management of smallpox after animal trials. Studies have been conducted on the effects of these drugs in humans, but their efficacy has not been fully confirmed (Titanji et al., 2022). They are also not authorized for use in pregnant patients (Fuentes-Zacarias et al., 2021).

1.Tecovirimat

Tecovirimat, also known as ST-246, or TPOXX (Russo et al., 2020; Mucker et al., 2013). It was approved by the FDA in May 2018 following animal and human studies. However, it is not yet widely available to the general public (WHO, 2022a). The intravenous form of TPOXX was approved by the European Medicines Agency (EMA) in May 2022 (WHO, 2022b).

The dose for intravenous (IV) use in patients is 3 mg/kg for patients weighing between 35 and 6 kg, prescribed over 6 hours every 12 hours for 14 days. For patients weighing 35 kg to 120 kg,

the dose is 200 mg and for patients weighing more than 120 kg, the dose is 300 mg.

TPOXX is recommended as first-line treatment for smallpox in children and adults weighing at least 13 kg (Rizk et al., 2022).

The most commonly reported side effects of IV tecovirimat are headache and injection site reactions. Side effects of the oral form include nausea, headache, abdominal pain and vomiting. The efficacy of this drug has been evaluated in studies conducted on Orthopoxvirus-infected animals and the effects of the drug on the human body, the way the drug is absorbed and excreted (Mucker et al., 2013; Grosenbach et al., 2018). According to the CDC, in a study on the use of tecovirimat in humans, the drug was reported to be safe. However, there is insufficient data on the effectiveness of Mpox in treating human cases. In animal studies, Tecovirimat did not have a toxic/teratogenic effect on the embryo (Rotz et al., 2011).The risks and benefits of Tecovirimat use should be established, and its use may be considered for the treatment of pregnant women with severe cases (CDC, 2022).

2.Brincidofovir

Brincidofovir inhibits Mpox replication by blocking DNA synthesis by polymerases. It is available in tablet (100 mg) or oral suspension (10 mg/mL) form, used in two doses one week apart (WHO, 2022c). The recommended dose for children and adults is given in table 1 at. In a study by Adler et al. on three patients treated with brincidofovir (200 mg orally once a week), all patients had elevated liver enzymes and none of the patients completed the course of treatment (Adler et al., 2022b). In addition to elevated liver enzymes, brincidofovir also has side effects such as diarrhea,

vomiting and abdominal pain (WHO, 2022c). Brincidofovir has shown promising results in several Orthopoxvirus animal studies (Hostetler et al., 2007; Israely et al., 2012; Rice et al., 2011). In June 2021, brincidofovir was approved by the FDA as a drug for the treatment of smallpox and marketed under the brand name Tembexa ® (Krečmerová et al., 2022).

Table 1: Recommended Dosage for Brincidofovir (TEMBEXA) in Pediatric and Adult Patients

Patient Weight (Kg)	**Brincidofovir Oral Suspension (10 mg/mL)**	**Brincidofovir Tablets (100 mg)**	**Patient Weight (Kg)**	**Brincidofovir Oral Suspension (10 mg/mL)**
Less than 10 Kg	6 mg/Kg for 2 doses once a week (on Days 1 and 8)	No	Less than 10 Kg	6 mg/Kg for 2 doses once a week (on Days 1 and 8)
10 kg to less than 48 kg	4 mg/Kg for 2 doses once a week (on Days 1 and 8)	No	10 kg to less than 48 kg	4 mg/Kg for 2 doses once a week (on Days 1 and 8)

Source: WHO, 2022c

3.Cidofovir

Cidofovir is an antiviral drug approved by the FDA for the treatment of Cytomegalovirus (CMV) and for use in patients with Acquired Immune Deficiency Syndrome (AIDS) (Rao, Mena & Petersen, 2022; Li & De Clercq, 2022). The recommended intravenous dose is 5 mg/Kg at one week intervals (WHO, 2022c; Meaney-Delman et al., 2022). Side effects include nephrotoxicity, birth defects, electrolyte disturbances, neutropenia, nausea and muscle pain (WHO, 2022c). As of June 6, 2022, cidofovir has not been approved by the FDA for the treatment of Mpox (Koenig et al., 2022).

4.Vaccinia Immune Globulin Intravenous

Vaccinia Immune Globulin Intravenous (VIGIV) is an immunoglobulin used to treat complications caused by vaccinia vaccine (Cheema et al., 2022). VIGIV may be considered for prophylactic use in people with a severe immunodeficiency in T cell function (Tiecco et al., 2022). Although little is known about VIGIV in pregnancy, other immunoglobulins are generally safe in pregnancy (Khalil et al., 2022).

5.Symptomatic treatments

Most patients with Mpox infection recover without medical treatment. The clinical course of this infection is usually mild and self-limiting. Therefore, affected persons rarely need specialized treatment (Cheema et al., 2022; Reynolds et al., 2017). Both symptomatic and asymptomatic exposed persons should undergo PCR testing. In case of a positive test, hospitalization should be recommended. Vaccination should be offered to asymptomatic patients if exposure occurred less than 14 days ago (Adler et al., 2022b).

Prevention

Studies show that most transmission occurs through direct contact or contact with body fluids. Hygiene measures should be the primary prevention strategy.

The CDC has authorized the emergency use of the live smallpox vaccine ACAM2000, which provides 85% cross-protective immunity against Mpox disease if high-risk exposure to Mpox virus occurs during pregnancy. These vaccines reduced mortality by 1-2% for men and non-pregnant women and 26% for

pregnant women. These numbers demonstrate the importance of vaccination against this virus. However, patients should be informed about the rare risks from the ACAM2000 vaccine, such as preterm birth, stillbirth, neonatal death (Kisalu & Mokili, 2017; Khalil et al., 2022).

No secondary effects were reported in a study of 300 pregnant women with MVA-BN third generation live vaccine (Kisalu & Mokili, 2017; Khalil et al., 2022).

Therefore, the third generation smallpox vaccine should be offered to all women planning to become pregnant. A pregnant patient exposed to the Mpox virus is recommended to be vaccinated within 4 days (Vouga et al., 2022).

The French health community HAS recommends third-generation vaccination for women at risk, such as women who have multiple partners or share living space with people at risk (prostitutes, MSM with multiple partners) (HAS, 2022).

Given the mode of transmission, face mask protection, gloves, goggles and protective clothing should be worn during medical interaction with a patient with suspected infection. The patient should be isolated at home or in hospital, depending on the severity of symptoms. A negative pressure chamber should be considered as long as the possibility of aerosol transmission is excluded. A negative oropharyngeal PCR swab or skin PCR swab should rule out active infection and provide relief from isolation.

Fetal Monitoring

In cases of suspected or confirmed infection during pregnancy, the patient should be referred to a tertiary care center

(Dashraath et al., 2022). Specific recommendations for prenatal imaging of fetuses exposed to Mpox disease are lacking. ISUOG guidelines for monitoring infections during pregnancy are used (Khalil et al., 2022).

Different examinations should be performed according to the gestational week. In the first trimester, the viability of the embryo should be confirmed by an echography. Later, early morphologic echography (which allows observation of early signs of infection) and then monthly referral ultrasound should be recommended to follow the growth of the fetus and to diagnose possible late-onset signs during fetal development. These echography examinations should include amniotic volume, estimation of fetal growth, Doppler measurement of the MCA and umbilical cord, assessment of the placenta, and search for general and specific fetal infectious signs, including hydrops or effusions, hyperechogenic bowel, hepato-splenomegaly, and structural abnormalities of the brain and eyes. Furthermore, the possibility that congenital Mpox acquired early in pregnancy may lead to embryopathies and further birth defects should not be ruled out. This echography should be repeated once a month for the rest of the pregnancy. Depending on the conditions and results of the ultrasound examinations and local possibilities, an additional MRI of the fetal brain may be considered between 30 and 34 weeks of gestation (Hart et al., 2020).

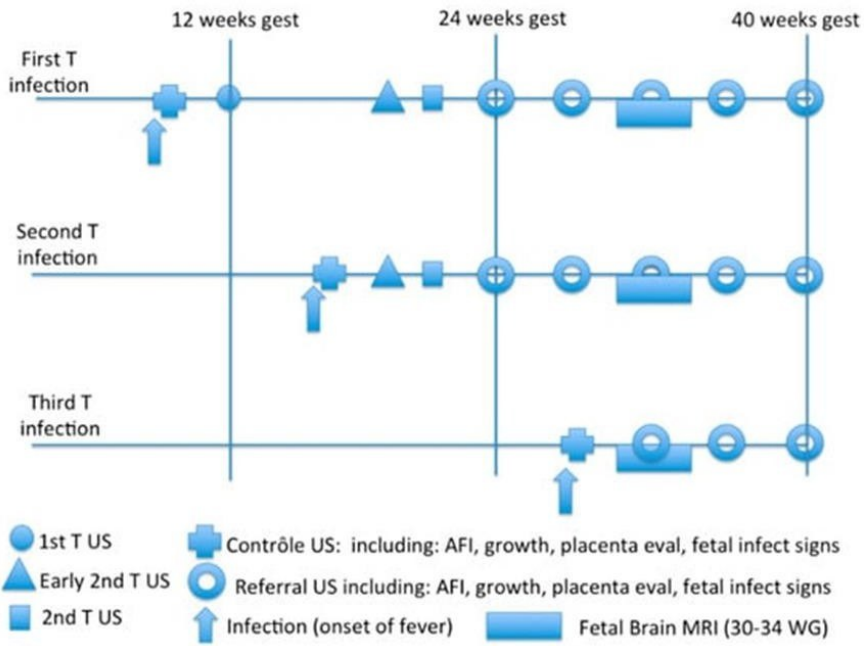

Figure 6: Recommended follow-up in case of MXPV infection in pregnancy

Kaynak: https://www.mdpi.com/1999-4915/14/11/2520#B77-viruses-14-02520

Follow-up for second and third trimester infections should be the same as for first trimester infection, with monthly referral ultrasound (Mbala et al., 2017).

If an echography at 18-21 weeks of gestation raises suspicion of fetal infection, an amniocentesis may be recommended to confirm the presence of the virus in the amniotic fluid (D'Antonio et al., 2023; Vouga et al., 2016). However, the sensitivity and specificity of Mpox PCR using amniotic fluid samples is unknown.

Newborn Care

First, the newborn should be tested in combination with an umbilical cord PCR blood test (oropharyngeal PCR swab, skin lesion swabs and placental swab). If the newborn is negative, contact should be avoided if the mother has active infection to prevent neonatal infection (CDC, 2022; ACOG, 2022). As Adler et al. showed, Mpox can be found in oropharyngeal swabs and skin lesion swabs weeks after the onset of fever (Adler et al., 2022b). Two negative PCR tests (skin and oropharyngeal swabs) must be obtained before mother and infant are allowed to reunite. If the infant is infected, mother and child do not need to be separated.

The presence of Mpox in breast milk has not yet been detected. Breastfeeding should be allowed if both the infant and the mother are infected. In the case of a Mpox-positive mother and a negative infant, breastfeeding should be avoided until the mother's PCR test is double negative. Milk (obtained with a breast pump) should only be given to the newborn with a negative PCR test. In the case of an Mpox-positive mother willing to breastfeed her Mpox-negative newborn, health care professionals should first establish the absence of skin lesions around the nipples and breasts, then advise the mother to wear a face mask while breastfeeding. Finally, if the mother is positive, third-generation smallpox vaccine may be considered for the newborn (Dashraath et al., 2022).

Nursing care against the Mpox virus

In the face of various public health emergencies, infectious diseases pose significant threats to the general public (Morse, 2012). The active involvement of health workers is crucial to develop strategic plans to effectively address potential public health crises

(Siu, 2010). In particular, nurses play an important role as the primary workforce in responding to public health emergencies, including outbreaks. Their involvement in disease prevention, surveillance and case management is extremely important in a variety of clinical settings (Baack & Alfred, 2013). The increasing frequency of natural and environmental disasters, coupled with the challenges posed by public health emergencies such as the COVID-19 pandemic, emphasize the vital importance of having a national nursing workforce equipped with the knowledge, skills and abilities to respond adequately. Improving nursing preparedness is a key factor in increasing the resilience of health services when faced with emerging risks (Flaubert et al., 2021).

To effectively handle cases of Mpox, a dedicated management team needs to be established, comprising enthusiastic young professionals and experienced specialists with previous experience in managing outbreaks and pandemics of highly infectious diseases such as H1N1 influenza, SARS, Ebola, COVID-19, etc. This interdisciplinary team should include a variety of health workers, including nurses, doctors and other hospital health workers (Ahmed et al., 2023).

Providing healthcare workers with adequate education and training on pandemic preparedness is crucial to enhance their experience, knowledge, skills, and overall mental well-being during such challenging periods (Aiello et al., 2011). In addition, gauging nurses' current knowledge, perceptions and educational needs regarding Mpox is essential to create an informed public health intervention. Any existing preparedness gaps could jeopardize the early detection and care of Mpox cases. Understanding the factors

that may influence nurses' preparedness for the pandemic can also help them improve their preparedness (Rathnayake et al., 2021).

Nurses play a role in identifying infected patients, ensuring appropriate testing, providing care, and advocating to avoid stigmatization (Koenig et al., 2022). Principles of nursing management of adult and pediatric patients with Mpox disease should include isolation of patients and protection of mucous membranes and damaged skin. Due to anorexia and dehydration in the infected patient, the nurse is responsible for providing dehydration and nutritional support, controlling vital signs, closely monitoring and observing complications (Ahmed & et al., 2022).

Conclusion

In addition to its impact in the past years, Mpox has managed to draw the world's medical attention to this field, especially due to its rapid spread worldwide in 2022. Even if the studies conducted are limited and insufficient for pregnant women and the fetus, it is known to pose a threat to pregnant women and the fetus. In the fight against the Mpox virus, it is necessary to raise the awareness of societies and especially healthcare professionals should have the knowledge and skill level. Nurses, who are one of the health professionals and actively working in the field, play an important role in identifying infected patients, ensuring that appropriate tests are performed, and providing care and treatment. It is recommended to collaborate globally in the fight against Mpox to provide adequate education and training to raise awareness of both healthcare professionals and the public, to improve their experience, knowledge, skills and overall mental well-being during such challenging periods.

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CHAPTER III

Kadına Yönelik Şiddet ve Ağrı İlişkisi

Tuğba ÖZTÜRK[1]

Giriş

Kadına yönelik şiddet, dünya çapında yaygın ancak; tarihsel olarak göz ardı edilen bir olgudur (WHO 2013a). Kadına yönelik şiddet "küresel salgın" olarak kabul edilmekte ve "belki de en utanç verici insan hakları ihlali" olarak tanımlanmaktadır (Garcia-Moreno ve ark., 2013, Obreja, 2019). Kadına yönelik şiddetle mücadele etmek ve önleme çabalarıyla kadınları güçlendirmek son derece önemli bir güvenlik sorunudur. Bu kabullere rağmen, önleyici çabalar ve mağdurlara yönelik hizmetlere yapılan yatırımlar maalesef sorunu önlemek için yetersiz kalmaktadır. Dünya genelinde kadınların %10-53'ünün yaşamları boyunca en az bir kez eş şiddetine maruz kaldığı, %30'dan fazlasının ise eşleri tarafından

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fiziksel veya cinsel şiddete maruz kaldığı tahmin edilmektedir (WHO 2018). Yakın partner şiddetine maruz kalma yaşam boyu devam eder (Pathak ve ark., 2019). Kadına yönelik şiddet dünya çapında önemli bir sorundur. Kadına yönelik şiddet, fiziksel, zihinsel, duygusal, cinsel ve üreme sağlığı sorunları ve ölümle (cinayet ve intihar nedeniyle) güçlü bir şekilde ilişkilidir. Şiddet ve şiddetin devamı için risk faktörlerinden biri olan toplumsal cinsiyet normları, aileler ve toplumlar üzerinde önemli etkilere sahiptir (Ellsberg ve ark., 2008, Devries ve ark., 2013, Klugman ve ark. 2014) ve bu olumsuz etkiler sosyal ve ekonomik sınırları aşmaktadır (WHO 2013c). Bu etkiler nedeniyle, ulusal ve uluslararası kılavuzlar kadına yönelik şiddetin kadınlar için önemli bir sağlık belirleyicisi olduğunu kabul etmekte ve sağlık hizmetlerinin bu önemli sorunu belirlemesini ve ele almasını talep etmektedir (WHO 2013b, 2016a). Bu nedenle, kişilerarası şiddetin farkında olmak ve kadın sağlığı bakımı sunarken cinsiyete duyarlı hizmetler sunmak önemlidir. Bu hizmetleri sunarken, kadına yönelik şiddetin kadın sağlığı üzerindeki etkisini ve potansiyel tedavileri anlamak bir ön koşul olarak düşünülmelidir Ayrıca, toplumsal cinsiyet eşitsizliği nedeniyle dezavantajlı olan kadınları güçsüzleştiren risklere karşı önlem almanın ve şiddetin dinamiklerini bilmenin hayati önem taşıdığı düşünülmektedir. Bu bakış açısından, bu çalışmanın kadınlara yönelik şiddet konusunda farkındalığı artırmaya ve önleme çabalarına katkıda bulunması umulmaktadır (Türkkan ve Odacı, 2024). Ayrıca, bu inceleme, ilgili sağlık politikaları ve kadın sağlığı hizmetleri geliştirmeye yardımcı olmak için şiddet ve kadın sağlığı arasındaki karmaşık ilişkiye dair içgörüler sağlamayı amaçlamaktadır.

Kadına Yönelik Şiddet

Birleşmiş Milletler Kadına Yönelik Şiddetin Ortadan Kaldırılmasına Dair Bildirge (BM, 1993), kadına yönelik şiddeti "kadınlara fiziksel, cinsel veya psikolojik zarar veya acı veren veya verme olasılığı olan veya kadınları kamusal veya özel yaşamda özgürlüklerinden tehdit eden, zorlayan veya keyfi olarak mahrum eden cinsiyete dayalı herhangi bir şiddet eylemi" olarak tanımlar. Kapsamı geniş olsa da, bu ifade şiddeti zarara neden olan veya zarara neden olma potansiyeli olan eylemler olarak tanımlar ve bu eylemlerin cinsiyet eşitsizliğinden kaynaklandığını vurgular (Türkkan ve Odacı, 2024).

Kadınlara yönelik şiddet, insan haklarının ihlali ve bir halk sağlığı sorunudur (Ellsberg 2006). Bu şiddet, kişilerarası şiddet, aile içi şiddet veya cinsel, fiziksel ve psikolojik şiddet de dahil olmak üzere yakın partner şiddeti gibi birçok biçimde alabilir. Nihai amaç, kadınların bağımsızlıklarını, kendi kaderlerini tayin etmelerini, kişisel gelişimlerini ve psikolojik iyilik hallerini yok edebilecek şekilde kadınların hayatları üzerinde kontrol sağlamaktır (Ellsberg 2006).

Birleşmiş Milletler (United Nations 1993) kadınlara yönelik şiddeti "kadınlara fiziksel, cinsel veya ruhsal zarar veya acı veren veya vermesi muhtemel olan, bu tür eylemlerle tehdit etme, zorlama veya keyfi olarak özgürlükten yoksun bırakma dahil olmak üzere, ister kamusal ister özel hayatta meydana gelsin, cinsiyete dayalı her türlü şiddet eylemi" olarak tanımlamaktadır. Son yıllarda, şiddeti ele almayı ve önlemeyi amaçlayan politikalar artış göstermektedir. Ancak, bu çabalara rağmen, şiddet olayları yüksek kalmaya devam ediyor. Son zamanlarda yapılan bir gözlemsel çalışmaya göre,

Avrupa Birliği'ndeki kadınların yaklaşık %51,7'si hayatlarının bir noktasında şiddete maruz kalmıştır (Barbier ve ark., 2022).

Yakın partner şiddeti (IPV), kadınlara yönelik en yaygın şiddet türüdür ve yabancılar tarafından işlenen şiddete göre tespit edilmesi ve incelenmesi daha zordur (Garcia-Moreno ve ark., 2006). Hastalık Kontrol ve Önleme Merkezleri (CDC) IPV'yi, fiziksel şiddet, cinsel şiddet, takip ve psikolojik saldırganlık dahil olmak üzere mevcut veya eski yakın partner tarafından işlenen şiddet olarak tanımlamaktadır (CDC, 2021).

Kadına yönelik şiddet, cinsiyet eşitsizliğinin bir yansıması olsa da, aynı zamanda var olan eşitsiz güç dengesini korumaya da hizmet eder. Bazı durumlarda, failler şiddeti kasıtlı olarak bir boyun eğdirme mekanizması olarak kullanırlar. Diğer şiddet biçimlerinde, faillerin kadınları boyunduruk altına almak için açık bir motivasyonu olmayabilir, ancak yine de bu erkek eylemlerinin bir sonucudur. Bir örnek, bir erkeğin cinsel açıdan kışkırtıcı olduğuna karar verdiği bir kadına tecavüz etmesi ve kadının davranışını, kolektif olarak belirlenmiş toplumsal kuralları ihlal ettiği için uygun bir ceza olarak haklı çıkarmasıdır. Topluluklar da genellikle bu cinsiyete özgü davranış normlarını onaylar. Bu nedenle, kadınların eşitsiz statüsü, şiddete karşı savunmasız olmalarına katkıda bulunur ve böylece kadınlara yönelik şiddeti daha da kötüleştirir (Manjoo, 2012).

Kadına yönelik şiddetin birçok biçimi vardır. Ancak şiddet türleri belirli özellikleri paylaşma eğilimindedir. Şiddet ve istismarın çoğu biçimi, özellikle yakın partner şiddeti ve çocuk cinsel istismarı, yıllar boyunca devam eder. Çoğu durumda, kadın mağduriyet gerçekleşmeden önce faili tanır, onunla birlikte yaşar veya düzenli

olarak etkileşimde bulunur (Polat, 2016). Kadınlara yönelik şiddetin çoğu biçimine özgü bir diğer husus, toplumun kadın mağdurlara suçlama atfetmesidir. Örneğin, yakın partner şiddeti yaşayan kadınlar, itaatsizlikleri, partner olarak başarısız olmaları veya sadakatsizlikleri nedeniyle şiddeti kışkırtmakla yaygın olarak suçlanırlar.

Cinsel saldırıya veya tecavüze uğrayan kız çocukları veya kadınlar, kurbanın çocuk olup olmadığına bakılmaksızın, genellikle giyim ve davranışlarıyla "bunu istedikleri veya hak ettikleri" ima edilir (Watts ve Zimmerman 2002). Türkiye'deki çalışmalar da genç yaşta evlilik, düşük eğitim düzeyi, alkol bağımlılığı, çocukluk travması veya taciz öyküsü, ilişki düzeyine göre birden fazla partner, evlilik ilişkisinin bozulması, düşük ilişki memnuniyeti, zorla evlilik, yoksulluk, sosyal destek eksikliği, toplum düzeyinde iş fırsatlarının olmaması, erkeklerin kadınlar üzerindeki üstünlüğünün ve egemenliğinin kültürel olarak kabul edilmesi, şiddeti kabul etme, kültürel uygulamalar ve toplumsal düzeyde yetersiz yasal yaptırımlar kadına yönelik şiddeti etkileyen faktörler arasında olduğunu ortaya koymaktadır (Tekkas ve ark., 2020).

Aile içi Şiddet ve İstismar

Kadınlara yönelik şiddetin çoğu biçimine özgü bir diğer husus, toplumun kadın mağdurlara suçlama atfetmesidir. Örneğin, yakın partner şiddeti yaşayan kadınlar, itaatsizlikleri, partner olarak başarısız olmaları veya sadakatsizlikleri nedeniyle şiddeti kışkırtmakla yaygın olarak suçlanırlar. Birçok ülke, aile içi şiddet ve istismar için cinsiyetten bağımsız bir tanım sunar. İngiltere İçişleri Bakanlığı, aile içi şiddeti cinsiyet veya cinsel yönelime bakılmaksızın, 16 yaş ve üzeri kişiler arasında yakın partner veya

aile üyesi olan veya olmuş kişiler arasında, psikolojik, fiziksel, cinsel, duygusal, mali istismar dahil ancak bunlarla sınırlı olmamak üzere kontrol edici, zorlayıcı veya tehdit edici davranış, şiddet veya istismar olarak tanımlar. Benzer şekilde, Amerika Birleşik Devletleri Adalet Bakanlığı, aile içi şiddeti "bir partnerin herhangi bir ilişkide diğer partner üzerinde güç ve kontrol elde etmek veya sürdürmek için kullandığı bir istismarcı davranış örüntüsü" olarak tanımlar. Aile içi şiddet, bir kişinin eşine, çocuklarına, ebeveynlerine, kardeşlerine veya yakın akrabalarına karşı saldırgan davranışıdır (Kadının Statüsü Genel Müdürlüğü 2009). Yine de, kadınlara birlikte yaşadıkları erkekler veya kocaları tarafından sistematik olarak uygulanmaktadır (Yaman ve Ayaz, 2010). Bu tür şiddet, tokat, yumruk ve tekmeden silahlı saldırı ve cinayete kadar uzanan fiziksel şiddet de dahil olmak üzere çeşitli biçimler alabilir; cinsel şiddet, tecavüz veya aşağılayıcı cinsel eylemlere zorla katılım şeklinde de olabilir (Watts ve Zimmerman, 2002). Bunlar sıklıkla kadının ailesi ve arkadaşlarıyla görüşmesini yasaklama, sürekli aşağılama, küçük düşürme veya sindirme gibi duygusal açıdan saldırgan davranışlar; çalışmasını engelleme veya kazancına el koyma gibi ekonomik kısıtlamalar ve diğer kontrol e edici davranış örüntüleri eşlik eder (Dağcı ve Ören, 2019). Ayrıca, aile içi şiddet ve istismarın orantısız bir şekilde kadınları etkilediği ve erkekler ile kadınlar arasındaki güç eşitsizliğini ifade ettiği kabul edilmektedir. Bu nedenle, aile içi şiddet ve istismar cinsiyete dayalı şiddetin bir biçimidir (Anifowose, 2021)

Kadınlara yönelik şiddetin en yaygın biçimlerinden biri olan aile içi şiddet, bir eş veya başka bir aile üyesi tarafından işlenir. Aile içi şiddette, failler kurbanlarına yakındır ve saldırgan davranışlar

özel veya kamusal alanlarda gerçekleşir (Watts ve Zimmerman, 2002). Gerçek şu ki, kadınlar genellikle faillerine duygusal olarak bağlıdır veya ekonomik olarak bağımlıdır. Genellikle yakın partnerler tarafından işlenen bu şiddet, sosyal, ekonomik, dini veya kültürel gruplardan bağımsız olarak tüm ülkelerde gözlemlenebilir (Alhabib ve ark., 2010). Ancak bazı uzmanlar, durumsal şiddet (aile içinde daha az sıklıkta görülen, zamanla tırmanma olasılığı daha düşük ve karşılıklı olma olasılığı daha yüksek istismar) ile eşler arası şiddet (fiziksel şiddet, korkutma ve kontrol gibi zorlayıcı bir örüntüyle karakterize edilen aile içi şiddet ve istismar) arasındaki farklara dikkat çekmektedir (Kelly ve Johnson, 2008).

Cinsel Şiddet

Şiddet denildiğinde akla ilk gelen şey fiziksel şiddet olsa da kadınlar partnerleri veya partner olmayan kişiler tarafından da cinsel şiddete maruz kalabilmektedir (Polat, 2016). Dünya Şiddet ve Sağlık Raporu'nda (2021) cinsel şiddet şu şekilde tanımlanmaktadır:

’’Herhangi bir cinsel eylem, cinsel eylemde bulunma girişimi, bir kişinin cinselliğine yönelik diğer zorlama, taciz veya baskı eylemleri veya cinsel amaçlı insan ticareti eylemleri, herhangi bir kişi tarafından kişinin, mağdurla ilişkisi ve kimliği ne olursa olsun, ev ve iş ortamı dahil ancak bunlarla sınırlı olmamak üzere her türlü ortamda maruz kaldığı cinsel şiddettir’’ (WHO, 2013d).

Cinsel şiddet eylemleri birçok farklı koşul ve ortamda gerçekleşebilir. Bu eylemler arasında evlilik veya flört ilişkilerinde tecavüz; romantik partner olmayan tanıdıklar tarafından tecavüz; din adamları, tıp doktorları veya öğretmenler gibi güven duyulan pozisyonlardaki kişiler tarafından cinsel istismar; yabancılar

tarafından tecavüz; birden fazla failin tecavüzü; aldatma, kandırma, şantaj veya rıza gösteremeyecek kadar aciz veya uyuşturulmuş veya sarhoş kişilerin cinsel istismarı dahil olmak üzere cinsel sömürü; silahlı çatışma sırasında tecavüz; iş, okul notları veya iyilikler karşılığında cinsel ilişki talep etme dahil olmak üzere cinsel sömürü; istenmeyen cinsel temas; zihinsel veya fiziksel engelli kişilere cinsel istismar; erkek ve kız çocuklarına cinsel istismar; pornografiye maruz bırakma ve kadın sünneti, bekaret muayenesi, zorla anal muayene ve cinsel istismar için insan ticareti dahil olmak üzere cinsel bütünlüğe karşı şiddet eylemleri (Parra-Barrera, 2021). Bu örneklerin ortak paydası, hepsinin erkek ve kadın cinselliğini içeren cinsel eylemler olması ve bu eylemlerin rızanın alınmadığı veya erişilebilir bir şekilde verilmediği durumlarda gerçekleşmesidir (Dartnall ve Jewkes, 2013).

Yaygın olarak utanç verici ve damgalayıcı olarak kabul edilen cinsel şiddetin yaygınlığı, niceliklendirilmesi gereken çeşitli zorluklar sunar (Türkkan ve Odacı 2022). Alkol içen veya uyuşturucu kullanan kadınların tecavüze uğramayı hak ettiği, kadınların giyinişleri veya davranışlarıyla tecavüze neden olduğu ve tecavüzün tutku suçu olduğu gibi cinsel şiddetle ilgili mitler dünya çapında yaygındır. Mağdurları damgalayarak ve suçlayarak, bu tür mitler faillerin hesap verebilirliğini azaltmak için kullanılabilir (Dartnall ve Jewkes, 2013). Bu bağlamda, birçok mağdur basitçe deneyimlerini bildirmemeyi tercih edebilir. Ancak bu, cinsel şiddeti sürdürür ve destek sistemlerine erişimi engeller (Odacı ve Türkkan, 2021).

Kadına Yönelik Şiddetin Yaygınlığı ve Politikalar

Kadına yönelik şiddet, özellikle yakın partnerlere yönelik şiddet ve cinsel şiddet yaygın bir halk sağlığı sorunudur (Bora ve Gölge, 2019). Ancak, kadına yönelik şiddet türlerinin yaygınlık oranlarını belirlemek çeşitli nedenlerle zordur. Bu zorluk, partnerler arasında işlenen şiddetteki farklılıklardan ve araştırma yöntemlerini, şiddet tanımlarını, örnekleme tekniklerini, görüşmeci becerilerini ve katılımcıların yakın deneyimlerini açıklama isteklerini etkileyen kültürel farklılıklardan olabilir (Fraga, 2016). Bu nedenle, kültürler veya ülkeler arasında doğrudan karşılaştırmalar yapmak veya hangi toplumda şiddetin daha yaygın olduğu konusunda yargılarda bulunmak imkansızdır. Yine de, yaygınlık oranları önleyici politikaların ve müdahale çabalarının etkinliğini yönlendirebilir. Türkiye'de kadınlara yönelik farklı şiddet türlerini belirlemek için yapılan çalışmalar, Türkiye'deki kadınların %38'inin eşleri tarafından yaşam boyu fiziksel ve cinsel şiddete maruz kaldığını ve %11'inin son 12 ayda eşleri veya partnerleri tarafından fiziksel ve cinsel şiddet gördüğünü göstermektedir (Aile ve Sosyal Politikalar Bakanlığı 2015b). Özellikle, eş veya partner olmayan yabancılar tarafından uygulanan cinsel şiddet oranına ilişkin ulusal istatistikler bulunmamaktadır. Ayrıca, Türkiye'de çocuk evliliklerinin oranı önemli bir seviyededir ve %14,7 olarak bildirilmiştir (UNICEF 2021). Kadınlara yönelik şiddetin yaygınlık oranlarını belirlemek için ulusal literatürde bölgesel veriler de mevcuttur. Örneğin, Ankara'da 1178 kadına uygulanan bir ankette, katılımcıların %31,3'ü en az bir kez eşlerinden cinsel şiddet gördüğünü belirtirken, %25,8'i fiziksel olarak cinsel ilişkiye zorlandığını iddia etmiştir. Ayrıca, cinsel şiddete maruz kalma oranının bir önceki yıla göre %15,9

arttığı belirlenmiştir (Akar ve ark., 2010). Konya'da yapılan bir araştırma, kadınların yaklaşık %38'inin cinsel şiddete maruz kaldığını ortaya koymuştur (Alan Dikmen ve Çankaya 2021). Başka bir çalışma Kadın namus cinayeti, bir kadının genel olarak toplumsal davranışlarını ve özel olarak da cinsel davranışlarını onaylamayan bir veya birden fazla aile üyesi tarafından işlenen özel bir kadın cinayeti biçimidir (Dayan, 2021). Dünya Sağlık Örgütü'nün 2000-2018 yılları arasında 161 ülke ve bölgede gerçekleştirdiği kadına yönelik şiddet yaygınlık analizi, 15-49 yaş aralığında, bir ilişkisi olan kadınların neredeyse üçte birinin (%27) yaşamları boyunca fiziksel ve cinsel yakın partner şiddeti veya partner olmayan biri tarafından cinsel şiddete maruz kaldığını ortaya koydu. Yaşam boyu yakın partner şiddetinin yaygınlık oranları Batı Pasifik'te %20, yüksek gelirli ülkelerde ve Avrupa'da %22, Amerika'da %25, Afrika'da %33, Doğu Akdeniz'de %31 ve Güneydoğu Asya'da %33'tür. Anket ayrıca kadınlara yönelik bu şiddet biçimlerinin çoğunlukla eşler veya yakın partnerler tarafından işlendiğini ortaya koymuştur (WHO 2018). Çalışmaya göre, dünya çapında tüm kadın cinayetlerinin %38'i yakın partnerler tarafından işlenmiştir. Dünya çapında kadınların %6'sı partner olmayan biri tarafından cinsel saldırıya uğramıştır (WHO 2018).

İstismara uğrayanlar, daha yüksek morbidite ve mortalite ile kısa ve uzun vadeli fiziksel ve psikolojik sağlık sorunları arasında değişen çeşitli sonuçlarla karşı karşıya kalmaktadır (Cirici ve ark., 2023). Mağdur olan kadınlarda depresyon, travma sonrası stres bozukluğu (TSSB), anksiyete, alkolizm ve intihar eğilimleri daha yüksek oranlarda görülmektedir (Stewart ve Vigod, 2019).

Şiddetin ülkeler ve toplumlar üzerinde önemli sosyal ve ekonomik etkileri vardır. Dünya Sağlık Örgütü (WHO 2021), hükümetlerin kadınlara ve kızlara yönelik şiddeti ortadan kaldırmak için taahhütleri ve yasal politikaları güçlendirmeleri gerektiğini vurgulamaktadır.

Türkiye, ulusal ve uluslararası sözleşmeler (Türk Medeni Kanunu, İş Kanunu, Türk Ceza Kanunu, Kadınlara Karşı Her Türlü Ayrımcılığın Önlenmesi Sözleşmesi (CEDAW) aracılığıyla toplumsal cinsiyet eşitsizliğinin giderilmesi ve kadınların insan haklarının iyileştirilmesi konusunda önemli adımlar atmıştır. Özellikle İstanbul Sözleşmesi ve 6284 sayılı Kanun'a taraf olunmasıyla, şiddete sıfır tolerans ilkesiyle tek kapı sistemiyle kadına yönelik şiddetle mücadele edilmeye çalışılmıştır. Ancak 6284 sayılı Kanun ve 2006/17 Başbakanlık Genelgesi'nde kadına yönelik şiddetle mücadelede kurumlar arası işbirliği sürecinden bahsedilmektedir. Ancak bu işbirliğinin pratikte nasıl sağlanacağına ilişkin bir açıklık bulunmamakta ve işbirliği yapan kurumların sorunla mücadele yaklaşımları arasında önemli farklılıklar bulunmaktadır (Şen, 2018). Kadına yönelik şiddeti önlemeye yönelik kadın sağlığı hizmetlerinin sınırlı olduğu da ileri sürülebilir. Sağlık Bakanlığı, şiddeti önlemede birincil, ikincil ve üçüncül koruma aşamalarında kritik rollere sahiptir ve kadına yönelik şiddeti önlemeye yönelik bir politikası yoktur. Sağlık sistemi içerisinde şiddet mağdurlarını korumak için sağlık personelini harekete geçirecek bir mekanizma oluşturulmamıştır. Bu nedenle sağlık personeli yalnızca güvenlik güçlerine bilgi vermekte ve talep edildiğinde rapor hazırlamanın ötesinde bir işlem yapmamaktadır (Subaşı ve Akın, 2003).

Kadına Yönelik Şiddet ve Ağrı

Kadına yönelik şiddet ve ağrı psikolojik sonuçların dışında şiddet kronik sağlık sorunlarına ve ağrıya neden olabilir (Onur ve ark., 2020). Kronik ağrının yaygınlığı Avrupa'da %8,78 Kanada'da ve Amerika Birleşik Devletleri'nde %8'dir (Rometsch ve ark., 2024). Çalışmaların çoğu kadına yönelik şiddetin pelvik/vajinal ağrıya fibromiyaljiye irritabl bağırsak sendromuna/bağırsak semptomlarına, karın ağrısına, temporomandibular ağrıya meme ağrısına, migren/baş ağrısına, sırt ağrısına ve boyun ağrısının nedeni olarak görülmektedir (As-Sanie ve ark., 2014)

Hamilelikte eş şiddetine maruz kalmak da benzer şekilde farklı sorunlara (düşük, ölü doğum, erken doğum ve ve düşük doğum ağırlıklı bebekler) neden olmaktadır. (Leight, 2022). Yakın partner şiddetine maruz kalan kadınların düşük yapma olasılığı % 16 daha fazla ve erken doğum yapma olasılığı % 41 daha fazladır (WHO 2013c). Ayrıca, baş ağrıları, ağrı sendromları (sırt ağrısı, karın ağrısı, kronik pelvik ağrı), gastrointestinal bozukluklar, hareket kabiliyetinin azalması ve genel sağlık durumunun kötü olması şiddet mağduru kadınlarda gözlemlenen diğer sağlık etkileridir (WHO 2013c).

Kadına Yönelik Şiddet ve Ağrı Etiyolojisi

Şiddet mağdurlarında ağrı semptomlarının başlamasına katkıda bulunan birçok farklı faktör bu durum sıklıkla anksiyete veya depresyon (Stewart ve Vigod, 2019)gibi ruh sağlığı sorunları ve sosyal destek eksikliği gibi sosyal sorunlarla ilişkilendirilir; ancak her kadın için üç faktör türünün farklı önemi vardır. Kronik ağrı hastalarında ruh hali bozuklukları genellikle çift yönlü bir ilişkiyle

mevcuttur; aslında, kronik ağrıdan etkilenen kişilerin kronik ağrısı olmayan bireylere göre depresyon atağı yaşama olasılığı 2,0 ila 2,5 kat daha fazladır (Carroll ve ark., 2004) ve depresif bozukluğu olan ağrısız bireylerin kronik ağrı geliştirme olasılığı depresif olmayan bireylere göre 4 kat daha fazladır (Currie ve Wang, 2005). Kronik ağrı akut ağrıdan farklıdır çünkü mutlaka yaralanmalardan kaynaklanmaz, ancak yine de biyolojik süreçleri içerir. Çeşitli duyusal, otonomik, endokrin ve bağışıklık tepkileri, algılanan nosiseptif uyaranlara katkıda bulunmak için etkileşime girer (Cahpman ve ark., 2008). Sinir sistemi potansiyel tehditleri tespit etmekten, vücuda tehlike sinyali göndermekten ve bunlara bir yanıt başlatmaktan sorumludur. Benzer şekilde endokrin sistemi stres tepkisi yoluyla bir uyarılma tepkisi oluşturarak hayatta kalma şansını artırmaya yardımcı olur. Son olarak, bağışıklık sistemi mikrobiyal istilayı ve toksinleri tespit eder ve bunlarla savaşmak için karmaşık inflamatuar tepkileri tetikler. Bu süreçler toplu olarak vücudun ağrıya karşı doğal savunma mekanizmasını zayıflatabilir. Kalıcı ağrı, sinir, endokrin ve bağışıklık düzeylerindeki sistemik değişikliklere uyumsuz bir şekilde yanıt veren lokal olarak iltihaplı süreçlerden kaynaklanabilir. Anormal duyusal süreçler nedeniyle etkilenen dokular iyileştikten sonra bile kronik ağrı devam edebilir (Cahpman ve ark., 2008). Şiddet ve taciz gibi travmalar, otonom sinir sistemini ve bağışıklık sistemini tetikleyerek nosiseptif uyaranlara karşı iltihaplı bir yanıta yol açabilir (Moreno-Ramos ve ark., 2013). Ayrıca, iltihaplanma nörotransmitterlerin metabolizmasını etkileyerek zihinsel sağlık sorunları riskini artırabilir ve bunun tersine, zihinsel sağlık sorunları kronik ağrı riskini artırabilir (Kendall-Tackett ve ark., 2000).

Ağrı ve şiddet arasındaki ilişki karmaşık olabilir; şiddet, iki yönlü bir ilişkiyle bir risk faktörü veya bir sonuç olabilir. Hangisinin diğerine neden olduğunu belirlemek zordur çünkü kadınları şiddete maruz kalmadan önce ve sonra izleyen uzunlamasına çalışmalar yoktur. Şu anda yalnızca şiddete maruz kalma ve kronik ağrı arasındaki ilişkinin var olduğunu ve istatistiksel olarak anlamlı olduğunu göstermek mümkündür .

Sonuç

Cinsiyete dayalı şiddet, hafife alınan bir halk sağlığı sorunudur ancak sonuçları kısa ve uzun vadede ciddi psikolojik ve fiziksel etkilere sahiptir. Yetişkinlerde şiddet mağduriyeti geçmişi ile kronik ağrı arasında güçlü ilişkiler olduğunu gösteriyor. Bu kanıt, bu tür ilişki üzerine gelecekteki çalışmalara rehberlik etmeli ve yalnızca bir araştırma bakış açısı değil, klinik bir bakış açısıyla da faydalı olmalıdır. Birçok kadının şiddetini başkalarına bildirmediğini düşünürsek, kronik ağrıyla veya acil serviste çalışan her sağlık çalışanı dikkatli olmalı ve bu durumlara hazırlıklı olmalıdır. Dahası, aynı dikkat genel olarak sağlık sistemi ve bu kadınlar için doğru yolu sağlamak için kurum tarafından da gösterilmelidir.

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CHAPTER IV

Artificial Intelligence in Nursing

Lütfiye Nur UZUN [1]
Hümeyra HANÇER TOK[2]

Introduction

Artificial intelligence (AI) draws attention as a technological innovation that leads to radical changes in health services. This change affects a wide range from the functioning of health systems to individual patient care and has a profound impact on a human-centred profession such as nursing. While nursing has been defined as a profession that focuses on empathy, compassion and individual patient needs throughout history, it is being reshaped with the speed,

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accuracy and efficiency offered by artificial intelligence technologies. Artificial intelligence is used in many areas such as diagnosis, development of care plans, risk analysis, physiological monitoring and documentation in nursing practices. These technologies enable nurses to work more efficiently by reducing their workload and increase patient safety. For example, artificial intelligence supports nurses to provide more focused and effective care in tasks such as predicting potential risks such as falls and pressure sores or continuous monitoring of vital signs. However, this harmonisation between artificial intelligence and nursing is not only a technical transformation. Issues such as ethical and social responsibilities arising from the use of artificial intelligence, the limits of human-machine interaction, data confidentiality and algorithmic biases should be addressed in harmony with the core values of the profession. The nursing profession is a field where human touch and individual care are indispensable, and therefore, innovations provided by artificial intelligence should support these values and not overshadow them. The blending of human and scientific aspects of the profession by nurses and healthcare providers by using this technology correctly and effectively represents the beginning of a new era in healthcare. This dynamic developing at the intersection of artificial intelligence and nursing has the potential to reshape the future of the nursing profession.

1. Definition and development process of artificial intelligence

Artificial intelligence (AI) is a branch of science that deals with the theory and practice of developing systems that exhibit human characteristics and mimic certain functions of human intelligence. This field focuses on machines modelling human learning processes and gaining the ability to solve complex problems (Jiang et al., 2022; Winston, 1984) . Artificial intelligence is a

development that performs various tasks such as reasoning, perceiving, inferring, communicating and making decisions like humans depending on the situation or problem (Castellanos, 2018; Robert, 2019; Schatsky et al., 2014) .

This field, which dates back to the 17th century, has developed rapidly especially after the Second World War. Today, AI is used in many fields, especially in education, and deeply affects human life. The term "artificial intelligence" was first used in 1956 by John McCarthy at a workshop organised at Dartmouth College. This event is an important milestone in the field of AI (Coşkun & Gülleroğlu, 2021; Jiang et al., 2022; McCarthy, 1956; Öztemel, 2020) . The development of AI is closely related to the understanding of human intelligence. Human intelligence includes characteristics such as learning, problem solving, creativity. AI systems have been able to successfully model some components of human intelligence; however, features such as creativity and imagination have not yet been fully simulated (Coşkun & Gülleroğlu, 2021) . In recent years, big data analytics, the increase in processing power and the development of deep learning algorithms have increased the potential of artificial intelligence and enabled it to spread to different sectors. The health sector has become one of the areas where these technologies are used most intensively. In recent years, artificial intelligence has started to be developed and widespread in all areas of the health sector, from primary health care provision to rare diseases, from emergency interventions to public health management (Jimma, 2023) . The use of artificial intelligence technology in the health sector extends to the prediction, early diagnosis, classification and patient management of diseases and is used in processes such as improvement and cost reduction (Neha et al., 2024) . Artificial intelligence systems, which initially could only perform limited tasks, have now evolved into complex algorithms

that analyse genetic data, strengthen clinical decision support systems and enable individualised treatment planning (Jimma, 2023; Robert, 2019; Schork, 2019) .

2. Artificial intelligence in healthcare

Artificial intelligence is widely used in various fields of healthcare with medical imaging and diagnostics, patient care, medical research rehabilitation and other administrative applications to improve patient health outcomes and provide healthcare at lower cost. AI in healthcare improves diagnostic accuracy, management and patient care through the analysis of large amounts of data using deep learning such as machine learning to extract information from data and interpret data for itself such as the onset of disease and create algorithms, report preparation by analysing unstructured clinical notes of patients, natural language processing for transcribing patient interactions and/or speech, and potentially cancerous lesions recognition applications (Davenport & Kalakota, 2019; Fakoor et al., 2013; Lee et al., 2018) . Some artificial intelligence-supported applications used in the health sector are as follows.

2.1. Medical imaging and diagnostic services

Artificial intelligence plays a critical role in the diagnosis and early diagnosis of diseases. AI algorithms used in imaging methods such as magnetic resonance imaging (MRI), computed tomography (CT) and ultrasound can detect abnormalities quickly and accurately. Promising data have been obtained in the early diagnosis of diseases such as ischaemic heart disease, breast, skin cancer, eye diseases and pneumonia with artificial intelligence technologies. It can also be used in modelling such as speech analyses to predict psychotic states, recognising the characteristics of neurological diseases such

as Parkinson's and predicting the onset of diabetes (Al Kuwaiti et al., 2023; Bedi et al., 2015; Chou et al., 2023; Esteva et al., 2017; Wang et al., 2016) . Artificial intelligence can be time and cost effective applications compared to traditional diagnostic methods. It can also reduce human error and produce more accurate results in less time (Alowais et al., 2023)

2.2. Clinical decision support systems

Clinical decision support systems are artificial intelligence models that act on an "if-then" logic and are used to help healthcare professionals make the right decisions in clinical practice by providing a set of rules together with an electronic health record. These systems recommend the most appropriate treatment options by analysing the patient's medical history and current health data. It also increases patient safety and supports minimising medical errors by analysing drug and nutrient interactions (Davenport & Kalakota, 2019; Uzun & Cerit, 2023) . By leveraging AI decision support system algorithms, healthcare professionals can optimise drug doses according to patients, predict unexpected drug events, reduce risks, improve patient care and increase patient safety. These applications are widely used for drugs with a narrow therapeutic index (Alowais et al., 2023) .

2.3. Virtual patient care and monitoring

Artificial intelligence-based patient management systems allow continuous monitoring of patients, especially in the management of chronic diseases such as diabetes, asthma, hypertension, sleep apnoea, or mental health disorders using non-invasive artificial intelligence-supported wearable technologies, or for patients to assess their emotional state in mental health disorders, such systems monitor the patient's health status in real time and

detect critical conditions in advance. Patient monitoring and management through virtual care with wearable technology solutions has become part of the standard of care (Kim et al., 2018) . Remote patient monitoring, a subset of telehealth, allows patients to monitor their condition in their own environment. Remote patient monitoring helps healthcare professionals to monitor patients with chronic or acute illnesses in remote locations, receiving home care or even inpatient treatment in hospital. Thus, they can examine physiological variables such as vital signs, mental disorders and movement disorders that can support medical judgement or treatment approaches. (Al Kuwaiti et al., 2023; Shaik et al., 2023).

2.4. Patient involvement and compliance

The participation of patients in treatment processes and the follow-up of their compliance with treatment is critical for health-disease management. Healthcare providers and hospitals develop care plans based on their clinical expertise to improve the health status of patients. However, if the patient does not make the necessary behavioural changes, health outcomes may not reach the desired level. At this point, AI-enabled applications offer important tools to increase patient engagement and encourage treatment adherence. These applications monitor patients' adherence to treatment plans, medication intake, and whether they attend scheduled hospital visits and provide the necessary instant interventions. For example, they support behavioural changes by providing patients with motivational messages, reminder alarms and personalised content. By encouraging patients to actively participate in treatment processes, these AI-supported applications contribute to both improving individual health outcomes and increasing the effectiveness of overall healthcare services. This approach allows healthcare professionals to follow patients more closely, while

supporting patients to achieve their health goals (Davenport & Kalakota, 2019; Li et al., 2024) .

2.5. Public health practices

Analysing patient demographic data, medical history and social health conditions can identify individuals at high risk of hospital readmission and enable the focusing of interventions for chronic diseases. In addition, AI technologies can automate public health management processes such as patient access and care coordination. These approaches can support patients to access the healthcare services they need in a timely manner, while contributing to reducing costs and improving patient outcomes. In public health applications, AI can offer marginal options in services such as health protection and healthy living promotion (Alowais et al., 2023; Panch et al., 2019) .

2.6. Patient education

One of the innovative uses of artificial intelligence is patient education. AI-supported chatbots are used to support individuals within the scope of healthcare services such as dietary regulations, smoking cessation processes and cognitive-behavioural therapy. Patient education is an essential component of healthcare systems as it allows individuals to understand their medical conditions, treatment alternatives and preventive measures. Access to this information can increase the rate at which patients adhere to treatment plans, leading to more favourable health outcomes. AI technologies have the potential to make the education process more interactive and efficient by offering personalised guidance to patients and their caregivers. Furthermore, these technologies can reorganise patient education materials to suit different reading levels, allowing individuals to better understand their diagnosis, treatment

pathways and self-care instructions. Thus, artificial intelligence contributes to individuals having more informed and effective control over their health (Aggarwal et al., 2023; Alowais et al., 2023; Bombard et al., 2018) .

2.7. Administrative practices

AI can automatically populate structured data fields from therapeutic notes, extract important information from historical medical records, and alleviate administrative workloads by compiling documented patient encounters. For example, a large proportion of a nurse's working hours are spent on regulatory and administrative tasks. Doctors and nurses can save time with technologies such as voice transcription. Although rule-based solutions used in electronic health record systems are common , they cannot reach the level of accuracy offered by more advanced algorithmic systems based on machine learning. In this context, technologies such as robotic process automation can both increase efficiency and reduce the workload of healthcare professionals by contributing to healthcare services in many areas such as claims processing, revenue cycle management, clinical documentation and organisation of medical records (Al Kuwaiti et al., 2023; Davenport & Kalakota, 2019; Uzun & Cerit, 2023) .

3. Artificial intelligence in nursing practice

Systems that evolve over time offer new approaches to health services with their complex structures. Research in the field of complex systems enables the development of innovative strategies in health management. Nursing care has also been transformed under the influence of technology, and this change has both increased patient safety and enabled nurses to establish a more effective relationship with patients. Artificial intelligence has the potential to

support clinical decision-making processes in nursing care and to fulfil tasks that are not directly related to the patient, such as documentation. AI offers important opportunities in terms of its applicability in different settings of nursing care. Appropriate allocation of tasks between nurses and artificial intelligence can contribute to the effective development of nursing care processes. Artificial intelligence solutions targeting high quality patient care are intended to support the daily tasks of nurses and improve care processes. In this direction, it is important for nurses to adopt the role of artificial intelligence in patient care and to determine the dynamics that support the use of these systems. In addition, it is predicted that artificial intelligence applications will increase the quality of nursing care (Akgerman et al., 2022; Clancy, 2020; Seibert et al., 2021) .

Artificial intelligence-supported technologies are used in an integrated manner with techniques such as machine learning, deep learning and natural language processing in order to improve the quality of nursing care. These technologies play an important role in processes such as accurate nursing diagnosis, creation and implementation of care plans. In addition, in the field of risk management and patient safety, artificial intelligence facilitates the implementation of preventive interventions by predicting the risk of falls and the possibility of pressure sores. Artificial intelligence-supported systems are also used in critical care processes such as continuous monitoring of vital signs and pain levels, thus enabling nurses to evaluate patient conditions more effectively. Time-consuming administrative tasks such as documentation are also carried out more quickly and efficiently through artificial intelligence systems. These applications reduce the workload of nurses, allowing them to spend more time on patient-oriented care processes. These multifaceted contributions of artificial intelligence

have the potential to increase the effectiveness of the nursing profession and the overall quality of patient care (Ng et al., 2022) .

Machine learning is one of the most common techniques of artificial intelligence, which uses algorithms that automate modelling processes. This process usually starts with the processing of raw data in accordance with specific use cases. For example, data such as pressure sores or medical record images are transformed into meaningful information through data preparation and mining techniques. Machine learning provides rapid pattern interpretation by estimating probabilistic relationships based on the input data. Research shows that this technology significantly increases the speed and efficiency of patient monitoring. Machine learning makes it easier for nurses to collect and monitor patients' vital signs, reducing the time and labour requirements in this area. For example, a large portion of nurses' time is spent documenting and monitoring vital signs. However, machine learning allows nurses to focus on other critical tasks by managing these processes faster and more effectively. This both increases the quality of nurse-patient communication and improves care processes. In addition, machine learning draws attention with its ability to predict certain medical conditions and risk factors. Based on historical data, it is possible to predict problems such as fall risk or pressure sores. This enables faster diagnosis and prioritisation of comorbidities. This technology, which contributes to nursing assessments, enables the creation of more effective care plans. Thus, nurses are supported to provide high quality care by making more accurate and faster decisions. Studies show that machine learning is an important tool in creating better nursing diagnoses and care plans. By using this technology, nurses can focus more on priority care areas and provide a more efficient service by reducing their workload. This is a critical advantage in terms of improving the quality of nursing care and ensuring patient

satisfaction (Elouni et al., 2020; Gao & Yu, 2020; Nakatani et al., 2020; Ng et al., 2022; Thomas & Pratap, 2019)

Deep learning is effectively applied in various fields to improve nursing care. This technology accelerates diagnostic processes and provides more accurate and reliable results. At the same time, it increases the efficiency of physiological monitoring systems, alleviating the workload of nurses and allowing them to provide more focused care. Deep learning plays an important role in predicting critical situations such as fall risk. In this way, the necessary steps for preventive interventions can be taken in a timely manner and patient safety can be increased. In addition, this technology contributes to more effective management of nursing care processes and to improve the quality of patient-oriented services. Deep learning-based systems both support faster decision-making and positively affect nursing practices by facilitating diagnostic processes. These technologies offer an important innovation in healthcare with the potential to both improve patient outcomes and increase the effectiveness of nursing care (Ng et al., 2022) .

Natural language processing is one of the types of artificial intelligence that has attracted particular attention in the field and has been effective in managing the symptoms of isolated patients, providing care to patients with social anxiety and immunocompromised individuals, as in the COVID-19 pandemic. These systems offer advantages such as monitoring patients remotely, providing access to up-to-date clinical data, freeing up more time for nurses, and improving patient safety in remote areas. However, most of such systems require long learning processes to gain clinical reliability, limiting their wide-scale implementation. Other types of artificial intelligence, such as automation of robotic

processes or physical robots, have the potential to improve the effectiveness of nurses through mobile applications. For example, they have been shown to provide significant benefits in areas such as identification and management of wounds, pain control or adherence to treatment. However, unlike more commonly used systems such as natural language processing or explainable artificial intelligence, there is limited information on such technologies. Dialogue systems and conversational agents have been developed through natural language processing and statistical models and have shown positive results in reducing the administrative workload of nurses, management and follow-up of wound care, triage processes and nursing diagnoses. They have also proved to be useful in the field of nursing education. However, the shortcomings of these technologies, such as poor voice recognition, lack of emphasis and interrupted speech, limit their efficiency in clinical applications. These shortcomings prevent the systems from fully realising their potential benefits, making them less effective compared to normal practice (Kuziemsky et al., 2019; Martinez-Ortigosa et al., 2023; Shorey et al., 2020; Spatharou et al., 2020) .

3.1. Nursing care

The integration of artificial intelligence into the field of nursing has the potential to create significant changes in patient care. Artificial intelligence-supported technologies provide benefits in many areas by improving nurses' clinical workflows and optimising their decision-making processes. One important area of use is predictive analyses for the early identification of patients at risk of deteriorating health conditions. By analysing large patient data sets, artificial intelligence algorithms identify patterns and alert nurses to potential problems before critical situations occur. This allows improving patient outcomes through proactive interventions.

Another important area is diagnosis and treatment planning. Artificial intelligence can contribute to accurate diagnostic processes by analysing complex medical data, such as medical imaging and laboratory results. This process ensures that human errors are reduced and diagnostic accuracy is increased. In addition, AI-supported treatment recommendations support the provision of care to patients in accordance with their individual needs by providing evidence-based information to nurses. AI-enabled virtual assistants and chatbots have the potential to improve patient engagement and education processes. These tools provide patients with accurate medical information, answer their questions and provide guidance on post-discharge care. Enabling patients to act in an informed and autonomous manner, these technologies enable nurses to focus on more critical care tasks. Artificial intelligence-supported approaches are considered as an important tool aiming to individualise patient care and improve outcomes (Ahmed, 2024; Ahmed et al., 2023; Buchanan et al., 2020; Chen et al., 2022; Fernandes et al., 2023; Gannod et al., 2019).

3.2. Nursing management

Artificial intelligence technologies in nursing policy and management offer important opportunities for facilitating administrative processes and managing resources more efficiently. AI-supported systems analyse health data to identify areas that require improvement and provide evidence-based information to policy makers. These systems automate routine tasks such as appointment scheduling and financial management, enabling nurses to focus more on direct patient care. This collaboration is critical for integrating artificial intelligence technologies into nursing practices in an ethical and fair manner, while minimising potential risks. Effective implementation of technological innovations in healthcare

will not only increase administrative efficiency but also improve the quality of patient-centred care (Ahmed, 2024; Buchanan et al., 2020) . In recent years, the use of artificial intelligence in management has increased rapidly and transformed the way organisations operate. Artificial intelligence offers innovative tools in areas such as optimising workflows, reducing administrative burdens and improving decision-making processes. In the context of healthcare management, AI has proven to be an effective tool for managing large datasets, automating routine tasks and predicting resource needs. These applications not only increase operational efficiency, but also improve organisational outcomes by enabling managers to focus on more strategic tasks. Nurse managers have an important role in healthcare due to their responsibilities in areas such as leadership, resource management and planning. However, they face challenges such as workload, the need for quick decision-making, and efficient resource utilisation. These challenges can be effectively addressed through the integration of artificial intelligence tools. Artificial intelligence improves management performance by providing solutions that alleviate administrative burdens and facilitate data-based decision making for nurse managers. In this context, nurse managers need to improve their technological competences and adopt a strategic vision to lead this change. The integration of artificial intelligence into nursing management has significantly affected practical aspects such as reducing administrative workloads, increasing job satisfaction, and facilitating personnel management. Furthermore, technologically advanced healthcare environments improve quality of care, safety and communication. Artificial intelligence is effectively integrated into nursing teams, enabling leadership roles to be fulfilled more effectively. These technological innovations represent a significant transformation in both patient care and management processes

(Elsayed & Sleem, 2021; Gonzalez-Garcia et al., 2024; Gunawan & Aungsuroch, 2017) .

3.3. Nursing education

The impact of artificial intelligence on nursing education is becoming increasingly evident and significantly transforming curriculum design and teaching methods. The integration of AI-supported educational tools and virtual simulations offers nursing students more immersive and interactive learning experiences. These technologies have the ability to assess students' clinical skills and identify areas of knowledge deficiency. Thus, they provide a basis for customised educational interventions, enabling more effective learning processes. Artificial intelligence also supports continuous learning and professional development by providing nursing students with access to the most up-to-date information and evidence-based practices. However, the integration of these technologies into educational environments brings some challenges. Lecturers need to be trained to use artificial intelligence technologies effectively, investment in infrastructure becomes mandatory, and ethical use of these technologies needs to be carefully studied. Nursing educators should take full advantage of the potential of artificial intelligence in education by effectively managing this change process. This process will not only improve the quality of nursing education, but also contribute to the training of more equipped and professional healthcare professionals. The use of artificial intelligence in educational environments is considered as an important opportunity that reshapes both teaching methodologies and learning experiences. The integration of artificial intelligence technology into nursing education has the potential to create revolutionary changes by providing personalised learning experiences and making educational processes more efficient.

However, important concerns such as privacy, security, bias, and compliance with professional standards need to be addressed for the ethical and responsible use of these technologies. Therefore, the incorporation of artificial intelligence applications into educational processes should be supported by careful evaluation and effective strategies. Ongoing research and innovation in the field of artificial intelligence in nursing education is critical to determine how best to implement these technologies and examine their impact on student learning and programme outcomes. In addition, resolving ethical and legal issues is necessary to ensure the sustainability and reliability of the use of artificial intelligence. With the right application and guidelines, artificial intelligence tools can complement and further enhance human interactions in nursing education. This can contribute to the development of the nursing profession by ensuring that nursing students are better prepared for the rapidly changing healthcare environment. The effective use of artificial intelligence in the educational environment enables the creation of a learning ecosystem that supports compliance with professional standards while increasing students' competencies (Ahmed, 2024; Akgerman et al., 2022; Buchanan et al., 2020; De Gagne, 2023) .

3.4. Nursing research

AI-enabled technologies offer significant contributions to researchers with unique capabilities such as data analysis, predictive modelling and decision support. While these technologies make it possible to obtain meaningful insights from health data, they can benefit at various stages of research processes. In particular, artificial intelligence tools can be used effectively in tasks such as literature review, analysing data and creating the first drafts of academic writing. In this way, research processes can be accelerated and the overall quality of academic studies can be improved. By identifying

areas of research that require attention, artificial intelligence algorithms suggest new approaches and encourage collaboration between researchers in different fields. However, despite the potential advantages offered by these technologies, there are also some important ethical and practical challenges. Data privacy, algorithmic bias and the proper use of AI technologies are major issues that need to be carefully addressed. Furthermore, over-reliance on AI systems can negatively impact the critical thinking and creativity aspects of academic studies. Researchers should not forget their responsibility to maintain human-centred approaches and research originality while taking advantage of the benefits of these technologies. Striking a balance between the benefits derived from artificial intelligence and the ethical and authentic foundations of academic studies is critical to maximising research capacity in the fields of nursing and health. This balance will create a research environment that supports both innovation and human values at the same time. The integration of generative AI into academic research writing has opened the doors to a new era in this field by providing significant support to researchers in content creation and idea development processes. While powerful tools such as ChatGPT and Bard have the potential to increase the speed and efficiency of academic writing, the ethical concerns and implementation challenges that this innovation brings with it should be carefully considered. The contributions of generative AI tools to academic research writing are undeniable, but the use of these technologies raises important questions about authorship and attribution of AI-generated content. Traditionally, academic works reflect the knowledge, expertise and intellectual contributions of authors and are therefore attributed to human authors. However, as the role of AI tools in the authoring process increases, uncertainties arise about how to recognise and report the contributions of these systems.

Ongoing debate within the academic community suggests that it is not appropriate to recognise generative AI systems as authors on research papers. The rationale for this is that AI systems are unable to undertake original thought or intellectual responsibility and only play a supporting role to human-driven processes. This requires a clear definition of the role of AI and a framework in line with academic ethics. Developing clear guidelines for the productive use of AI in academic research will make it possible to both fully utilise the potential of this technology and maintain academic integrity. This should include a transparent specification of the contributions of AI tools and a clear articulation of how these contributions support human authors. Such approaches will ensure that academic research proceeds in accordance with ethical standards and that these technologies are used responsibly (Ahmed, 2024; Ahmed & Hussein, 2023; Hutson, 2022; Tang et al., 2024; Thorp, 2023) .

3.5. Artificial intelligence and ethics in nursing

The use of artificial intelligence in healthcare and nursing brings many ethical and social debates. These debates include issues such as over-dependence on technology, data privacy, algorithmic biases, the risk of artificial intelligence making erroneous decisions and the responsibility of these decisions. Artificial intelligence systems, especially in healthcare, are critical in terms of data privacy and security. Issues such as protecting sensitive data, acting within an ethical framework and protecting patient dignity are the basic requirements for ensuring the reliability of artificial intelligence applications. In addition, the fact that artificial intelligence algorithms may lead to unequal results due to biases in training data may disproportionately affect marginalised groups. This situation carries the risk that artificial intelligence systems may increase health inequalities in society. Therefore, careful planning is needed

to increase the diversity of data sets and reduce algorithmic biases. To support the ethical use of AI, principles such as transparency, accountability and algorithmic explainability should be prioritised. If the reasons for decisions made by AI are not explainable, it may lead to trust issues between patients and healthcare professionals. Explainable AI technologies are used to overcome this problem and make AI decisions more transparent. Explainable AI technologies help build trust by explaining the rationale behind AI decisions to both healthcare professionals and patients. This approach is seen as an important step to increase the effectiveness of AI in healthcare. However, the impact of AI on human-centred healthcare should also be carefully considered. Empathy, compassion, and human relations are essential elements of the nursing profession. There is a risk that artificial intelligence technologies may weaken these human bonds between the patient and the nurse. Therefore, nurses should actively participate in the development and implementation of these systems to ensure that AI applications are compatible with patient-centred values. In addition to ethical issues, legal and regulatory frameworks should be established for the use of artificial intelligence in healthcare. Clear guidelines should be developed for issues such as data privacy, consent processes and algorithmic accountability. In addition, training programmes should be offered to increase nurses' digital literacy skills and enable them to work effectively with AI systems. This will support nurses to adapt to their changing roles and fully utilise the benefits of AI. In conclusion, the potential of AI in healthcare is great, but the ethical, social and legal dimensions of these technologies should be carefully considered. A human-centred approach should be adopted to maximise the benefits and minimise the negative effects of AI. Thus, the contribution of artificial intelligence technologies to the nursing profession can progress in harmony with human values (Ahmed, 2024; Akgerman et al., 2022;

Al Kuwaiti et al., 2023; Davenport & Kalakota, 2019; Shaik et al., 2023) .

Conclusion

Artificial intelligence has created an important turning point in the functioning of the nursing profession and patient care. This technology offers the potential to improve the quality and accessibility of healthcare services while increasing the efficiency and accuracy of nursing practices. In areas such as risk analysis, diagnostic support systems, documentation automation and physiological monitoring, artificial intelligence eases the workload of nurses and provides more focused care for patients. However, the integration of AI into the nursing profession is shaped not only by technical achievements but also by ethical, social and professional challenges. Concerns such as data privacy, algorithmic biases, and diminishing human touch require the use of this technology in a way that is compatible with the core values of human-centred care. Nurses should work in an AI-empowered healthcare environment, preserving the indispensable aspects of the profession such as empathy and compassion. The future of artificial intelligence in nursing depends on a vision in which technological innovations are balanced with human-centred values. Nurses should contribute to the development, implementation and evaluation of artificial intelligence technologies by playing an active role in this transformation in health services. This process offers the opportunity to strengthen the scientific and humanitarian aspects of the profession by expanding the knowledge and skills of nurses. In conclusion, artificial intelligence is a tool that has the potential to reshape the nursing profession. However, the effective and ethical application of this technology must be balanced with a human-centred approach. Artificial intelligence in nursing should enable not

only technological advancement, but also a more empathetic, equitable and innovative healthcare model. This process offers the opportunity to build a future that improves the quality and accessibility of patient care while moving the nursing profession forward.

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CHAPTER V

Cerebral Palsy: Diagnosis, Treatment, And Nursing Approaches İn Care

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Introduction

Cerebral Palsy (CP) is a non-progressive condition caused by lesions or abnormalities in the brain during the fetal period, resulting in permanent damage to movement and posture development. Additionally, it encompasses a group of disorders often accompanied by sensory, perceptual, and cognitive impairments, communication issues, secondary musculoskeletal problems, and epil(Vitrikas et al., 2020). The primary sources of stress for caregivers of children with CP include a lack of knowledge, insufficient support from healthcare professionals, prolonged treatment and care processes, high medical costs, behavioral issues

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in the child, the health conditions of the parents, lack of social support, and social isolation(Castelli & Fazzi, 2015). Nurses play a vital role in the care of these children. The primary goal of nursing care is to ensure early diagnosis and provide supportive care to enhance cognitive, motor, and social functions(Wafeek et al., 2023). This study aims to provide insights into the role of nurses in the care of children with CP based on up-to-date and comprehensive literature.

Cerebral Palsy (CP)

CP was first described in 1861 by British orthopedist Dr. William Little, who referred to it as "Little's Disease," attributing the condition to complications during childbirth. Later, in the 1890s, Sigmund Freud suggested that brain damage could occur during fetal development as well as at birth. The term "Cerebral Palsy" was introduced in subsequent years by Burgers (1988) and Phelps (1947)(Korzeniewski et al., 2018). According to the National Institute of Neurological Disorders and Stroke, CP is defined as a group of neurological disorders in newborns and children that cause permanent damage to muscle coordination, balance, and movement (Sadowska et al., 2020)

Cerebral Palsy is a broad term encompassing all non-progressive brain disorders in children between 18 months and six years of age. Key symptoms include deep tendon reflex abnormalities, atypical muscle tone, variations in postural stability, and delayed motor developmental milestones. Additionally, clinical manifestations often include learning difficulties, balance issues, speech and language disorders, oral and dental problems, and sensory deficits (Patel et al., 2020).

Epidemiology of Cerebral Palsy

Cerebral Palsy (CP) is one of the most common childhood disorders. Over the past 40 years, its prevalence has been reported as 2-3 per 1,000 live births. According to UNICEF's 2019 Global Burden of Disease study, the estimated prevalence of mental disorders among adolescents worldwide highlights the following: among children aged 10–14, 13.52% of boys and 11.2% of girls are affected, while in the 15–19 age group, 14.1% of boys and 13.9% of girls are impacted (Olusanya et al., 2022).

Causes of Cerebral Palsy

The causes of CP are distributed as follows: 50-60% prenatal, 30-40% perinatal, and 10-20% postnatal factors.

CP can result from factors occurring during the prenatal, perinatal, and postnatal periods. Prenatal causes include teratogens, genetic syndromes, and developmental brain anomalies in the first trimester, as well as intrauterine infections, placental dysfunction, and maternal preeclampsia in the second trimester. Perinatal factors involve complications such as sepsis, birth asphyxia, and prematurity, all of which can impact brain development during delivery. Postnatal causes include infections like meningitis, brain trauma from injuries, and exposure to toxins during early childhood. These varied causes emphasize the critical need for early detection, preventive care, and timely interventions to minimize the risks associated with CP.

Contributing factors to CP include issues during both the prenatal and postnatal periods. Insufficient nutrition and oxygenation can impair fetal brain development, putting premature

infants at higher risk. Intrauterine infections, direct brain injury during delivery, neonatal sepsis, and hyperbilirubinemia are also significant risk factors. Additionally, central nervous system infections in older children can lead to CP, highlighting the importance of addressing these risks through early prevention and intervention strategies (Upadhyay et al., 2020).

Classification, Symptoms, and Treatment of Cerebral Palsy

Historical Background

Historically, CP was first classified by Little between 1843 and 1862 into three categories: hemiplegic rigidity, generalized rigidity, and movement disorder. In 1891, Sachs introduced an etiological classification based on timing, considering factors such as the intrauterine period, birth, and postnatal causes. The most commonly used classification today is based on extremity involvement and tone changes, as described by Phelps and Perlstein (Paul et al., 2022).

Clinically, CP is categorized into four primary types: spastic, dyskinetic, ataxic, and hypotonic, based on motor involvement. In some cases, spastic and dyskinetic types coexist, a condition referred to as Mixed-Type CP (Patel et al., 2020).

Table 2: Classification of Cerebral Palsy

Classification	Symptoms	Treatment
Spastic Type (Pyramidal)	- Continuous hypertonia, rigidity - Hyperactive tendon reflexes - Persistence of primitive reflexes - Abnormal vertebral positioning and joint contractures	- Use of orthoses to prevent contractures - Casting or nerve blocks to stretch spastic muscles - Devices for static positioning
Dyskinetic Type (Extrapyramidal)	- Lack of voluntary muscle control - Tremors and difficulty in fine motor skills - Rigidity when awake (reduced during sleep)	- Tendon lengthening - Surgical treatment to reduce spasticity - Medications (e.g., diazepam, baclofen) - Physical therapy (e.g., paraffin treatment) - Mobility aids (e.g., walker, wheelchair) - Individualized education plans
Ataxic Type (Cerebellum)	- Difficulty with balance and voluntary movements - Challenges in controlling hand and arm movements when reaching for objects - Variability in muscle tone	- Symptom management focusing on improving coordination and balance
Mixed Type	- Combination of symptoms from other types - Lack of distinct motor activity	- Multidisciplinary approach integrating treatments from other categories

Treatment of Cerebral Palsy

The primary goal of CP treatment is to enhance the child's independence in mobility and daily activities through a multidisciplinary approach addressing physical, cognitive, and social needs. Pharmacological treatments, such as anticonvulsants for seizure control and muscle relaxants like baclofen or diazepam for managing spasticity, play a crucial role. Therapies, including physical therapy to improve mobility, occupational therapy to enhance daily functioning, and speech therapy to address communication challenges, are central to the care plan (Love et al., 2022). Assistive devices like orthoses, wheelchairs, and walkers further support movement and independence. In some cases, surgical interventions, such as tendon lengthening or orthopedic procedures, are necessary to alleviate contractures and improve posture. This comprehensive approach ensures a holistic strategy to maximize the child's functional abilities and quality of life (Vitrikas et al., 2020).

Early Diagnosis and Treatment in Cerebral Palsy

Early diagnosis and timely initiation of treatment greatly improve the prognosis of CP. Treatment primarily involves physical therapy and targeted movement exercises designed to enhance mobility through stimulation of specific body points (Williams et al., 2021). Rehabilitation for children with CP requires a multidisciplinary approach to address the physical, sensory-perceptual, cognitive, and social challenges resulting from prenatal, perinatal, or postnatal factors. Interventions focus on early identification of structural and functional impairments, aiming to support all developmental domains. Therapies are behaviorally structured to improve movement and achieve functional

goals(Maitre et al., 2020). In line with the International Classification of Functioning, Disability and Health (ICF), therapies should prioritize activities and participation, with goal-oriented neuromotor therapy providing a practical and functional framework for improving the child's quality of life (Leonardi et al., 2022).

Functional Classification Systems

Gross Motor Function Classification System (GMFCS)

The GMFCS evaluates a child's ability to perform functional skills like sitting and walking, and assesses the need for mobility aids like walkers or wheelchairs (D. A. Yılmaz et al., 2023).

Level	Description
Level I	Walks without limitations.
Level II	Walks with limitations.
Level III	Walks using handheld mobility aids.
Level IV	Relies on powered mobility devices due to limited self-mobility.
Level V	Transported in a manual wheelchair.

Manual Ability Classification System (MACS)

The MACS assesses how children handle objects during daily activities. It consists of five levels, with increasing severity as the level number rises. Each level reflects the child's ability to grasp and use objects independently or with assistance (Palisano et al., 2018).

Level	Description
Level I	Easily and successfully uses objects. May experience mild difficulties in tasks requiring precision and

	coordination but manages to complete activities with minimal adult assistance.
Level II	Can grasp and use most objects but at a slower pace or with reduced quality. Activities may require practice or some difficulty, with more reliance on adult help compared to peers.
Level III	Struggles to grasp and use objects. Can manage simpler objects briefly but typically needs adult support.
Level IV	Can hold and use objects only in limited, simple tasks. Activities are slow and require considerable effort, with constant adult assistance.
Level V	Unable to grasp or use objects effectively, even for simple tasks. Requires extensive adult interaction to push, touch, press, or hold objects minimally.

Goal of Treatment

The primary goal of CP treatment is to help children achieve maximum independence in mobility and daily activities. Medications are often utilized to manage associated conditions such as seizures and gastrointestinal complications. Core therapeutic approaches include physical therapy to enhance movement and functional mobility, occupational therapy to improve daily life skills, and neuromotor therapy aligned with the International Classification of Functioning, Disability, and Health (ICF) framework to focus on activity and participation goals. Additionally, assistive devices like walkers, wheelchairs, and orthoses play a crucial role in supporting the child's functional independence (Patel et al., 2020)

Communication and Feeding Classification Systems in Cerebral Palsy

Communication Function Classification System (CFCS)

CFCS assesses communication abilities in children with CP using a five-level scale, focusing on their capacity to engage in daily communication activities. It aligns with the World Health Organization's International Classification of Functioning, Disability, and Health for Children and Youth (ICF-CY), emphasizing the importance of activity and participation in communication. This system helps evaluate and categorize communication skills to guide targeted interventions and enhance the child's overall functional abilities (Piscitelli et al., 2021).

Eating and Drinking Ability Classification System (EDACS)

The EDACS assesses the eating and drinking abilities of children with CP across five levels (Bykova et al., 2023).

Level	**Description**
Level I	Eats and drinks safely and effectively.
Level II	Eats and drinks safely but with some limitations in efficiency.
Level III	Eats and drinks with mild safety limitations and potential efficiency issues.
Level IV	Eats and drinks with significant safety limitations.
Level V	Cannot eat or drink safely; tube feeding may be required.

The EDACS complements systems like the **Gross Motor Function Classification System (GMFCS)**, **Manual Ability**

Classification System (MACS), and CFCS, offering a comprehensive evaluation of functional abilities.

Role of Physiotherapists in Motor-Sensory Dysfunction Treatment

Physiotherapists play a critical role in improving gross motor skills and functional mobility in children with CP, focusing on preventing secondary complications, ensuring functional postural control for positioning and mobility using assistive devices like orthoses or wheelchairs, and addressing sensory and visual-motor skills necessary for daily activities such as eating, dressing, and bathing. They also work on school-related skills and strategies to compensate for functional deficiencies, fostering greater independence in daily life (D. Yılmaz et al., 2023).

Effective physiotherapy involves a thorough assessment of the child's abilities and limitations, clear goal-setting, and ongoing collaboration with the treatment team, the child, and their family. Therapy intensity is not universally fixed but is intensified at key moments, such as after orthopedic or neurosurgical procedures, during growth spurts, or when acquiring new skills or reaching developmental milestones. This tailored approach motivates children to build new abilities and achieve functional goals, enhancing their overall quality of life (Demeke et al., 2023).

Problems Associated with CP

CP is frequently accompanied by various comorbidities that significantly impact the quality of life. These include intellectual disabilities, epileptic seizures, speech disorders, and visual

impairments, with the prevalence and severity depending on the subtype of CP.

Intellectual Disabilities: Intellectual disabilities are commonly observed in individuals with CP, often coexisting with learning difficulties. These challenges are particularly pronounced in the quadriplegic subtype, where brain involvement tends to be more severe (Wotherspoon et al., 2023).

Epileptic Seizures: Epileptic seizures are another common issue in CP and are often accompanied by swallowing and speech difficulties, spasticity, abnormal gait, vision problems, and intellectual disabilities. The spastic subtype is associated with a higher prevalence of seizures compared to other subtypes, such as dyskinetic CP (Gong et al., 2023).

Speech Disorders: Speech disorders vary in frequency and severity depending on the type of CP. They are more prominent in individuals with quadriplegic and dyskinetic subtypes due to the extent of motor and neurological involvement, particularly in areas controlling speech (Korkalainen et al., 2023).

Visual Impairments: Visual impairments are prevalent in CP and include issues such as hemianopsia, visual perception difficulties, and strabismus. The type of visual impairment often correlates with the specific CP subtype, with hemiplegic CP commonly associated with hemianopsia and spastic CP frequently linked to strabismus(Galli et al., 2024).

Nursing Interventions for Children with Cerebral Palsy

Nursing care for children with Cerebral Palsy (CP) is comprehensive and can be grouped into six key categories:

1. Physical Assessment: Nurses play a vital role in evaluating developmental milestones and documenting orthopedic, sensory, or intellectual impairments. Accurate assessment of reflexes, muscle tone abnormalities, and postural deviations helps guide effective interventions (Zhao et al., 2024).

2. Nutrition Management: Education for parents is essential, focusing on techniques such as supporting the child's head during feeding, minimizing tongue thrust by placing food toward the back of the mouth, and providing soft foods in small, frequent meals. For active children, high-calorie foods are recommended, along with creating a calm mealtime environment to encourage effective feeding (Momora et al.)

3. Promoting Physical Mobility: Activities to improve fine and gross motor skills, such as using toys or holding pencils, are crucial. Immobile children should engage in regular range-of-motion (ROM) exercises for at least 4 hours daily. Parents should be educated on the proper use of orthotics and mobility aids like walkers, as well as the importance of choosing appropriately sized equipment. Safety measures to prevent falls and injuries are also emphasized (Setyowati et al., 2023).

4. Preventing Complications: Preventative care includes regular evaluation of respiratory function and parental education on avoiding aspiration pneumonia. Guidance on gastrostomy care, if applicable, and routine sensory evaluations, such as hearing and vision checks, are important. Nurses should demonstrate proper positioning techniques using supportive materials like pillows or

towels to maintain the child's comfort and safety (Cantero et al., 2021).

5. Supporting Growth and Development: Monitoring growth and development at regular intervals is critical. Encouraging sensory exploration and interaction with objects helps the child engage with their environment. Assistive devices like computers or keyboards can facilitate communication and social interaction, promoting the child's independence (Cantero et al., 2021).

6. Providing Emotional Support: Nurses should educate parents on caregiving while providing a safe space for them to express their feelings and concerns. Encouraging active parental involvement in the child's care builds confidence. Nurses can also facilitate connections between families in similar situations through support groups, fostering a sense of community and reducing feelings of isolation (Sarman et al., 2024).

Results

The findings highlight that CP is a complex condition often accompanied by comorbidities such as intellectual disabilities, epileptic seizures, speech disorders, and visual impairments, with prevalence and severity varying by CP subtype. These challenges significantly impact both the affected children and their families, leading to increased caregiver stress, disrupted family dynamics, and the need for holistic support. Nursing care plays a critical role in addressing these needs through tailored interventions, including physical assessments, nutritional guidance, mobility promotion, complication prevention, growth and development support, and emotional counseling. By educating and empowering families,

nurses enhance caregiving practices, foster positive parent-child relationships, and promote better developmental outcomes. The integration of classification systems like GMFCS, MACS, and EDACS ensures precise evaluations and personalized care plans, underscoring the importance of a multidisciplinary, family-centered approach to improve quality of life for children with CP and their families.

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CHAPTER VI

Diyabetin Yönetiminde Navigatör Hemşirenin Rolü

Yeşim BAĞCI[1]

1.GİRİŞ

Dünya Sağlık Örgütü (DSÖ), bulaşıcı olmayan kronik hastalıkları 21. yüzyılın en büyük sağlık tehditlerinden biri olarak tanımlamıştır (WHO, 2018). Bu hastalıklar arasında fiziksel, sosyal ve ekonomik etkileriyle ön plana çıkan diyabet, dünya genelinde hızla artan prevalansı ile bireylerin yaşam kalitesini düşürmekte ve sağlık sistemleri üzerinde ciddi bir yük oluşturmaktadır (Saeedi & ark., 2019). Türkiye'de ise diyabet prevalansının dünya ortalamasının üzerinde olduğu görülmektedir (Satman & ark., 2013).

Diyabetin etkili bir şekilde yönetilmesi, yalnızca fiziksel komplikasyonların önlenmesini değil, bireylerin psikososyal

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refahının artırılmasını da gerektirir (Greenwood & ark., 2017). Bu noktada navigatör hemşireler, bireylerin sağlık okuryazarlığını artırarak tedaviye uyumlarını destekleyen yenilikçi bir rol üstlenir. Bu bölüm, diyabetin yönetiminde navigatör hemşirelerin rolünü ve bu modelin bireysel ve toplumsal faydalarını ele almaktadır.

2.DİYABETİN TANIMI VE EPİDEMİYOLOJİSİ

Diyabet, insülin hormonunun eksikliği veya vücuttaki etkisizliği sonucunda kan şekeri seviyelerinin sürekli yüksek olduğu metabolik bir bozukluktur. Diyabet, Tip 1 diyabet, Tip 2 diyabet, gestasyonel diyabet ve diğer özel nedenlere bağlı diyabet türleri olmak üzere dört ana kategoriye ayrılır (ADA, 2021).

Tip 1 diyabet, otoimmün bir süreç sonucunda pankreasın insülin üreten beta hücrelerinin tahrip edilmesiyle ortaya çıkar. Genellikle çocukluk veya ergenlik döneminde başlar ve insülin tedavisi gerektirir (Chatterjee & ark., 2018). Tip 2 diyabet ise insülin direnci ve beta hücre disfonksiyonu ile karakterizedir. Genellikle obezite, sedanter yaşam tarzı ve genetik faktörlerle ilişkili olup, yetişkinlerde daha sık görülür (Saeedi & ark., 2019). Gestasyonel diyabet, hamilelik sırasında ortaya çıkan ve genellikle doğum sonrası düzelebilen bir diyabet türüdür. Ancak bu durum, hem anne hem de çocuk için uzun vadede Tip 2 diyabet riskini artırır (ADA, 2021). Diğer diyabet türleri ise genetik bozukluklar, endokrin hastalıklar veya ilaçların yan etkileri gibi nedenlerle ortaya çıkan nadir türleri kapsar.

Uluslararası Diyabet Fedarasyonu (IDF) 2021 yılı raporunda, dünya genelinde 20-79 yaş arasında 537 milyon diyabet hastası bulunduğu, diyabete bağlı ölümlerin 6.7 milyona ulaştığını

belirtilmektedir. Aynı raporda, 2030 yılında diyabet tanılı bireylerin sayısının 643 milyona, 2045 yılında ise 783 milyona ulaşacağı ön görülmektedir. TEMDDiyabetin ülkemizdeki prevalansı incelendiğinde 2021 yılında 9 milyon yetişkinin diyabet hastası olduğu ve bu sayının toplam yetişkin nüfusun yaklaşık %15'ine denk geldiği ortaya çıkmaktadır. Türkiye'de diyabet tanılı bireylerin sayısının 2030 yılında 10.8 milyona, 2045 yılında ise 13.3 milyona ulaşabileceği tahmin edilmektedir (IDF, 2021).

Diyabetin prevalansındaki artış, yaşam tarzı değişiklikleri, obezite, fiziksel aktivite eksikliği ve genetik faktörler gibi çeşitli etkenlere bağlıdır. Diyabet, bireylerde mikrovasküler (retinopati, nefropati ve nöropati) ve makrovasküler (kardiyovasküler hastalıklar, inme ve alt ekstremite ampütasyonları) komplikasyonlara yol açabilmektedir. Ayrıca, diyabetik ayak gibi sorunlar tedavi edilmediği takdirde ciddi enfeksiyonlara ve ampütasyona neden olabilmektedir. Diyabet hastalığı, bu komplikasyonların majör nedenlerinden biridir ve ciddi bir hastalık yükü oluşturmaktadır (Nishikawa & ark., 2015; ADA, 2022).

Komplikasyonlar geliştikten sonra tedavi oldukça güçleşmekte ve sağlık harcamalarında diyabetik hastalara düşen pay hızla artmaktadır. Kronik komplikasyonların ortaya çıkışının engellenmesi ya da geciktirilmesi, diyabetik hastanın yaşam kalitesinin iyileştirilmesi ve sağlık harcamalarının azaltılabilmesi için en önemli nokta, etkin glisemik kontrolün sağlanmasıdır (Yel & Karadakovan, 2023; Yapar & Aksakal, 2023). Diyabette glisemik kontrolün sağlanması, sadece reçete edilen ilaçların doğru kullanımına dayanmamakta, aynı zamanda hastaların günlük aktif davranışsal katılımını gerektirmektedir. Fiziksel aktivitenin, diyet uyumunun ve sağlıklı beslenmenin benimsenmesi ve sürdürülmesi

gibi yaşam tarzındaki değişiklikler, diyabetin önlenmesi ve geciktirilmesi için önemli faktörlerdir (TEMD, 2022; Yapar & Aksakal, 2023).

Diyabet, yalnızca bireysel sağlığı etkileyen bir durum değil, aynı zamanda toplumsal düzeyde ekonomik ve sağlık yükü oluşturan çok boyutlu bir hastalıktır. Epidemiyolojik veriler, diyabetin etkili önlenmesi ve kontrolü için kapsamlı stratejiler geliştirilmesi gerektiğini göstermektedir. Bu kapsamda, navigatör hemşirelerin rolü, diyabetin neden olduğu sağlık yükünü azaltmak ve bireylerin hastalığıyla daha etkin bir şekilde başa çıkmalarını sağlamak açısından kritik bir öneme sahiptir. Artan diyabet prevalansı, bu tür destek mekanizmalarının sağlık sistemine entegrasyonunu zorunlu kılmaktadır. Diyabetin bireysel ve toplumsal etkileri göz önünde bulundurulduğunda, bu hastalığın etkin bir şekilde yönetilmesi hem bireylerin yaşam kalitesini artırmak hem de sağlık sistemlerine olan yükü azaltmak için hayati öneme sahiptir.

3.DİYABETİN YÖNETİMİ VE ÖNEMİ

Diyabet yönetimi, bireylerin kan şekeri düzeylerini kontrol altında tutmayı, komplikasyonları önlemeyi ve genel sağlık durumlarını iyileştirmeyi amaçlayan çok yönlü bir süreçtir. Bu süreç, düzenli medikal takip, sağlıklı yaşam tarzı alışkanlıklarının benimsenmesi ve bireylerin öz-yönetim becerilerinin geliştirilmesini içerir (Chatterjee & ark., 2018). Diyabetin etkili bir şekilde yönetilmemesi, bireylerin yaşam kalitesini düşürdüğü gibi sağlık sistemine de ciddi bir ekonomik yük getirir. Bu nedenle, diyabet yönetimi stratejik bir planlama ve disiplinler arası iş birliği gerektirir.

Kan şekeri kontrolü, diyabet yönetiminin temel bileşenlerinden biridir. Düzenli kan şekeri ölçümleri, bireylerin glisemik kontrolünü sağlamada ve tedavi planlarını gerektiğinde yeniden düzenlemede kritik bir role sahiptir. Kan şekeri kontrolünün sağlanamaması durumunda akut komplikasyonlar (hipoglisemi ve hiperglisemi) veya uzun vadeli komplikasyonlar (nöropati, retinopati, diyabetik ayak) gelişebilmektedir (Banerjee, Chakraborty & Pal, 2020). Bu tür komplikasyonların önlenmesi, yalnızca bireylerin yaşam kalitesini artırmakla kalmaz, aynı zamanda sağlık sistemine olan yükü de azaltır. Navigatör hemşireler, bu süreçte hastalara kan şekeri ölçümleri ve sonuçların değerlendirilmesi konularında rehberlik ederek bireylerin öz yönetim becerilerini güçlendirir (Greenwood & ark., 2017).

Sağlıklı bir yaşam tarzının benimsenmesi, diyabet yönetiminde diğer bir önemli unsurdur. Dengeli bir diyet, düzenli fiziksel aktivite ve zararlı alışkanlıklardan kaçınmak, insülin duyarlılığını artırarak kan şekeri kontrolünü kolaylaştırır (Chatterjee & ark., 2018). Navigatör hemşireler, bireylere bu yaşam tarzı değişikliklerini benimsetmek için bireyselleştirilmiş planlar hazırlar. Hemşirelerin rehberliğiyle bireyler, yalnızca diyabet yönetiminde değil, aynı zamanda genel sağlıklarını iyileştirmede de önemli adımlar atabilirler (Vas & ark., 2017).

Komplikasyonların önlenmesi ise uzun vadeli diyabet yönetiminin en önemli hedeflerinden biridir. Düzenli göz, böbrek ve sinir sistemi muayeneleri gibi takipler, komplikasyonların erken teşhis edilmesine olanak tanır. Navigatör hemşireler, bireylerin bu tür takip süreçlerine uyum göstermelerini sağlar. Bu hemşireler, aynı zamanda komplikasyon riskini artırabilecek durumları tespit ederek

sağlık profesyonelleriyle hızlı bir şekilde çözüm yolları geliştirir (Hailu, Hjortdahl & Moen, 2018).

Navigatör hemşirelerin eğitim ve danışmanlık rolleri, diyabet yönetiminde kilit bir yere sahiptir. Diyabet eğitimi, bireylerin kan şekeri ölçme yöntemleri, insülin uygulama teknikleri ve hipoglisemi gibi acil durumlarla başa çıkma konularında yetkinlik kazanmalarını sağlar (Banerjee, Chakraborty & Pal, 2020). Navigatör hemşireler, bireylerin bu eğitimleri alarak hastalıklarıyla ilgili bilgi sahibi olmalarını ve tedavi sürecine aktif katılım göstermelerini destekler. Ayrıca, hastaların motivasyonunu artırarak tedaviye uyumlarını kolaylaştırır. Özellikle diyabetin psikososyal etkileri göz önüne alındığında, bu tür desteklerin bireylerin yaşam kalitesini artırdığı yadsınamaz bir gerçektir (Greenwood & ark., 2017).

Diyabet yönetiminde navigatör hemşirelerin rolü, sadece bireysel hasta bakımını değil, aynı zamanda multidisipliner ekiplerle iş birliğini de içerir. Navigatör hemşireler, diyetisyenler, endokrinologlar ve diğer sağlık profesyonelleriyle yakın bir iş birliği içinde çalışarak bireylerin ihtiyaçlarını karşılamak için bütüncül bir yaklaşım benimserler. Bu süreçte hemşirelerin liderlik rolü ön plana çıkar; hemşireler, ekip üyeleri arasındaki iletişimi sağlayarak hastaların tedavi süreçlerinin kesintisiz bir şekilde ilerlemesine yardımcı olur (Freeman & Rodriguez, 2011).

Sonuç olarak, diyabet yönetimi bireylerin sağlıklarını optimize etmek ve komplikasyonları önlemek için sistematik bir yaklaşımla ele alınmalıdır. Navigatör hemşireler, bireylere sağlık okuryazarlığı kazandırmak, tedaviye uyumu artırmak ve komplikasyonları önlemek için aktif rol oynar. Özellikle bireylerin yaşam tarzlarını sürdürülebilir şekilde değiştirmelerine rehberlik

eden hemşireler, onların psikososyal ihtiyaçlarını da göz önünde bulundurur. Bu bütüncül yaklaşım, diyabet yönetiminde başarıyı artırır ve bireylerin yaşam kalitelerini yükseltir (Özgül & Yanık, 2016; Vas & ark, 2017).

4.NAVİGATÖR HEMŞİRELİK KAVRAMININ GELİŞİMİ

Navigatör hemşirelik kavramı, ilk olarak 1990'larda ABD'nin New York eyaletinde Harlem Hastanesi'nde kanser hastaları için geliştirilmiştir (Freeman & Rodriguez, 2011). Bu yaklaşımın amacı, sağlık sistemine erişimde güçlük çeken bireylerin desteklenmesi, tedavi süreçlerinde karşılaşılan engellerin aşılması ve bireylerin tedaviye olan bağlılıklarının artırılmasıdır. Başlangıçta kanser tedavisi ile sınırlı olan bu model, zamanla kronik hastalıkların yönetiminde de uygulanmaya başlanmıştır.

Navigatör hemşireler, bireylerin sağlık sisteminde karşılaştıkları zorlukları aşmalarına yardımcı olurken, aynı zamanda tedavi süreçlerinde rehberlik ederek bir köprü görevi görür. Sağlık hizmetlerinin karmaşıklığı ve bireylerin ihtiyaçlarının çeşitliliği, navigatör hemşirelerin rolünü daha da önemli hale getirmiştir (Hoelz, Sladek & Michaelson., 2007). Bu model, zamanla diğer kronik hastalıkların yönetiminde kullanılmak üzere genişletilmiştir. Diyabet gibi hastalıkların yönetiminde, navigatör hemşirelerin etkili bir şekilde çalışması, tedavi sonuçlarını olumlu yönde etkileyebilir. Navigatör hemşirelerin temel görevleri arasında bireylerin sağlık okuryazarlığını artırmak, tedaviye erişimi kolaylaştırmak ve bireysel bakım planları oluşturmak yer alır (Freeman & Rodriguez, 2011). Navigatör hemşirelik aynı zamanda sağlık hizmetlerinde eşitsizlikleri azaltma ve bireylerin tedavi süreçlerine eşit erişim sağlamada kritik bir rol oynar. Özellikle sağlık sistemine erişimde

zorluk çeken dezavantajlı gruplar için navigatör hemşireler bir rehber olarak hareket eder (Freeman & Rodriguez, 2011).

Teknolojinin sağlık hizmetlerine entegrasyonu, navigatör hemşirelik modelinin etkinliğini artırmıştır. Tele-sağlık ve mobil sağlık uygulamaları gibi dijital araçlar, navigatör hemşirelerin bireylerle sürekli iletişimde kalmasına ve tedavi süreçlerini daha etkili bir şekilde yönetmesine olanak tanır (Hoelz, Sladek & Michaelson., 2007).

Navigatör hemşirelik kavramı, bireylerin sadece fiziksel sağlıklarını değil, aynı zamanda psikososyal refahlarını da desteklemeyi amaçlar. Bu model, bireylerin sağlık sistemindeki yolculuklarını kolaylaştırırken, aynı zamanda sağlık hizmetlerinin verimliliğini artırarak sistemik düzeyde fayda sağlar.

5.NAVİGATÖR HEMŞİRENİN EĞİTİM VE DANIŞMANLIK SÜREÇLERİ

Navigatör hemşireler, diyabet yönetiminde bireylerin sağlık okuryazarlığını artırmak ve tedavi süreçlerine katılımını sağlamak gibi kritik bir role sahiptir (Freeman & Rodriguez, 2011). Diyabetin karmaşık yapısı nedeniyle hastaların hastalıklarını anlamaları ve yönetmeleri için profesyonel destek almaları önemlidir. Bu bağlamda eğitim ve danışmanlık süreçleri, bireylerin tedaviye uyumunu artırmanın ve yaşam kalitesini yükseltmenin temel taşıdır (Chatterjee & ark., 2018).

5.1.Navigatör Hemşirenin Eğitimdeki Rolü

Navigatör hemşireler, eğitim programlarıyla hastaların diyabetle başa çıkma becerilerini artırmayı hedefler. Bu eğitimlerde şu unsurlar ele alınır:

Diyabetin Temel Mekanizmaları: Hastalara diyabetin fizyolojisi, insülin direnci ve komplikasyonların gelişim mekanizmaları anlatılır (Greenwood & ark., 2017).

Kan Şekeri Yönetimi: Hastalar, kan şekeri ölçüm teknikleri ve bu sonuçların değerlendirilmesi hakkında bilgilendirilir (Hoelz, Sladek & Michaelson., 2007).

Diyet ve Egzersiz: Bireylerin diyabetle uyumlu bir beslenme planı geliştirmesi ve egzersizin önemini anlaması sağlanır (Freeman & Rodriguez, 2011).

5.2.Danışmanlık Süreçleri

Navigatör hemşirelerin danışmanlık süreçleri, bireysel ihtiyaçları karşılamaya yönelik bir yaklaşımı içerir. Örneğin, komplikasyon riski yüksek bireylerde düzenli takip ziyaretleri planlanır ve erken müdahaleler sağlanır (Chatterjee & ark., 2018). Ayrıca:

Psikososyal Destek: Hastaların diyabetle ilişkili stres ve kaygılarını azaltmaya yönelik teknikler uygulanır (Freeman & Rodriguez, 2011).

Aile Desteği: Ailelerin hastaya uygun bir destek sistemi oluşturması için eğitim verilir (Greenwood & ark., 2017).

Sonuç olarak; eğitim ve danışmanlık süreçleri, bireylerin öz-yönetim becerilerini artırarak diyabetin yönetimini kolaylaştırır. Bu süreç, komplikasyon riskini azaltırken bireylerin tedaviye bağlılığını güçlendirir.

6.NAVİGATÖR HEMŞİRENİN DİYABET HASTALARINA SUNABİLECEĞİ HİZMETLER

Navigatör hemşireler, diyabet hastalarının bireysel ihtiyaçlarını karşılamak için çeşitli hizmetler sunar. Bu hizmetler arasında bireyselleştirilmiş bakım planlarının hazırlanması, düzenli takip, psikososyal destek ve eğitim yer alır (Hoelz, Sladek & Michaelson., 2007). Bu bölüm, navigatör hemşirelerin sunduğu hizmetlerin diyabet yönetimindeki önemini incelemektedir.

6.1.Navigatör Hemşirenin Hizmet Alanları

Bireyselleştirilmiş Bakım Planlarının Hazırlanması: Tedavi planları, hastaların yaşam tarzına ve sağlık hedeflerine göre uyarlanır. Örneğin, Tip 1 diyabetli bireylerde insülin tedavisi öncelikli olurken, Tip 2 diyabetli bireylerde kilo yönetimi ve fiziksel aktivite ön plana çıkar (Chatterjee & ark., 2018).

Düzenli Takip ve İzlem: Kan şekeri düzeyleri ve tedaviye uyum düzenli olarak değerlendirilir. Bu süreç, komplikasyonların erken tanısına olanak tanır (Greenwood & ark., 2017).

Psikososyal Destek: Navigatör hemşireler, hastaların diyabetle ilişkili psikolojik zorluklarla başa çıkmalarına yardımcı olur ve gerekirse profesyonel destek hizmetlerine yönlendirir (Freeman & Rodriguez, 2011).

6.2.Teknolojik Araçların Kullanımı

Navigatör hemşireler, mobil uygulamalar ve uzaktan izleme cihazları aracılığıyla bireylerin sağlık durumlarını gerçek zamanlı olarak takip eder (Hoelz, Sladek & Michaelson., 2007). Bu araçlar, hastaların tedavi hedeflerini izlemelerini kolaylaştırır.

Navigatör hemşirelerin sunduğu hizmetler, bireylerin yaşam kalitesini artırırken sağlık sistemine olan maliyetleri düşürür. Bu bütüncül yaklaşım, diyabet yönetiminin temel taşlarından biridir.

7.NAVİGATÖR HEMŞİRENİN DİYABET TEDAVİ PLANININ UYGULANMASI VE İZLENMESİ

Diyabet tedavi planlarının uygulanması ve izlenmesi, bireylerin tedaviye uyumunu sağlamada ve sağlık sonuçlarını iyileştirmede temel bir öneme sahiptir. Navigatör hemşireler, bu süreçte hem hastaların farkındalığını artırarak tedaviye katılımlarını teşvik eder hem de düzenli takiplerle tedavi planlarının etkinliğini değerlendirir. Bu doğrultuda, tedavi planlarının uygulanması ve izlenmesi iki temel süreç çerçevesinde ele alınabilir.

7.1.Tedavi Planlarının Uygulanması

Tedavi planlarının uygulanmasında, hastaların diyabet yönetimi konusundaki farkındalıklarının artırılması ve motivasyonel desteğin sağlanması, sürecin temel taşlarını oluşturur.

Farkındalık Yaratma: Hastaların tedavi süreçlerine dahil edilmesi ve bu süreçlerin doğru bir şekilde anlaşılması, diyabet yönetiminde başarıyı artırır. Bu kapsamda, kan şekeri izleme, insülin uygulama teknikleri ve diyet yönetimi gibi temel konular üzerine detaylı eğitimler navigatör hemşirelerin rehberliğinde gerçekleştirilir. Bu eğitimler, hastaların sağlık okuryazarlığını artırarak tedaviye olan bağlılıklarını güçlendirmeyi hedefler (Chatterjee & ark., 2018).

Motivasyonel Destek: Navigatör hemşirelerin bireylerin tedavi hedeflerine ulaşmaları için sunduğu motivasyonel destek, hastaların tedavi planlarına daha etkin bir şekilde uyum sağlamasını mümkün kılar. Motivasyonel görüşmelerle hem bireylerin tedavi sürecine

yönelik olumlu tutumları desteklenir hem de karşılaştıkları engellerin aşılması sağlanır (Greenwood & ark., 2017).

7.2.İzleme Süreçleri

Tedavi planlarının izlenmesi, navigatör hemşirelerin düzenli takip ve değerlendirme süreçleriyle yürütülür. Bu süreçte hem manuel yöntemlerle veri analizine hem de teknolojik destek araçlarına başvurularak bireylerin sağlık durumları sürekli olarak izlenir.

Veri Analizi: Navigatör hemşireler, kan şekeri seviyelerindeki değişimleri, tedaviye uyum durumunu ve olası komplikasyon belirtilerini düzenli olarak analiz eder. Bu değerlendirmeler, bireylerin tedavi planlarında gerekli değişikliklerin yapılmasına ve komplikasyonların erken dönemde önlenmesine katkı sağlar (Freeman & Rodriguez, 2011).

Teknolojik Destek: Modern izleme cihazları ve dijital sağlık platformları, navigatör hemşirelerin hastalarıyla sürekli iletişim halinde olmalarını ve bireylerin sağlık verilerini anlık olarak takip etmelerini kolaylaştırır. Bu teknolojiler, bireylerin sağlık hedeflerine ulaşmalarını desteklerken tedavi süreçlerinin etkinliğini artırır (Hoelz, Sladek & Michaelson., 2007).

Navigatör hemşirelerin bu iki temel alanda sunduğu hizmetler, bireylerin tedavi planlarına olan bağlılığını artırarak, yaşam kalitesini iyileştirme ve sağlık sistemine olan maliyetleri düşürme noktasında önemli bir katkı sağlar.

8.NAVİGATÖR HEMŞİRELİĞİN DİYABET YÖNETİMİNE KATKILARI

Navigatör hemşirelik, bireylerin tedavi süreçlerine aktif katılımını teşvik eden ve sağlık sistemine erişimi kolaylaştıran bir modeldir. Bu model aynı zamanda komplikasyonların önlenmesi, psikososyal destek sunulması ve ekip çalışmasının güçlendirilmesi gibi çok yönlü faydalarla birlikte açıklanabilir. Aşağıda, navigatör hemşirelik modelinin bu alanlardaki katkıları detaylı olarak ele alınmaktadır (Freeman & Rodriguez, 2011).

Sağlık Okuryazarlığının Artırılması: Bireylerin kendi sağlıklarını daha iyi yönetmelerine olanak tanır (Greenwood & ark., 2017).

Komplikasyonların Önlenmesi: Düzenli izleme ve erken müdahale ile komplikasyon riski azaltılır (Chatterjee & ark., 2018).

Psikososyal Destek: Diyabetle ilişkili psikolojik zorluklarla başa çıkma kapasitesini artırır (Freeman & Rodriguez, 2011).

Ekip Çalışmasının Teşviki: Navigatör hemşireler, sağlık profesyonelleri arasındaki iletişimi güçlendirir (Hoelz, Sladek & Michaelson., 2007).

Navigatör hemşirelik modeli, bireylerin yaşam kalitesini artırırken sağlık sistemine olan maliyetleri de düşürür. Bu model, diyabet yönetiminde bütüncül bir yaklaşımın önemini vurgulamaktadır.

9.NAVİGATÖR HEMŞİRENİN DİYABET YÖNETİMİNDE EKİP İŞ BİRLİĞİ VE KOORDİNASYONU

Diyabet yönetimi, multidisipliner bir yaklaşımı gerektirir. Bu süreçte endokrinologlar, diyetisyenler, fizyoterapistler, psikologlar

ve hemşireler gibi farklı uzmanlık alanlarından sağlık profesyonelleri yer alır. Navigatör hemşireler, bu ekiplerin koordinasyonunu sağlayarak bireylerin tedavi süreçlerini optimize eden bir rol üstlenir (Freeman & Rodriguez, 2011).

Navigatör hemşireler, ekip içindeki iletişimi kolaylaştırarak tedavi süreçlerinin sürekliliğini sağlar. Örneğin, bireylerin tedavi planlarındaki değişiklikler veya komplikasyonlar hakkında diğer ekip üyelerini bilgilendirir. Bu koordinasyon, bireylerin tedavi hedeflerine ulaşmalarını kolaylaştırır ve sağlık hizmetlerinin verimliliğini artırır (Greenwood & ark., 2017).

Ekip iş birliği, bireylerin bütüncül bir yaklaşımla ele alınmasını sağlar. Örneğin, diyetisyenler bireylerin beslenme düzenini oluştururken, fizyoterapistler fiziksel aktivite planlamasına katkıda bulunur. Navigatör hemşireler, bu planların bireysel ihtiyaçlara uygun olmasını sağlar ve bireylerin bu planlara uyumunu takip eder. Bu süreç, hemşirelerin bireylerle doğrudan iletişimde olması nedeniyle daha etkili hale gelir (Hoelz, Sladek & Michaelson., 2007).

Navigatör hemşireler, ekip üyeleri arasındaki koordinasyonu sağlamanın yanı sıra bireylerin tedavi süreçlerine aktif katılımını teşvik eder. Tedavi süreçlerine dahil edilen bireyler, sağlık hizmetlerinden daha fazla yararlanır ve bu da tedaviye bağlılıklarını artırır. Bu durum, uzun vadede bireylerin sağlık sonuçlarının iyileştirilmesine katkıda bulunur (Freeman & Rodriguez, 2011).

Ekip iş birliği, bireylerin tedavi hedeflerine ulaşmalarını kolaylaştırırken sağlık hizmetlerinin genel verimliliğini artırır. Navigatör hemşirelerin bu süreçteki kritik rolü, tedavi süreçlerinin

bütüncül bir yaklaşımla ele alınmasını mümkün kılar. Bu durum, bireylerin yaşam kalitesini artırmanın yanı sıra sağlık sistemine olan maliyetleri de azaltır.

10.NAVİGATÖR HEMŞİRELİĞİN ULUSAL VE KÜRESEL PERSPEKTİFİ

Navigatör hemşirelik, sağlık sistemindeki karmaşıklığı azaltarak bireylerin sağlık hizmetlerine erişimini kolaylaştıran bir modeldir. Hem küresel hem de ulusal düzeyde dikkat çeken bu yaklaşım, hasta sonuçlarını iyileştirme ve sağlık sistemlerinin verimliliğini artırma potansiyeline sahiptir. Ülkelerin sağlık sistemlerindeki farklılıklar, navigatör hemşirelik uygulamalarında çeşitlilik yaratmaktadır.

10.1.Dünya'da Navigatör Hemşirelik

Navigatör hemşirelik modeli ilk olarak 1990'larda ABD'de, kanser hastalarının sağlık hizmetlerine erişimini kolaylaştırmak amacıyla ortaya çıkmıştır. Bu modelin temel hedefi, sağlık hizmetlerindeki engelleri aşarak bireylerin en iyi sağlık sonuçlarına ulaşmasını sağlamaktır (Freeman & Rodriguez, 2011). ABD'de navigatör hemşireler, diyabet ve diğer kronik hastalıkların yönetiminde bireysel bakım planları oluşturma, komplikasyonları önleme ve tedavi süreçlerini kolaylaştırma gibi alanlarda aktif rol almıştır (Kunos, Olszewskis & Espinal, 2015; Nystrom & ark., 2022).

Kanada, navigatör hemşirelik modelini benimseyen bir diğer ülkedir. Bu model, hasta merkezli bakım anlayışını destekleyerek dezavantajlı grupların sağlık hizmetlerine erişimini artırmayı

hedeflemektedir. Navigatör hemşireler, hastaların sağlık sistemindeki yolculuklarını kolaylaştırmak ve multidisipliner ekiplerle iş birliği içinde çalışmak gibi görevler üstlenmiştir (Hoelz, Sladek & Michaelson., 2007; Zibrik, Laskin & Ho, 2016).

Avrupa'da ise navigatör hemşirelik öncelikle onkoloji alanında uygulanmış, daha sonra diyabet gibi kronik hastalıkların yönetimine uyarlanmıştır. Bu bölgede navigatör hemşirelerin hasta sonuçlarının iyileştirilmesine ve sağlık sistemlerinin verimliliğinin artırılmasına katkı sağladığı görülmüştür (Greenwood & ark., 2017; Colombani & ark., 2019).

Navigatör hemşirelik modelinin başarısında eğitim, teknolojik destek ve politikaların uyumlu bir şekilde uygulanması kritik bir rol oynamaktadır. Bu faktörler, modelin küresel sağlık sistemlerinde yaygınlaşmasına katkıda bulunmuştur.

10.2.Türkiye'de Navigatör Hemşirelik

Türkiye'de navigatör hemşirelik, sağlık sisteminde yeni bir kavram olarak dikkat çekmektedir. Literatürde bu modelin sağlık hizmetlerine erişimi kolaylaştıracağı, hasta sonuçlarını iyileştireceği ve sağlık sistemine olan maliyetleri azaltacağı belirtilmektedir (Ünal Toprak & Vural, 2016). Ancak, uygulamada henüz yaygınlık kazanmamıştır.

Navigatör hemşirelik uygulamalarının Türkiye'de başarılı bir şekilde hayata geçirilmesi için bazı temel adımlar gereklidir:

- **Eğitim Programları**: Hemşirelik müfredatına navigatör hemşirelik kavramının dahil edilmesi ve mevcut hemşireler için uzmanlık programları düzenlenmesi önerilmektedir.

- **Dijital Sağlık Teknolojilerinin Kullanımı**: Mobil uygulamalar ve tele-sağlık hizmetleri, navigatör hemşirelerin bireylerle sürekli iletişimde kalmasını ve sağlık verilerini izlemelerini kolaylaştırabilir.
- **Sağlık Politikaları ve Stratejiler**: Navigatör hemşirelik modelini destekleyen politikalar geliştirilerek uygulama süreçlerinin hızlandırılması sağlanabilir.

Navigatör hemşirelik modeli, Türkiye'de sağlık hizmetlerinde bütüncül bir yaklaşımın benimsenmesini teşvik edebilir. Bu modelin yaygınlaştırılması, bireylerin yaşam kalitesini artırırken, sağlık sistemine olan maliyetleri düşürebilir. Ancak, modelin tam anlamıyla hayata geçmesi için kapsamlı bir strateji oluşturulması gerekmektedir.

Sonuç olarak; navigatör hemşirelik, küresel sağlık sistemlerinde hasta odaklı bakımın bir sembolü haline gelmiştir. Türkiye'de bu modelin geliştirilmesi, sağlık hizmetlerinde eşitlik ve sürdürülebilirlik açısından önemli bir adım olacaktır. Uluslararası uygulamalar, bu modelin sağlık sistemine entegrasyonunda yol gösterici bir rehber sunmaktadır.

11.NAVİGATÖR HEMŞİRELİK VE SAĞLIK TEKNOLOJİLERİ

Navigatör hemşirelik, teknolojinin sağlık hizmetlerine entegrasyonu ile çok daha etkili ve yaygın bir şekilde uygulanabilir hale gelmiştir. Dijital sağlık teknolojileri, bireylerin sağlık hizmetlerine erişimini kolaylaştırmak, tedavi süreçlerini optimize etmek ve bireylerin sağlık sonuçlarını iyileştirmek için önemli araçlar sunar. Bu teknolojiler, navigatör hemşirelerin görevlerini

daha etkin bir şekilde yerine getirmelerine olanak tanır ve bireylerle sürekli bir iletişim sağlar. Mobil sağlık uygulamaları, tele-sağlık hizmetleri ve uzaktan izleme cihazları gibi yenilikçi çözümler, navigatör hemşirelik modelinin etkisini artırmada kritik bir rol oynar (Ünal Toprak & Vural, 2016; Greenwood & ark., 2017; Yıldırım & ark., 2020).

11.1.Mobil Sağlık Uygulamaları

Mobil sağlık uygulamaları, bireylerin kendi sağlık durumlarını izlemelerine olanak tanıyan ve sağlık okuryazarlığını artıran önemli bir teknolojik araçtır. Diyabet yönetiminde bu uygulamalar, bireylerin kan şekeri düzeylerini takip etmelerine, ilaç alımlarını hatırlamalarına ve sağlık hedeflerini belirlemelerine yardımcı olur. Navigatör hemşireler, bu uygulamalar aracılığıyla bireylerle iletişim kurarak onlara rehberlik edebilir ve tedavi süreçlerinde destek sağlayabilir (Yıldırım & ark., 2020).

Ayrıca, mobil uygulamalar bireylerin eğitim materyallerine ve sağlık kaynaklarına erişimini kolaylaştırır. Örneğin, uygulamalar üzerinden sunulan videolar, yazılı rehberler ve interaktif içerikler, bireylerin diyabet yönetimiyle ilgili bilgi düzeylerini artırabilir. Navigatör hemşireler, bu araçları kullanarak bireylerin öğrenme süreçlerini kişiselleştirebilir ve onların tedaviye daha bağlı hale gelmesini sağlayabilir (Ünal Toprak & Vural, 2016).

11.2.Tele-Sağlık Hizmetleri

Tele-sağlık, navigatör hemşirelerin bireylerle yüz yüze görüşme yapmadan iletişim kurmasına ve tedavi süreçlerini yönetmesine olanak tanır. Özellikle kırsal bölgelerde yaşayan veya

fiziksel olarak sağlık hizmetlerine erişimi zor olan bireyler için tele-sağlık kritik bir çözüm sunar. Navigatör hemşireler, bu hizmetler aracılığıyla bireylerin sağlık durumlarını izleyebilir, tedavi planlarını gözden geçirebilir ve bireylerin karşılaştıkları sorunlara anında yanıt verebilir (Yıldırım & ark., 2020).

Tele-sağlık aynı zamanda bireylerin sağlık hizmetlerine erişim sürelerini kısaltır ve sağlık hizmetlerinin daha hızlı bir şekilde sunulmasını sağlar. Navigatör hemşireler, bu teknolojiyle bireylerin tedavi planlarına uyumunu sürekli olarak izleyebilir ve gerektiğinde tedavi hedeflerini güncelleyebilir. Dijital araçlar aracılığıyla bireylere hatırlatıcı mesajlar, eğitim videoları ve çevrimiçi destek kaynakları sunulabilir. Bu, bireylerin sağlık hedeflerine ulaşmalarını kolaylaştırır (Freeman & Rodriguez, 2011; Greenwood & ark., 2017).

11.3.Uzaktan İzleme Cihazları

Uzaktan izleme cihazları, bireylerin sağlık durumlarını gerçek zamanlı olarak izlemeye olanak tanır. Bu cihazlar, kan şekeri, tansiyon, kilo ve fiziksel aktivite düzeyi gibi verileri toplayarak navigatör hemşirelere iletebilir. Bu veriler, navigatör hemşirelerin bireylerin sağlık durumlarını sürekli olarak değerlendirmelerine ve tedavi planlarında gerektiğinde hızlı değişiklikler yapmalarına olanak tanır (Hoelz, Sladek & Michaelson., 2007).

Bu cihazların kullanımı, özellikle diyabet gibi kronik hastalıklarda bireylerin sağlık hedeflerine ulaşmalarını kolaylaştırır. Örneğin, kan şekeri izleme cihazları, bireylerin glikoz seviyelerini sürekli olarak takip ederek hipoglisemi veya hiperglisemi riskini azaltır. Navigatör hemşireler, bu verileri analiz ederek bireylere

önerilerde bulunabilir ve tedavi süreçlerini optimize edebilir (Ünal Toprak & Vural, 2016).

Sonuç olarak; dijital sağlık teknolojilerinin entegrasyonu, navigatör hemşirelik modelinin etkinliğini artırır ve bu modelin daha geniş kitlelere ulaşmasını sağlar. Teknolojinin bu şekilde kullanımı, navigatör hemşirelerin bireylerin yaşam kalitesini artırma konusundaki etkisini güçlendirir ve sağlık sisteminin sürdürülebilirliğini destekler (Freeman & Rodriguez, 2011).

12.NAVİGATÖR HEMŞİRELERİN KARŞILAŞTIĞI ZORLUKLAR VE ÇÖZÜMLER

Yükseltme hemşireler, diyabet yönetiminde bireylerin tedaviye uyumunu artırma ve sağlık hizmetlerinin kalitesini yükseltme açısından önemli bir rol üstlenmektedir. Ancak bu süreçte bireysel, organizasyonel ve sistemik düzeylerde çeşitli zorluklarla karşılaşılmaktadır. Bu zorlukların tanımlanması ve uygun çözüm stratejilerinin geliştirilmesi, navigatör hemşirelerin etkinliğini artırmak için kritik öneme sahiptir (Freeman & Rodriguez, 2011).

İş Yükü ve Kaynak Yetersizliği: Navigatör hemşirelerin karşılaştığı en önemli zorluklardan biri, artan iş yükü ve sınırlı kaynaklarla çalışmalarıdır. Yetersiz personel sayısı ve finansal kısıtlamalar, hemşirelerin görevlerini etkili bir şekilde yerine getirmelerini zorlaştırmaktadır (Hoelz, Sladek & Michaelson., 2007). Özellikle kronik hastalık yönetiminde, bireylerin düzenli olarak izlenmesi ve yönlendirilmesi için daha fazla zaman ve kaynağa ihtiyaç duyulmaktadır (Freeman & Rodriguez, 2011). Bu sorunun çözümü için sağlık sistemlerinde personel planlaması yapılmalı ve kaynakların daha verimli kullanımı sağlanmalıdır.

Eğitim ve Yeterlilik Eksikliği: Navigatör hemşirelerin, dijital sağlık teknolojileri, diyabet yönetimi ve multidisipliner iş birliği gibi alanlarda yeterli bilgi ve beceriye sahip olmaları gerekir. Ancak, eğitim eksikliği, bu hemşirelerin rollerini etkili bir şekilde yerine getirmelerini engelleyebilmektedir (Greenwood & ark., 2017). Bu eksikliğin giderilmesi için sürekli mesleki gelişim programlarının sağlanması ve hemşirelere özel eğitim programlarının düzenlenmesi gereklidir (Hoelz, Sladek & Michaelson., 2007).

Sağlık Sistemlerindeki Karmaşıklık: Navigatör hemşireler, bireyleri karmaşık sağlık sisteminde yönlendirirken çeşitli zorluklarla karşılaşabilir. Özellikle hastaların farklı birimlere erişiminde yaşanan gecikmeler ve iletişim eksiklikleri, tedavi süreçlerini olumsuz etkileyebilir (Zibrik, Laskin & Ho, 2016). Sağlık sistemlerinin daha şeffaf hale getirilmesi ve navigatör hemşirelerin görevlerini kolaylaştıracak rehberlik araçlarının sağlanması, bu sorunun çözümüne katkıda bulunabilir.

Teknolojiye Uyum: Dijital sağlık teknolojilerinin hızla gelişmesi, navigatör hemşirelerin bu teknolojilere uyum sağlamasını zorunlu kılmaktadır. Ancak, bazı durumlarda yeterli eğitim ve altyapı eksikliği nedeniyle teknolojiye uyum sağlamak zorlaşabilir (Greenwood & ark., 2017). Teknolojik araçların kullanımını kolaylaştırmak için hemşirelere yönelik kapsamlı eğitim programları sunulmalı ve kullanıcı dostu dijital araçlar geliştirilmelidir (Hoelz, Sladek & Michaelson., 2007).

Psikososyal Zorluklar: Diyabet yönetiminde bireylerle sürekli iletişimde olan navigatör hemşireler, stres ve tükenmişlik gibi psikososyal sorunlarla karşılaşabilir. Yüksek iş yükü, zaman baskısı ve hastaların psikososyal ihtiyaçlarına yanıt verme sorumluluğu,

hemşirelerin tükenmişlik yaşama riskini artırabilir (Freeman & Rodriguez, 2011). Bu tür sorunların önlenmesi için işyerinde destek programları, esnek çalışma düzenlemeleri ve stres yönetimi eğitimleri gibi çözümler uygulanabilir (Greenwood & ark., 2017).

Sonuç olarak; navigatör hemşirelerin karşılaştığı zorluklar, hem bireysel hem de sistemik düzeyde stratejik planlama ve uygulama gerektirmektedir. Sağlık hizmetlerinin etkinliği, navigatör hemşirelerin bu sorunlarla başa çıkma becerisine doğrudan bağlıdır. Dolayısıyla, navigatör hemşirelerin iş yükünü hafifletecek politikaların uygulanması, eğitim eksikliklerinin giderilmesi ve teknolojik adaptasyonlarının desteklenmesi, sağlık hizmetlerinin genel kalitesini artıracaktır (Hoelz, Sladek & Michaelson., 2007; Freeman & Rodriguez, 2011; Greenwood & ark., 2017).

13.SONUÇ VE ÖNERİLER

Navigatör hemşirelik, diyabet yönetiminde bireylerin tedaviye uyumunu artıran, komplikasyonları önleyen ve sağlık hizmetlerinin genel etkinliğini geliştiren yenilikçi bir modeldir (Freeman & Rodriguez, 2011). Bu model, bireylerin sağlık okuryazarlığını artırarak, sağlık sistemine erişimlerini kolaylaştırır ve yaşam kalitelerini yükseltir. Özellikle diyabet gibi kronik hastalıkların yönetiminde navigatör hemşirelerin rehberliği hem bireyler hem de sağlık sistemleri için kritik faydalar sağlamaktadır.

Navigatör hemşirelerin etkili bir şekilde çalışabilmesi için eğitim ve yeterlilik artırılmalı, dijital sağlık teknolojilerinin entegrasyonu sağlanmalı ve multidisipliner iş birliği teşvik edilmelidir (Yıldırım & ark., 2020). Ayrıca, Türkiye'de bu modelin daha yaygın uygulanabilmesi için sağlık politikaları geliştirilerek

navigatör hemşireliğin hemşirelik eğitimi müfredatına entegre edilmesi önemlidir.

Öneriler:

- Navigatör hemşirelerin diyabet yönetimindeki rollerine ilişkin farkındalık artırılmalı ve bu alanda kapsamlı eğitim programları sunulmalıdır (Ünal Toprak & Vural, 2016).
- Sağlık hizmetlerinde dijital teknolojilerden yararlanarak bireylerin sağlık durumlarının gerçek zamanlı takibi teşvik edilmelidir (Greenwood & ark., 2017).
- Navigatör hemşirelerin karşılaştıkları iş yükü ve kaynak eksikliği gibi sorunların çözümü için stratejik planlamalar yapılmalıdır (Hoelz, Sladek & Michaelson., 2007).
- Psikososyal destek mekanizmaları güçlendirilerek, bireylerin ve navigatör hemşirelerin tükenmişlik gibi zorluklarla başa çıkması sağlanmalıdır (Freeman & Rodriguez, 2011).

Navigatör hemşirelik, diyabet yönetiminde bireysel ve toplumsal düzeyde olumlu değişiklikler yaratma potansiyeline sahiptir. Bu modelin etkili bir şekilde uygulanması, sağlık hizmetlerinin kalitesini artıracak ve bireylerin daha sağlıklı bir yaşam sürmelerine olanak tanıyacaktır.

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