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Nursing Process for a Patient with Infertility Using King's Goal Attainment Model: A Case Study

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Abstract

Introduction: Infertility, defined as a woman's inability to conceive and carry a pregnancy, is a significant health concern requiring careful attention and treatment. This study aims to describe the nursing process for a patient with infertility using King's goal attainment model.

Case Presentation: The case involves a patient with infertility who has undergone six unsuccessful in vitro fertilization (IVF) attempts and declined surrogate uterus transplantation. Following each IVF attempt, the patient experienced renal complications, resulting in three hospitalizations. Data were collected through observations, interviews with the patient and her family, and paraclinical tests and documents. The nursing process was customized according to the patient's preferences.

Conclusions: The results of the study indicated that the patient was able to interact with nurses but did not adhere to health-promoting behaviors and treatments. The analysis led to eight nursing diagnoses and 25 care goals, with the patient managing to act according to her prioritized goals through the nursing process utilizing King's goal attainment model. These findings underscore the importance of a systematic and structured approach, such as King's goal attainment model, in providing effective nursing care for patients with infertility.

Keywords: Pregnancy, Female, Goals, Nursing Diagnosis, Infertility, Fertilization in Vitro, Patient Care Planning

1. Introduction

In a clinical context, a couple is deemed infertile after two years of unsuccessful attempts at conception through unprotected sexual intercourse (1). This circumstance carries substantial implications for both public health and women's health, underscoring the necessity to explore the determinants and ramifications of female infertility (2). Recent studies indicate a rising prevalence of infertility globally when contrasted with earlier periods (3), with an estimated 80 million individuals worldwide grappling with primary or secondary infertility (4). This escalation can be attributed to various factors such as shifts in lifestyle patterns, deferred marriage, and environmental and genetic influences (5). Research indicates a mounting incidence of female infertility, positioning it as a significant societal concern within the realms of health and medicine (6).

The ramifications of female infertility extend deeply into the lives of women, families, and society at large (7), impacting not only physical health but also psychological and emotional well-being (8). Infertility can instigate shifts in family dynamics, introduce psychological and social strains on couples, influence population fertility rates, and trigger economic repercussions (9). Women grappling with infertility may encounter an array of physical and psychological challenges (10, 11), encompassing hormonal imbalances, reproductive and functional irregularities, heightened susceptibility to reproductive ailments, and side effects stemming from infertility interventions (12). Moreover, infertility can precipitate stress, depression, anxiety, and a heightened vulnerability to psychological issues among women experiencing infertility (11).

Recent investigations have endeavored to pinpoint the determinants influencing female infertility while also striving to devise novel approaches for managing

and averting this condition (13). The discoveries stemming from the study hold promise in enhancing treatment efficacy and facilitating more successful interventions aimed at mitigating female infertility (13). Lifestyle elements, including inadequate nutrition, sedentary habits, persistent stress, tobacco use, and alcohol consumption, wield considerable influence over a woman's reproductive capacity and fertility (14).

It is imperative to attentively consider the lifestyles of women facing infertility and offer appropriate support and interventions within this domain. To ensure favorable outcomes in the nursing process, nursing theories emphasizing client engagement in treatment objectives and self-care, such as Imogen King's goal achievement theory, can be utilized (15). This theory underscores the significance of collaborative understanding between the client and nurse while emphasizing a family-centered care approach (16). Comprising three primary systems—personal, interpersonal, and social—this theory mandates the nurse's accurate comprehension of the client's personal system to facilitate goal attainment and effective client-nurse interaction. The personal system includes dimensions such as perception, body image, development, personal space, learning, time, and self. Understanding the interpersonal system necessitates familiarity with elements like interaction dynamics, communication patterns, stress, transactions, compatibility, and role. This system is pivotal for delivering high-quality care and should constitute a central focus of the nursing process. The social system delineates dimensions such as organizational structures, authority dynamics, power distribution, status, control, and decision-making processes, serving as a scaffold for social interactions across society, workplaces, and organizations (17).

Moreover, it is crucial to scrutinize the implications of emerging technologies and alternative parenting methods, such as adoption and in vitro fertilization (IVF) laboratory egg fertilization techniques, on the well-being of individuals experiencing infertility. Understanding the psychological, social, and cultural facets of infertility is equally essential to cultivate empathy, diminish stigma, and establish a supportive and inclusive environment for those encountering fertility challenges. By illuminating the multifaceted nature of infertility, the aim is to nurture heightened comprehension and empathy towards the obstacles confronted by these individuals. Consequently, applying Imogen King's goal achievement theory to the realm of infertility is anticipated to be profoundly effective in formulating optimal societal interventions. This study aims to outline the nursing process for an infertility patient employing King's goal attainment model.

2. Case Presentation

This study is a case study that utilizes the nursing process to achieve King's goals as outlined in 2023. Data collection commenced following the receipt of the ethical code. The research sample included an infertile patient who had undergone a kidney transplant and experienced six unsuccessful artificial insemination attempts over 13 years. After rejecting the sixth attempt, the options of surrogacy and adoption were presented, and the stages of Imogen King's nursing process were initiated.

2.1. Examination

During this stage, objective and subjective information about the patient is collected through interaction, where the nurse uses specialized knowledge and skills while the patient shares their knowledge and concerns. Data such as the patient's growth and development, understanding of their current health status, and their understanding of the concepts of surrogacy and adoption are collected. The basis of data collection and interpretation is perception, necessitating communication to confirm the accuracy of perceptions and facilitate interaction. Interview questions at this stage cover personal, interpersonal, and social system concepts.

2.2. Nursing Diagnosis

In this stage, the problems, concerns, and disorders that the patient seeks help with are identified using information gathered previously.

2.3. Planning

Participation from the patient is crucial as goals are formulated and prioritized, and decisions are made to achieve these goals. The patient is encouraged to take an active role in the decision-making process.

2.4. Interventions

This stage involves working with the client during five one-hour training sessions at their home, with her husband's assistance during the last two sessions. The interventions include the use of educational pamphlets and 3D videos on uterus and kidney anatomy and physiology, risk factors for kidney rejection, IVF complications, lifestyle modification, and disease

management, all tailored to the client's diagnosis and goals (18-20).

2.5. Evaluation

A month after interacting with the client, evaluation was conducted using the Goal Achievement Scale (GAS) (21). This 5-point scale measures the level of achievement of King's goals as follows: (1), 2-: Less than expected; (2), 1-: Slightly less than expected; (3), 0: As expected; (4), 1+: Slightly more than expected; (5), 2+: More than expected.

The client under assessment is a 33-year-old married woman with a tailoring diploma, currently a housewife residing in a city in the northern region of the country. The family medical history includes kidney disease and diabetes. Following each unsuccessful IVF attempt, the client is hospitalized for two days due to kidney complications. Multiple indicators in her blood test, including urea, creatinine levels, and white blood cell count, suggest kidney rejection. Despite the absence of expressed interest in surrogacy, the client remains defensive when alternative treatments are suggested.

On physical examination, the client appears well-groomed and communicative, in good overall health. Her skin is without edema or puffiness, and there are no observable movement impairments. Her body mass index is 30 and waist circumference is 100 cm. Systolic blood pressure is 110 mmHg and diastolic blood pressure is 90 mmHg, measured with a manometer. Breathing rate and body temperature were normal. The patient's medications at home include prednisolone 5 mg, pantoprazole 40 mg, azathioprine 50 mg, and tacrolimus (cap Cograft) 1 mg.

2.6. The Personal System of the Studied Client

This system encompasses a woman's unique characteristics such as values, beliefs, desires, and personal experiences related to infertility. Understanding her personal system is crucial in creating an appropriate care plan that respects her individual needs and preferences. By considering the individual system, it is possible to better understand the needs of a woman suffering from infertility and collaborate effectively to achieve her goals related to infertility and family planning.

2.6.1. Perception

A woman's perception of infertility significantly influences how she navigates this challenge in her life. Health care providers should evaluate and grasp her perspective on infertility to offer tailored support and interventions.

2.6.2. Self

A woman's self-concept and self-esteem are very important considerations in the individual system. Infertility can sometimes affect a woman's image and self-confidence. Health care providers should promote a positive self-image and strengthen self-care practices to support a woman's well-being.

2.6.3. Growth and Development

Infertility can disrupt a woman's expectations about family planning and her life path. Supporting a woman's growth and development includes helping her discover alternative ways to achieve her desired goals and promoting personal growth during this phase of infertility.

2.6.4. Strength

Infertility affects not only the woman but also her relationships with her partner, family, and social support network. Recognizing the interdependence between the woman and her support system is essential for comprehensive care. Health care providers can provide guidance on how to strengthen relationships and seek social support during this challenging time. In Table 1 the examination of the client's and nurse's understanding using King's theory is presented.

2.7. Nursing Diagnosis 1

Risk of unbalanced nutrition: Less than the body's needs, related to the use of immunosuppressive drugs and possible dietary restrictions after kidney transplantation.

2.7.1. Objectives

(1) Control weight, food intake, and nutritional status regularly.

(2) Assess the patient’s eating habits and preferences and provide a balanced diet that meets her nutritional needs with the advice of a nutritionist.

(3) Educate the patient about the importance of maintaining a healthy diet and the risks associated with improper nutrition.

(4) Encourage the patient to consume foods rich in nutrients and low in fat, salt, and sugar.

Table 1. Examining the Understanding of the Client and the Nurse Using King's Theory

Types of Systems and Subsystem	Understanding the Client	Understanding the Nurse
The person		
Body image	I feel bloated because of taking corticosteroids, I have to eat less	Modifying lifestyle by including sports that suit his conditions
Development	I am good at sewing dolls, this is how I earned my income before I got married.	She only cares about the financial aspect of the skill and not the entertainment aspect for him
Personal space	After the transplant, I got relief from dialysis, but I have to take a series of medicines every day, it's a torture, I don't know when it will end	Imposing compliance with the treatment regimen throughout life (drug non-compliance)
Learning	Because of the medicines I take, my doctor told me to pay attention to my food, during pregnancy I go to a nutritionist and follow my own diet.	She needs to modify her lifestyle regardless of pregnancy (the turning point of her life is pregnancy).
Time	Whenever I look at the calendar, only the ovulation date appears.	Ovulation-enclosed life time
Self	Thank God, my kidneys are fine, my eggs are healthy, I feel good about my life, but my life will be complete when the baby comes.	She does not have full knowledge of the risk factors in kidney failure
Perception	Many people had my problems and got pregnant. We have a Telegram group. Last time, a woman with my conditions got pregnant with twins with IVF. I can, there is no need for surrogacy.	She does not have a correct understanding of pregnancy and the special care of a pregnant mother with a transplanted kidney.
Between person		
Role complexity	It has the main roles of wife, sister, daughter-in-law. I do not complete my duties. I sleep more during the day...	It has many roles that it does not play well.
Interaction	People around me say hi to my husband for surrogacy even though I can have a child.	Waiting for the approval of others in terms of fertility
Relationship	I have a good relationship with all my family and friends, I like to be alone more than in a group.	social anxiety
Transaction	I stand up to the pressure of people around me, of course, without fighting and I told everyone that I can do it myself, my husband trusts me.	Resistance to other fertility methods
Stress	Every day and every minute I am thinking about pregnancy... I am expecting every month and after my period I cry for three days and nights every month... I am in pure despair. And then I struggle a lot with myself and give myself hope for the next month. This is my life every month.	Distress in the life cycle
Compatibility	My husband always gives me hope, people from far and near always have children after several years, I ask and this makes me feel better.	Keeping hope alive through interactions with peers.
Social		
Decision making challenges	She recounts complex decisions about her reproductive options, including the potential risks and consequences of pregnancy on her transplanted kidney.	Her highest priority is pregnancy, pregnancy at any cost, even at the cost of her life.
Location	He lives with his wife in a one-bedroom villa in a nice area of town.	They have a suitable and high status.
The power	I tolerate my pain in any situation and I don't need help from others, not even my wife.	To manage the disease and follow up on medical matters, the cooperation of the wife is required.
Control	I consulted six fertility specialists and one urologist.	Although the treatment method of each specialist is for IVF, but every unsuccessful IVF patient turns to another specialist.
Authority	The head of my house and my husband are very satisfied	Due to his pale and inactive presence in the house, he has good authority.
Organize	Before every IVF, I show my husband the messages of women like me who had a successful pregnancy to give his consent to try again. My wife's objection is not because of the cost, but because of my health concerns.	Making her husband willing to re-accept and ignore the risk factors

(5) Maintain complete control over the medication regimen to minimize the risk of adverse effects on nutrition.

2.7.2. Interventions

Monitoring weight control, food intake, and nutritional status; providing a balanced diet based on nutritional needs and preferences; emphasizing the importance of maintaining a healthy diet; and promoting the consumption of nutrient-rich foods.

2.7.3. Evaluation

Achieved 5 goals (2+).

2.8. Nursing Diagnosis 2

Risk of infection related to immunosuppression and the potential for post-transplant complications.

2.8.1. Objectives

(1) Observe the principles of asepsis in all activities.

(2) Identify risk factors for infection.

(3) Emphasize the importance of proper nutrition, oral and dental hygiene, and skin care.

(4) Educate the patient about the risk of infection and the proper methods of isolation.

2.8.2. Interventions

Observance of healthcare protocols including careful handwashing, use of appropriate masks and gloves, and prevention of contact with infectious agents; educating on symptoms of infection and necessary precautions post-transplant.

2.8.3. Awareness and Accurate Identification of Infection Symptoms

Clients should be aware of changes in conditions such as fever, inflammation, redness, pain, and changes in surgical posture. The patient should have sufficient information about complications after transplantation and take the necessary measures for quick intervention.

2.8.4. Evaluation

All four objectives were fully realized (+2). When visiting infertility centers, she doesn't forget her transplanted kidney to sacrifice her sense of motherhood.

2.9. Nursing Diagnosis 3

Anxiety risk related to infertility stress, the graft rejection process, and potential complications.

2.9.1. Objectives

(1) Employ relaxation techniques such as deep breathing.

(2) Explain the importance of sleep hygiene and ways to reduce environmental stress.

(3) Identify the underlying causes of anxiety.

2.9.2. Interventions

Utilizing relaxation techniques, promoting proper sleep hygiene, reducing environmental stress, and addressing the underlying causes of anxiety.

2.9.3. Evaluation

All three listed goals have been met slightly more than expected (+1).

2.10. Nursing Diagnosis 4

Risk of non-compliance with the drug regimen due to the complexity of the drug regimen after transplantation, infertility treatment, and its potential side effects.

2.10.1. Objectives

(1) Ensure the patient has complete information on how and when to take her medications correctly.

(2) Identify problematic factors when following the drug regimen.

2.10.2. Interventions

Ensuring adherence to the correct methods and timing of medication intake; identifying barriers to adherence.

2.10.3. Evaluation

Both objectives have been completed (+2).

2.11. Nursing Diagnosis 5

Risk of impaired skin integrity related to immunosuppressive drugs and potential side effects, such as skin fragility or increased wound sensitivity.

2.11.1. Objectives

(1) Ensure the patient recognizes the inflammatory symptoms of the skin.

(2) Follow appropriate health measures.

(3) Adhere to measures to prevent skin irritation.

(4) Maintain skin protection.

2.11.2. Interventions

Regular assessment of the skin for signs of inflammation such as redness, swelling, or blistering; following appropriate hygiene measures such as daily bathing and moisturizing; using a brush with soft bristles, mild soaps, and lotions without fragrance; avoiding hot showers; using moisturizer; wearing loose clothing; and applying protective creams or ointments.

2.11.3. Evaluation

All four objectives fully achieved (+2).

2.12. Nursing Diagnosis 6

Mourning related to the loss of reproductive potential and unfulfilled desire to become a mother.

2.12.1. Goals

(1) Express feelings and emotions.

(2) Become fully familiar with the mourning process.

(3) Identify and deal with the main causes of sadness.

2.12.2. Interventions

Expressing feelings and emotions, becoming acquainted with the mourning process, identifying the main causes of sadness.

2.12.3. Evaluation

All three objectives were achieved somewhat more than expected.

2.13. Nursing Diagnosis 7

Disturbed self-image related to feelings of inadequacy and social expectations.

2.13.1. Objectives

(1) The patient expresses his understanding of body image and self-esteem.

(2) Educate the patient about the importance of a positive self-image and the dangers associated with a negative self-image.

(3) Identify the underlying causes of a negative self-image.

2.13.2. Interventions

Enhancing the patient's understanding of her body image and self-esteem, raising awareness about the importance of a positive self-image, and addressing the underlying causes of a negative self-image.

2.13.3. Evaluation

All three objectives were fully realized (+2).

2.14. Nursing Diagnosis 8

Risk of ineffective coping related to infertility-related emotional distress.

2.14.1. Objectives

(1) Implement approaches to mitigate environmental stressors.

(2) List stress management techniques and coping strategies.

(3) Identify critical times and use intervention strategies to manage crises.

2.14.2. Interventions

Expressing feelings and emotions, getting familiar with the mourning process, identifying and addressing the underlying causes of emotional distress.

2.14.3. Evaluation

All three goals were achieved within the expected range (zero).

3. Discussion

The findings of this study indicate that Imogen King's goal achievement theory can be effectively harnessed to enhance goal attainment among clients grappling with infertility and undergoing kidney transplantation. Through collaborative identification and prioritization of client goals alongside nursing professionals, clients can more effectively realize their objectives. Moreover, clients are encouraged to proactively explore alternative pregnancy methods with enthusiasm. Notably, no existing studies were found that specifically applied this theory to individuals facing infertility. Similarly, Cho quasi-experimental research in Korea explored the effects of health interventions grounded in King's goal achievement theory on self-care practices and physiological markers among 44 dialysis patients. The outcomes demonstrated the theory's efficacy in bolstering self-care practices and physiological parameters in individuals undergoing dialysis (22).

While the present study differs in its focus, it is referenced solely to underscore the efficacy of the theory within the specified group. Case studies by Hojjatoleslami et al. and Khalili et al. exemplify the application of King's goal achievement theory in nursing contexts. In Hojjatoleslami 's case, a 70-year-old male patient with a history of heart disease underwent examination utilizing a blend of case studies, interviews, and observations. The client's objectives were delineated and prioritized in accordance with King's theory, leading to a successful treatment trajectory. Evaluation outcomes revealed the client's adjustment of daily activities and attainment of set goals (23, 24). In Khalili et al.'s study, the nursing process was executed for a teenage patient grappling with hyperglycemia using King's goal achievement model.

The case involved a 13-year-old boy with diabetes who exhibited an inadequate understanding of blood sugar level influencers. Through nurse-client interactions, meticulous preparation, and care plan implementation, the client achieved stabilization of blood sugar levels within normal parameters (24).

Both case studies serve to illustrate the efficacy of King's goal achievement theory in steering nursing practices and yielding favorable patient outcomes. Payamani et al.'s quasi-experimental study in Iran sought to explore the impact of implementing the nursing process grounded in the theory of goal achievement (TGA) on the daily routines and quality of life of individuals contending with multiple sclerosis amid the COVID-19 pandemic. The research encompassed 70 patients selected via convenience sampling and randomly allocated to two groups. The intervention spanned four sessions over one month, with the goal achievement scale (GAS) administered pre- and post-intervention at two months. Results indicated that the targeted group successfully prioritized and achieved more set goals (25). Infertile women face a myriad of challenges (26), and societal expectations regarding childbearing can exacerbate these challenges.

3.1. Conclusions

In Iranian society, where motherhood holds significant cultural value, infertile couples may face isolation and societal stigmatization. This study centers on a client facing the dual challenge of managing a transplanted kidney alongside infertility issues. It is critical to equip this client with comprehensive information regarding fertility treatments, their health implications, and their impact on renal and urinary systems. Neglecting to address these interconnected aspects could lead to adverse effects necessitating prompt adjustments. By discerning and prioritizing these concerns, the application of goal achievement theory can assist infertile women in navigating these complexities effectively. Imogen King's theory offers a valuable framework for organizing clients' lives, emphasizing goal prioritization and balancing the three core systems. This structured approach aids in addressing infertility challenges. While this case study presents potential utility for infertility patients, it is important to recognize that the qualitative nature of the research, capturing authentic experiences, restricts the generalizability of the findings.

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Footnotes

Authors' Contribution: F.T and L.J contributed to the conception of the case report, drafting the manuscript, the literature review, and approved the final submitted manuscript.

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Data Availability: Readers can freely access the data used in this study by requesting them.

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