



Infertility

Clients' perspective on nursing intervention

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ABSTRACT

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According to WHO, around eighty million worldwide are facing challenges with infertility. The purpose of this thesis was to explore into the context of the clients' perspective on nursing intervention during infertility treatment. This is a literature review, and the data was collected using CINAHL and PubMed. Eligible articles, journals and books were published from 2010-2020, peer-reviewed, in English, worldwide publication.

Most of the articles demonstrates the important role the nurses play in fertility clinics, along with other professionals. When other healthcare professionals come and go during infertility treatment, nurses start with clients from the beginning till the end of the process. When having infertility treatment, clients find it helpful to be able to connect to the nurse any time when in despair. The tool used to help nurses and healthcare workers to provide a patient-centred care to the patient fail to offer proper individual care.

Even though the role of nurses is crucial in the process, clients' point of view on nursing interventions remain understudied. The scope of most of the articles and journals were on infertility treatment in general or focused on nursing interventions. To provide better patient-centred care more studies are needed on patients' perspective on nursing intervention. The emotional support is extremely needed during infertility treatment thus nurses need good education to support the patient and themselves. There is also a need to update tools to provide patient-centred care.

Key words: infertility,nursing,clients perception

CONTENTS

1	INTRODUCTION	5
2	THEORETICAL BACKGROUND	7
	2.1 Types of infertility and Causes	7
	2.2 Infertility treatment.....	8
	2.3 Role of the nurse.....	9
	2.4 Patient viewpoint on treatment.....	10
3	PURPOSE, OBJECTIVE AND RESEARCH QUESTION	12
4	METHODOLOGICAL ORIENTATION AND METHODS	13
5	RESEARCH ETHICS AND RELIABILITY	16
6	FINDINGS.....	17
	6.1 Strong emotional reactions	17
	6.2 Communication	17
	6.3 Nurses' pivotal role.....	18
	6.4 Patient-centred vs checklist	19
	6.5 Need of better emotional support.....	19
7	DISCUSSION	21
8	CONCLUSION	23
	REFERENCES	24
	APPENDICES.....	27
	Appendix 1. search table	27
	Appendix 2. articles analyse	28

ABBREVIATIONS AND TERMS

IVF	In Vitro fertilisation
STDs	Sexual Transmitted Diseases
ED	Erection dysfunction
PCOS	Polycystic ovary syndrome
ART	Assistant reproductive technology
FSH	Follicle-stimulating hormone
REI	Reproductive Endocrinology and Infertility
IUI	Intrauterine insemination
PID	Pelvic inflammatory disease
INFECUNDITY	Infertility

1 INTRODUCTION

Infertility affects a large range of global population for both male and female of childbearing age, this significant burden of infertility has not shown any decrease over the last 20 years. The World Health Organisation estimated that over 10 percent of women are affected and the burden on men is unknown. (WHO 2020.) Infertility is a health issue worldwide. 10-15% of couples experience infertility issues globally. According to WHO around eighty million worldwide are facing challenges with infertility. In different places worldwide, failure to conceive might endanger a destruction of the relationship. Infertility is described as the inability to be pregnant after 12 or more months of regular, unprotected sex (Seli & Arici 2011, 1; WHO 2020).

Infertility treatment has taken an advance forward development in the last decade, with lots of advancements and technology being embedded into the management process. However, the role of nurse remains a vital part in the treatment and management of clients having infertility issues. The duty of nurses is continually demanding and growing to meet the requirement of clients undergoing infertility treatment. (Bretherick, Fairbrother, Avila, Harbord & Robinson 2010.) The objectives of this study are to understand the perspectives of clients with regards to nursing intervention and find ways of improving on the lapses in the interventions by using a literature review method.

There is a need to study patients' perspective on nursing intervention in infertility treatment. In fact, several articles on infertility focussed on the infertility treatment in general and the nursing intervention was behind the scope of those studies. Bernabeu, Lledo, Díaz, Lozano, Ruiz, Fuentes, Lopez-Pineda, Moliner, Castillo, Ortiz, Ten, Llacer, Carratala-Munuera, Orozco-Beltran, Quesada & Bernabeu (2019) investigated influence of vaginal microbiome on the result of ART. Kirca & Pasinlioglu (2019) studied the effects of yoga practices on stress in infertile women. When nursing intervention was studied, the patient perspective on the nursing intervention was not covered. Durgun & Okumuş (2017) conducted a randomized controlled trial study. The study recommended the use of Watson's

theory of human caring as a guide for the treatment to alleviate anxiety and distress level among infertile women. Zhu et al. (2021) investigated the effects of comprehensive nursing intervention (CNI) and concluded that CNI influences negative emotions of infertile patients. Patients' perspective is poorly studied, thus there is a need to investigate what are the literatures on patients' perspective on nursing intervention.

2 THEORETICAL BACKGROUND

2.1 Types of infertility and Causes

Infertility can be voluntary or involuntary, this thesis will focus on involuntary infertility. Research has shown that in industrialized countries, people's desire of having late offspring has increased (Goldstein, Sobotka & Jasilioniene 2009). Research (Dunson, Baird & Colombo 2004) has shown that fertility decreases with age, Seli & Arici (2011) suggest that fertility issues will increase with couples during reproductive years. There are many factors that affect fertility during reproductive age.

Voluntary infertility will not be covered in this thesis. Voluntary vasectomy, a male sterilisation practice using surgery to permanently stop the supply of the sperm (NHS 2021), and for female tubal ligation, a surgical procedure to block or remove fallopian tubes (NHS 2019).

Overall, one of the most common factors of infertility which is amongst 40% of infertile woman is due to not being able to ovulate, which can result to several gynaecological ovary complications such as polycystic ovary syndrome (PCOS) and primary ovarian insufficiency (Dia, Bouhoussou, Nguessan, Oyelade, Guié & Anogba 2017). Female menstrual cycles range from 21-35 days, but about 25% of females experience irregular period cycles that last longer or are much shorter, heavier, or lighter, painful, or less pain which mean that ovulation cycle would be irregular or may not occur at all. (Dasharathy, Mumford, Pollack, Perkins, Mattison, Wende & Schisterman 2012.)

Hypothyroidism (van den Boogaard, Vissenberg, Land, van Wely, van der Post, Goddijn & Bisschop 2011), hyperprolactinemia (Kaiser 2012), excessive exercise, and some tumours can all affect the menstrual cycle, resulting in infertility (Seli & Arici 2011, 36). With male infertility can be due to improper sperm production, genetic defects, diabetes, or structural problems. Sperm production problems, including premature erections, smoking, certain genetic disorders,

such as cystic fibrosis, and structural defects. This includes unhealthy exposure effects of some factors such as pesticides, radiation, chemotherapy, or damage due to having cancer. (Seli & Arici 2011, 72.)

Drug and medication side effects can cause infertility in both men and women (Østensen 2017). Rheumatic disease medication can have toxic effects that can cause temporary or permanent gonad failure in men and women. Cancer treatments can interfere with sperm production (NHS 2020). Chinese herb *Tripterygium wilfordii*, which is an herb that inhibits sperm production (NHS 2020).

2.2 Infertility treatment

It is important in fertility treatment to consider lifestyle changes, use of tobacco, caffeine, and alcohol consumption. Research has identified people with elevated BMI are likely to have problems getting pregnant spontaneously (Seli & Arici 2011, 5). High consumption of fat, sugar, salt have been found causing a high risk of abortion and ectopic pregnancy, as well deduction in development of a baby (Seli & Arici 2011, 5). Protective sex prevents and controls the risks of sexually transmitted infections (STIs), such as chlamydia and gonorrhoea (Chandra, Copen, & Stephen 2014).

Treatment for male includes PDE type-5 inhibitors, like Viagra, vacuum devices, and a surgical procedure. Inflatable, which is the most used implant amongst other types of implants (Albaugh 2019). In intraurethral treatment, it is done by the insertion of the medication into the urethra. Hypogonadism can be described as the inability to make enough male hormone(testosterone); this condition is one of the causes of infertility in men. The aim in this therapy is to normalize the level of testosterone in the body. There are different types of medications to be used (Mayoclinic 2019).

Intrauterine insemination (IUI) involves putting the sperm inside the uterus with the help of a tube inserted inside the uterus. In Vitro Fertilization, the fertilisation is done in a controlled environment for example laboratory, then later transferred into a woman's uterus. In the case when couples were helped with embryo

donation, sperm donation, egg donation by a third party, this is called third party-assisted ART. There are medications that stimulate the ovary to produce mature eggs for ovulation. Ovulation deficit can be treated with medication that enhances hormone production. They help the ovaries to produce at least one egg. When ovulation failures are the reason behind infertility, with the above treatment, successful fertilization is 80 % effective. IVF treatment is done by removing the egg from the ovary, fertilized with the sperm in the laboratory then transferred back to the uterus. (Tiitinen 2013a.)

2.3 Role of the nurse

Nurses' major role is to ensure that patients have sufficient information regarding their illness such as medical plan, medication knowledge, treatment plans, and causes necessary investigation needed. Nurses play vital roles in educating patients and family or caregivers every necessary information they need before patient discharge from the hospital. (Thomas, Newcomb & Fusco 2018.)

Nurses who assist during all processes of infertility treatment and provide general health guidance, offering guidance regarding test results, monitoring vital signs and statistics, and providing general health information are referred as fertility nurses (Ellis 2020). Nurses play an important part in infertility care (Klitzman 2018). Study results published by Mitchell, Mittelstaedt, and Wagner (2003) revealed that 73% of ART nurses stated that direct patient care was their primary responsibility. In fertility clinics, nurses provide emotional support to patients by meeting with them regularly and by contacting them out of office hours (Johnson, Quinlan & Marsh 2018).

As a nurse assisting clients undergoing infertility treatment, nurse's role is to have a good understanding of how fertility is evaluated, the aim for infertility treatment, and other options for treatment. Clients' care is nurses' priority, as clients' treatment becomes more complex, nurses can assist clients in every step of their treatment showing empathy and acknowledging their feedback on the nursing care they received during their treatment. (Ellis 2020.) The role of the nurse is to

treat clients with great care to have a successful outcome, educating clients to have a healthy lifestyle eating balanced diet (Koroma & Stewart 2012).

Nurses are involved in planning and making critical decisions in the care plan of patient treatment. Nurses acquire broad skills and knowledge that help them to make the necessary assessment which aid in identifying patient problems and needs. Nurses also work with other health care teams such as doctors which usually makes the final diagnoses. (Thomas et al. 2018.)

2.4 Patient viewpoint on treatment

Arakelian, Swenne, Lindberg, Rudolfsson and von Vogelsang (2017) in the integrative review on patients' view on nursing care pinpointed four important points, (I) patients felt respected when they have been taken care of, as who they are. (II) Patients felt safe while knowing that nurses are close to them during procedures. (III) Felt honoured when one of their requests was fulfilled. (IV) Nurses' touch during procedures brings a feeling of security. In a study by Larsson, Sahlsten, Sjöström, Lindencrona & Plos (2007) on patients actively participating in their own treatment, authors noticed in a welcomed and warm atmosphere, patients felt easy to participate in their own care. Clear line of care, and when every health care worker follows the same guidelines, creates the feeling of trust and certainty. When nurses are sensitive, trustworthy, and thoughtful it creates a genuine relationship and emotional connection between patient and nurse.

Shandley, Hipp, Anderson-Bialis, Anderson-Bialis, Sheree, Boulet, McKenzie & Kawwass (2020) on their study to underline the associated input on positive patient experience (PPE) while receiving infertility treatment, demonstrate that many clients were satisfied with the way they were treated. And the majority were willing to recommend the clinics to their close ones. This internet based cross-sectional study suggested that for a better PPE infertility clinic should not only advertise pregnancy as the main goal, but good clients' experience as well.

In the search conducted by Omu & Omu (2010) according to the interviewed clients, nurses had successfully implemented nursing interventions, clients felt well educated and well informed on the treatment. Nurses were supportive, warm, and emotionally present.

3 PURPOSE, OBJECTIVE AND RESEARCH QUESTION

The purpose of this thesis is to explore deeper into the context of clients' perspective on received nursing interventions during infertility treatment. The aim is to acknowledge and highlight this topic in an even broader perspective so the reader can understand the client's view and nursing intervention.

The objective is to provide enough information on how the nursing interventions with infertile clients can be improved, what tools and skills are needed for the nurse. Explicitly, the objective of this thesis is to investigate the effects of nursing interventions on infertility, do clients receive proper guidance, are the nurses beneficial enough for clients.

Initially the thesis plan had three questions. What is the clients' perspective on infertility nursing intervention? What kind of nursing interventions clients received during their infertility treatment? And what are the infertility challenges clients face? Throughout discussion and advice from other peers, a decision has been made to combine the three questions into one. What are the clients' perspectives on infertility nursing interventions? This question will be answered in this thesis.

4 METHODOLOGICAL ORIENTATION AND METHODS

The integrative literature review is an original form of research that produces recent findings on a subject by critiquing, reassessing, and harmoniously integrate principal literature on a subject manner such that recent groundworks and aspects on the topic are engendered (Torraco 2016).

This thesis will utilize integrative literature methods. Integrative literature review helps the reviewer to know how rigorous the scientific evidence is, spot inconsistency in the research, pinpoint demand forthcoming research, generate research questions, find main problems in a subject. (Russell 2005).

Finding evidence-based articles, that can answer this thesis' question was difficult. The research was done during September 2020 to September 2021. Research has been done in different search engines with different keywords. Using infertility clients nursing interventions as search keywords in CINAHL with full text, references available, abstract available, English as a language, publication time between 2010-2020, worldwide, peer reviewed as limiters, the research yielded 10 articles. With the same keywords using PubMed search engine after applied filters such as Abstract, full text and publication date within 10 years, the search result was 233 articles.

After collecting 233 + 10 articles, the next phase was reading abstracts with the thesis question in mind, any article that did not study patients' perspective on nursing intervention was excluded from the research. Literature reviews and duplicate articles were used as exclusive criteria. In total 239 articles were excluded. In fact, many articles covered infertility treatment in general without emphasizing in the nursing care and the patient's perspective. See figure1 and table 1.

Criteria	Inclusive	Exclusive
Language	English	Non-English
Article type	Peer-reviewed articles and academic journals, full text available, Abstract available, reliable references, duplicated articles.	No-peer-reviewed, full text no available, abstract non-available, literature reviews.
Source type	article about infertility Nursing and clients/patients' perspective on nursing care.	infertility in general, article that omitting nursing interventions, article that did not touch patient perceptive on nursing care
Time period	September 2010 - September 2021	Articles out of the required timeline.

Table 1. Inclusive and exclusive criteria

The 4 selected articles were analysed using the criteria table see Appendix 2. The articles were assessed on their year of publication, the author and country of publication. What was the purpose of the study, what design tool was used for the study, how big was the sample size and characteristic of the selected sample? Quality of the article was assessed by their contents for example how clear the objective was described, design of the study was adequately described, was the method appropriate. Does the study have any limitations?

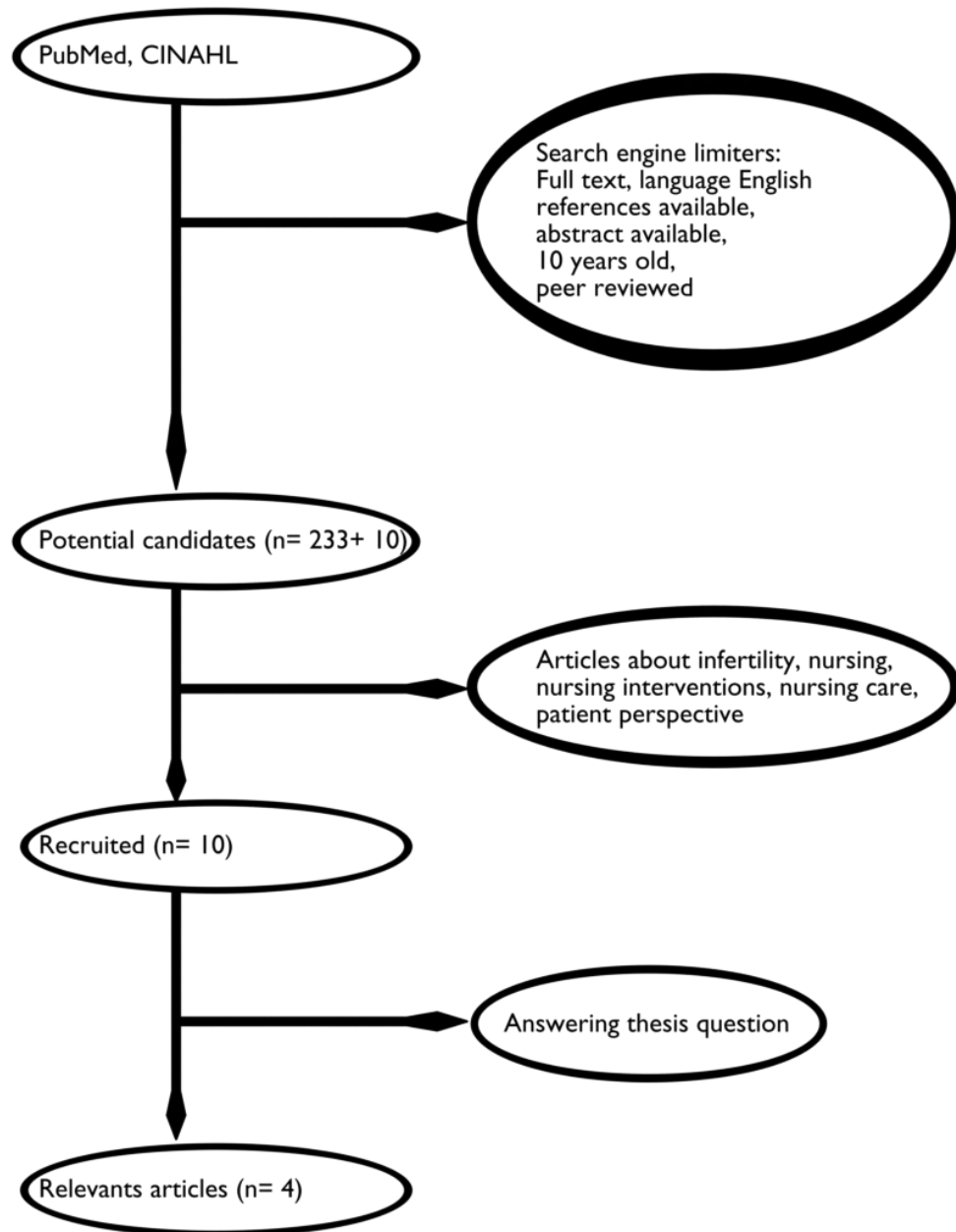


Figure1: Article research process

5 RESEARCH ETHICS AND RELIABILITY

In January 2021, the thesis plan approval was requested from Tampere university of applied sciences. Due to some amendments, thesis approval was granted April 2021. The ethical issues pertaining to this study have been outlined using the most recent articles not more than 10 years of age. The articles used were collections of data from male and female within child-bearing age. In the thesis clients were referenced as male or female or couple, who is receiving or had been receiving infertility treatment for at least twelve months.

To show the reliability and validity of the work, major peer-reviewed research on nursing intervention on infertility and clients' perception are compared by using reliable search databases such as PubMed, CINAHL (EBSCO host). Different articles' strengths and weaknesses are compared on clients' view on infertility management and different infertility treatment. This thesis will explore similarities, rules, and patterns on clients' perspective on nursing interventions on infertility. Evidence-based articles were used. Research processes should not be of no harm to society but rather provide a solution to the purpose of study.

Research on clients' perspective on nursing interventions remains understudied up to this day. After many months of research only four evidence-based peer-reviewed articles have shown their concern on the subject.

6 FINDINGS

After reading through the four articles five themes emerged, (i) emotional reactions, (ii) communication, (iii) nurses' pivotal role, (iv) patient-centered vs checklist, (v) need for better emotional support.

6.1 Strong emotional reactions

In their qualitative study Obeisat, Gharaibeh, Oweis, & Gharaibeh (2012) noticed that nurses must consider the huge societal pressure that nourishes clients' emotional reaction. Women feel anxious when their menstruation time starts, because it is a sign that she is not pregnant, thus she failed again. Even when the husband is infertile woman must hide it even from her own family. In the Omu & Omu (2010) research, 12% of women experienced anxiety as emotional reactions and 6% of men, depression in 5.2% of women and 14.9% of men and reduced of sexual desire in 6.7% of women and 29.9% of men. The interview examined the couple's perspective of the nurses' role and their feelings. "Anger, feelings of devastation, powerlessness, sense of failure and frustration" were the most expressed emotion during the semi-structured interviews. (Omu & Omu 2010.)

6.2 Communication

Johnson et al. (2017) in their article on telenursing and nurse-patient communication within fertility interviewed 23 women who had infertility problems ranging from one to three years. Interviewees agree to speak about patient-nurse communication during reproductive endocrinology and infertility. During their treatment clients could be reached through email, text-messages, recorded voice messages. These ways of communication were considered by clients as fast and easy to seek help when needed. On the flip side of the coin, some healthcare workers used late time calls and voice-messages as a means for breaking bad news, for the clients this creates more anxiety and engenders less trustworthy environment. Positive feedback from patient to medical staff improves job satisfaction (Johnson et al. 2017).

When societal pressure is imminent communication deteriorate and anxiety increase, in Obeisat et al. (2012) study, clients felt the strong need of hiding their feelings and actions to their families when having IVF therapies, because being open on the subject will produce more stress and reduce the chance of having a successful result. In Cunningham & Cunningham (2013) survey, data was collected through online interviews in a forum. Interviewees used their own words. Many candidates felt that the online environment was liberating space to express themselves contrary to infertility clinics. clients experiencing negative emotion is usual due to lack of support (Johnson et al. 2017).

6.3 Nurses' pivotal role

Infertility treatment involves many health care workers, nurses are constantly in contact with patients starting from the beginning, till the end of the treatment. Whether the result is position or negative, nurses rejoice or grieve with the patient. Nurses help to connect and coordinate different units. (Johnson et al. 2017.) In the telenursing study by Johnson et al. (2017), a client was so grateful that her fertility nurse gave her personal number, the client was able to ask questions, receive guidance and support at any moment, and she believed the successful result was because of the nurse's attitude.

Omu & Omu (2010) observed a positive clients' feedback on the nurses' role during infertility treatment, involving adequate collection of patient history, recording of vitals, medical investigation, encouraging patients taking medication as prescribed, listening to patients' complaints, providing emotional support, and showing empathy when needed. Johnson et al. (2017) noted that "avoiding hyperstimulation, becoming pregnant, and giving birth to a healthy child" were nursing goals set by patients in their infertility treatment. Nursing intervention can be made outside nursing facilities and sometimes in patients' personal environment. Nurses guide patients with scheduled ovulation and intercourse, taking the right medicine, checking basal temperatures and semen specimen collecting. (Johnson et al. 2017.)

Omu & Omu (2010) showed that clients were satisfied with the nursing intervention they have received. This study showed that clients experienced positive nursing care during embryo transfer, investigation process, and physical examination procedures. Clients stated that nurses explained clearly to them about doctor's instructions, good health education on weight control, and quitting smoking. (Omu & Omu 2010). And Johnson et al. (2017) demonstrates how clients felt helped and supported when receiving infertility nursing. Their study shows that those not working in the office dealing with patient communication experiences seem to be more effective and supportive within the patient treatment process.

6.4 Patient-centred vs checklist

Clients' perspective on nursing care was highlighted by two aspects, patient-centered care, and infertility care model. Cunningham & Cunningham (2013) criticized Dancet et al.'s patient-centered care model, even though the guideline underlines the need of taking infertility clinic clients as individual, it fails to consider how complex the infertility treatment is, Cunningham & Cunningham (2013) noted that the model which creates an artificial menu of tasks, not helping the nurse and healthcare provider to focus on real need of the patient as individual. Cunningham & Cunningham (2013) showed how Dancet's model fails to provide guidance to the nurse, on how to consider societal pressure, and financial issues.

6.5 Need of better emotional support

Emotional support is one of the most needed care in infertility care, the lack of it is the reason most patients abandon their treatment (Omu & Omu 2010). The study by Omu & Omu (2010) suggests that improving patient-centeredness could better patient's care and decrease one of the main problems that affect patients during infertility treatment thus reducing the rate of dropout in clinics. By investing in patients' experiences, clinics could achieve better results in infertility treatment (Omu & Omu 2010). Cunningham & Cunningham (2013) demonstrated how

clients were pressured from families and friends on having children. Even though infertility clinic clients might be pregnant, they are still having the feeling of not being complete, clients felt trapped between the feeling of uncertainty. Cunningham & Cunningham (2013) suggested the need for a better version of infertility care model, which should consider the socio-cultural aspect of infertility treatment.

Emotional support must be considered during the whole fertility treatment, the study by Omu & Omu (2010) clients have noticed that the focus is on the result, which is getting pregnant. Clients want support, empathies, understanding during the whole treatment and even the result is negative. Clients pointed that if the journey is pleasant, the destination would not be so depressing.

7 DISCUSSION

Nurses' work is usually divided between somatic and psychological care, but fertility nurses sit in the middle of both. When the somatic care emotional support is on basic level (Thomas et al. 2018), fertility nurses must be prepared to deal with strong emotional reactions, which can lead to various cycles of psychological troubles related to sex, diminishing progesterone frequency and the chance of having children (Omu & Omu 2010). Many studies had yielded satisfactory results on somatic part of infertility care (Johnson & al. 2018; Omu & Omu 2010; Obeisat, & al. 2012), emotional support was still considered as one of the weakness in fertility care (Van Empel, Nelen, Tepe, Van Laarhoven, Verhaak, Kremer 2010). Obeisat et al. (2012) showed that although becoming fertile was the goal for the interviewed women, knowing that they are infertile, made them feel socially and mentally unstable.

Many studies have proven the need of emotional support in infertility treatment, fertility nurses provide emotional support, Omu & Omu (2010) exposes the need for better emotional support of infertile clients. Nurses working in infertility clinics need continuous schooling to better support their clients. Omu & Omu (2010) go even further by suggesting the need to have a branch in nursing education that will focus on psychological support, thus helping nurses to offer better care.

Articles studied in this thesis showed high satisfaction on the clients' point of view concerning the basic infertility nursing, this concurred with Shandley et al. (2020) study on patients-centred care. According to clients in perioperative unit, clients-centred care is composed of involving clients in the decision-making process, respected clients as who they are, at least one of their wishes has been fulfilled, and nurses' touch made them feel safe (Arakelian et al. 2017), but fertility nurses play a pivotal role, they connect all units of infertility treatment, and they need to be present and ready to support, be understanding of the situation, ready to calm the patient in the time of panicking, being fast joinable, comfort in case of unsuccessful result, rejoice when the baby is born (Johnson & al. 2018). Johnson & al.'s research (2018) reveals the importance of telenursing in infertility nursing

first by showing what role nurses play in infertility clinics and then how clients in infertility clinics value support and good communication throughout the process. The cost of infertility treatment can increase clients' stress and impact negatively on clients' treatment, this research has shown that a fast and reliable communication model helped clients to keep the stress level manageable, thus good treatment resulting from good communication skills. Johnson & al. research did not investigate enough about the model for nurses to manage their own stress.

Infertility nursing interventions should be treated from the point of holistic nursing care rather than focusing mainly on the medical aspect as seen in many treatment plans in hospitals, most clients have unidentifiable infertility challenges which can be treated through holistic nursing interventions. Nurses should be trained to identify clients' experiencing distress during treatments regarding infertility, therapeutic nursing interventions such as counselling, mental health support, psychological should be applied as a part of care plans for clients at different levels of their fertility treatment (Omu & Omu 2010).

Although Jordanians focused on the women within their country experiencing infertility, they consider that it is worldwide health issue with not only women but men too according to the world health organization. Informational facts including emotional and physical complications within both male and female. Cultural boundaries and statements of Islamic law that couples should be married before adopting children therefore they highly recommend the technology and education of infertility treatments and guidance. The costs are quite high for infertility treatments so many Jordanians do struggle financially due to health insurance only covering the guidance counselling and not the actual treatment. (Obeisat, Gharaibeh, Oweis, & Gharaibeh 2012.)

8 CONCLUSION

To conclude, patients' perspective on nursing care is not well researched, even though nurses are the core of infertility treatment. To have a balanced outcome, researchers should not only focus on how the patient perceived the nursing intervention, but also on the giving intervention, how it affects nurses in general. Nurses play a major role in infertility management, the 4 articles presented in this thesis showed that the nurses supported their clients in various appointments emotionally, mentally, and medically. In this thesis, clients' perspective shows that nurses played an important role during their treatment effectively and the role of the nurse significantly improved the treatment.

Infertile patient experiences were based on their geographical, ethnicity, age, long waiting appointment time, lack of emotional support, religious, financial situations. Patients are often stressed and unsatisfied with the healthcare teams when they are unable to meet the financial requirements for different diagnosis or treatment, also poor relationship between health caregivers and fertility patients. Psychological well-being is important in fertilization treatment, due to overcoming stress or discomfort during treatment or diagnosis, health care providers at fertility clinics are to also consider the psychological needs of the clients.

For future purposes and for the benefit of improving the role of nurse in caring for infertile clients, it's highly recommended that clients' perspective on nursing interventions should be further studied in a broader way. For instance, how clients feel emotionally supported? What are the ways to achieve better emotional support? And there is a need to improve measurement tools for better patient-centred care.

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APPENDICES

Appendix 1. search table

Date	Database	Search keywords	Filters	Results	Evaluate
22-oct-20	Pubmed	Infertility clients nursing interventions	<i>Scholarly Journals; Date: 2010-2020 Language: English. Full text, references available, abstract available, English as a language</i>	233	4
22-oct-20	CINAHL	Infertility clients nursing interventions	<i>Scholarly (Peer Reviewed) Journals; Date: 2010-2020 Language: English. Full text, references available, abstract available, English as a language</i>	10	All duplicated from Pubmed search.

Appendix 2. articles analyse

Author, year & country	Purpose	Design & Tools	Sample size & Characteristics	Quality & appraisal Criteria	Main findings/ results
1. Nicola Cunningham, Tom Cunningham. 2013. UK	To consider the effectiveness of current models of patient-centred infertility	The study has a qualitative research design.	Nine women living with and through infertility participated in online life-story interviews.	(Y) Aims and objectives clearly described (Y) Study design adequately described (Y) Research methods appropriate (Y) Explicit theoretical framework (np) Limitations presented	Women in this study found themselves lost in transition and irrespective of treatment failure or success.
2. Salwa Obeisat, Muntaha K. Gharaibeh, Arwa Oweis, Huda Gharaibeh. 2012. Jordania	To describe and interpret the experiences of and adversities faced by infertile Jordanian women as described from their own perspectives.	A qualitative descriptive design	This study included a purposive sample of 25 infertile Jordanian women who were unsuccessfully trying to conceive for a minimum of 1 year, and who were receiving	Y) Aims and objectives clearly described (Y) Study design adequately described (Y) Research methods appropriate (Y) Explicit theoretical framework	Four key adversity themes emerged from the data: the adversity of incomplete being, the social adversity of being infertile, the adversity of another wife, and the

			treatment for infertility.	(np)Limitations presented	adversity of changes in the marital relationship.
3. Bethany Johnson, Margaret M Quinlan, Jaclyn S Marsh 2018 USA	Uncovered the importance of telenursing for nurse-patient communication during Reproductive endocrinology and Infertility practices.	Qualitative research	23 interviews. Participants have received treatment within 12 months to 3 years. Spoke fluent English.	(Y) Aims and objectives clearly described (Y) Study design adequately described (Y)Research methods appropriate (Y)Explicit theoretical framework (np)Limitations presented	As conclusion, telenursing is important to offer holistic nursing care during treatment at REI practices.
4. Florence E Omu and Alexander E Omu	The aims of the study are twofold: first to evaluate the	Quantitative and qualitative methods	Demographic characteristics of the main Sample	(Y) Aims and objectives clearly described	This study illuminates the emotional reactions of

Kuwait 2010	emotional reactions of couples attending a combined infertility clinic in Kuwait second to fill the knowledge gap by examining the perception of successfully treatment		Most of the women, 249 (92.9%) were between <19-39 years old.	(Y) Study design adequately described (Y) Research methods appropriate (Y) Explicit theoretical framework (Y) Limitations presented (Y) Implications discussed	infertile clients. Fertility nurses in Kuwait can provide emotional support through communication. The need for additional and continuous training for nurses employed in fertility settings
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