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A Study to Assess Effectiveness of Nurse Lead Program for Implementation Of Invitro Fertilization Treatment & Related Coping Strategies Among Infertile Women at Akanksha Hospital Anand, Gujarat

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[*1]Desh bhagat University , mandi gobindgarh, “Courage doesn’t always roar. Sometimes courage is the little voice at the end of the day that says, ‘I’ll try again tomorrow.’” — Mary Anne Radmacher

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ABSTRACT

This study evaluates the effectiveness of a nurse-led program in enhancing knowledge and promoting coping strategies among infertile women undergoing In-Vitro Fertilization (IVF) treatment at Akanksha Hospital in Anand, Gujarat. Using a pre-experimental research design, 444 infertile women were selected through convenient sampling. The study assessed participants' knowledge of infertility, treatments, and psychological reactions, as well as the efficacy of a nurse-led training program aimed at improving understanding and coping mechanisms. The findings revealed that while respondents had a good understanding of IVF complications and treatment modalities, there were gaps in knowledge regarding the primary causes of infertility. The study also highlighted the importance of individualized mental health support, given the variety of coping strategies employed by respondents. The nurse-led program received positive feedback, with 86.7% of respondents indicating that it adequately addressed their needs. The study concludes that managing infertility requires comprehensive knowledge, psychological support, and specialized educational programs. The results underscore the value of targeted educational initiatives and nurse-led programs in raising awareness and providing support to infertile women.

Keywords: *Infertility, Knowledge, Coping Mechanisms, Nurse-Led Program, IVF, IUI, Lifestyle Factors.*

1. INTRODUCTION

Numerous families experience effects from infertility on their intra-marital relationship, finances, and social relationships. Most importantly, though, is how it impacts the infertile woman's or couple's mental well-being. Our society stigmatizes infertility. Two consequences of infertility are social isolation and a negative self-perception, according to Inhorn MC's study. Infertility is the state of not being able to conceive successfully or of the pregnancy ending prematurely. Among couples old enough to bear children, infertility affects one-fifth to one-sixth of them. While an individual's life is not in danger or their physical integrity is compromised, infertility negatively affects their social and psychological well-being.[1]

Research by Kristin L. Rooney suggests a link between stress and infertility. Couples that experience unpleasant emotions may suffer from a variety of negative outcomes, including hopelessness, a low quality of life, suffering, and anxiety. Recipients of Assisted Reproductive Treatment (ART) are more likely to suffer from mental healthproblems than other patients. Almost 80 million couples worldwide suffer from infertility, and the number is rising. 186 million women worldwide (excluding China) were infertile, according to a 2002 World Health Organization (WHO) study. In certain cultures, infertility is not only a medical condition but also a social and emotional one that can occasionally result in divorce.[2]

Mangalyatan S reveals In society, infertility is viewed as a serious social issue. Impotence affected the lives of 186 million individuals and 48 million couples globally. According to the results of the most recent census, initial or subordinate infertility affects one in ten married pairs. If a married couple is in good health and has a regular sexual life but has not conceived for a year, they are considered to have primary infertility. When a woman who has previously given birth is unable to conceive again within a year of her first successful pregnancy, the condition is known as secondaryinfertility. There are many causes of infertility, but a few main ones become apparent when looking at the male reproductive system. There are many variables that can lead to infertility.[3]

Mangalyatan S suggested Infertility as primarily cause by a combination of male and female factors, including endometriosis, tubal disorders, cervical disorders, and other unknown causes.10-30% of the causes had to do with ovulation, 15% had to do with tubal disorders; 20–30% had to do with male disorders, 15% had to do with cervical

diseases, 5-25% had to do with endometriosis, and 15–30% were unexplained and connected to physical factors like stress, chemical exposure, and nutritional imbalances. Growing rates of infertility are causing the average age of motherhood in developing nations to rise. Endometriosis, one of the most prevalent illnesses in women and a major contributor to infertility, is thought to be the cause. The quality and effectiveness of a woman's ovulation decrease with age. Fallopian tube obstruction is the most common kind of dual condition in women. It can be caused by sexually transmitted infections that are spread without clothing, complications from unsafe abortions, sepsis following childbirth, and abdominal or pelvic surgery. Urinary disease: This category comprises fibroid disorders, inflammatory conditions of the urinary tract, and congenital disorders such as separate uteruses. Fallopian disease and polycystic ovarian disease are two otherovarian disorders. Endocrine disorders are primarily caused by hormonal imbalance. Pituitary and hypothalamic glands are a constituent of the endocrine system. The prevalent ailment that is primarily impacting the endocrine system includes pituitary gland cancers and pituitary hormone deficits.[3]

WHO In order to more effectively deal with the needs of those who are infertile measures must be undertaken to attain the Sustainable Development Goals. The report's estimates demonstrate the high prevalence of infertility both globally and regionally, and they can be used to support the creation of laws and procedures that will enable more people to have the number of children they want. The results also shed light on ways to enhance the estimation of infertility prevalence to produce more useful information, such as data that enables more insightful comparisons across time and context.[4]

Hull MG Reports indicate that between 10% and 15% of couples worldwide are infertile. South East Asia and Sub-Saharan Africa have the highest rates of infertility in the world. Every year, about 10-15% of all couples attempting to conceive fail and require significant medical assistance. Infertility is a serious issue in Uganda, where an estimated five million people suffer from it. [5]

Kudesia R suggested in his study about Developing countries are residence for 34 million of the 40 million couples who are actively seeking infertility treatment. Childlessness in these circumstances has serious social, emotional, and health repercussions. Data from multiple studies have shown that infertile women experience higher rates of psychological distress, including anxiety and depression, given that having a live birth is an existential concern. Nevertheless, infertility remains a neglected and understudied topic in the developing world. [6]

Overall, women's lives are significantly impacted in all aspects when compared to men's. Prevention is always preferable to treatment for any health issue. Therefore, among the many causes of infertility, the most preventable one is sexually transmitted infection. It's important to choose contraceptive methods carefully because doing so can also result in infertility.

1.2 Need ofthe study:

Bakhtiyar A estimated as 12–18 million married couples in India are infertile, according to statistics provided by the All-India Institute of Medical Sciences. Based on their report, which was prepared on January 14, 2019, the average person's male sperm count was 60 million/ml approximately thirty years ago, but surprisingly, it has now dropped to 20 million/ml. The National Family Health Survey report indicates that women over 40 are unable to conceive, and that age is currently regarded as a major cause of infertility in India. Fertility problems have a variety of causes. The statistics show that 35–40% of the reasons for infertility are linked to male health conditions, 35–40% was related to female health conditions, and the remaining causes depend on factors that are unknown. [7]

To fill this knowledge gap, Society forces infertile couples to deal with feelings of disappointment, rejection, and other coping mechanisms as a result of their inability to conceive. A woman experiences a range of psychological distresses, including a lack of control over her body, feeling like an outsider, an unfulfilled maternal instinct, loneliness stemming from an unfulfilled emotional role in her childrearing, an unfulfilled social role, low self-esteem, and lack of social security in old age. Throughout my interactions and clinical postings. Sadly, a large number of infertile couples in our society could benefit from counseling to enhance their mental well-being and keep an eye on the mother's reproductive health.

1.3 Problem statement

A study to Assess Effectiveness of Nurse Lead Program of In- Vitro fertilization treatment & coping strategies among Infertile women at Akanksha Hospital, Anand, Gujarat.

1.4 Objectives

1. To assess level of knowledge about IVF treatment among infertile women.

2. To measure Coping Strategies regarding IVF Treatment among infertile women.

3. To assess effectiveness of Nurse Lead program for coping strategies & implementation of treatment. 4. To determine association of socio demographic variables with knowledge among infertile women.

1.5 Operational definitions:

• Effectiveness: It refers to the enhancement of knowledge score after giving the nurse led program on knowledge and coping

strategies among Infertile mothers

• Nurse Lead Program: It is an Education program which is organized and done by researcher to impart knowledge and provide care to infertile mothers to cope from disease condition.

• IVF Treatment: A complex series of procedures used to help with fertility or prevent genetic problems and assist with the conception of a child.

• Infertile women: It refers to those women who are trying to get pregnant with frequent, unprotected sex for at least a year with no success at their Reproductive age group of 18-45 years.

• Coping strategies: It refers to the specific efforts, both behavioral and psychological, that infertile women require to cope from her stress related to infertility.

1.6 Assumptions:

• Women who were infertile may have poor knowledge regarding implementation of IVF.

• Women who were infertile may have poor coping strategies regarding IVF Treatment.

1.7 Hypothesis:

H1: There would be a significant effect of Nurse led program on implementation of IVF treatment among infertile women.

H2: There would be a significant effect of Nurse led program on coping strategies among infertile women.

1.8 Delimitations:

• The study was limited to infertile women undergoing IVF treatment.

• The study was confined to infertile women who experience stress and have trouble coping.

• The study was merely conducted at Akanksha Hospital Anand, Gujarat.

1.9 Conceptual Framework:

The way phenomena are arranged and the concepts that are gathered based on their applicability to the theme are handled by conceptual models, also known as conceptual frameworks. A conceptual framework serves as the backdrop or basis for a study and clarifies the connections between concepts.A theoretical method for studying scientifically grounded problems that stresses concept selection and clarification is called a conceptual framework. Functionalrelationships between events are stated in a conceptual framework, which is not restricted to statistical relationships. Wood and Haber, (2005).

This study is intended to assess and compare the knowledge and expressed attitude of married women regarding IVF services & Coping Strategies in selected infertile mothers.

The Health Promotion Model by Nola Pender was modified to serve as the conceptual framework for this study. Pender first presented the health promotion model in 1982 and updated it later. A positive, dynamic state of well-being in addition to the absence of disease was described as health by Pender (1996).The model shows the various ways that people interact with their environment to keep themselves healthy. Pender (1996) proposed three central concepts of this model: individual traits and experiences, behavior-specific affect and cognitions, and behavioral outcomes.

Diagram conceptual framework

Key used: variable under study ( ) Variable not under study ( ) ⇢

FIGURE 1: CONCEPTUAL FRAMWORK BASED ON MODIFIED PENDER'S HEALTH PROMOTION MODEL

2. REVIEW OF LITERATURE

A review of literature is a thorough summary of prior study on subject. According tothe University of Toronto, 2001, "A literature review is an account on what is alreadyprepared or published by qualified scientists on a particular research topic. A thoroughreview of books, journals, audiovisual materials, and global nursing indices forms thebasis of the literature review. It offers books for upcoming research and argues for theimportance of studying scientific information in a field of study so that relevant anduseful theories can be created. The following headings were used to arrange theliterature review for this study.

2.1 Section wise classification of Review of literature

2.1.1 Literature review related to Infertility

2.1.2 Literature review related to IVF Treatment

2.1.3 Literature review related to coping strategies for IVF.

2.1.1 Literature review related to Infertility:

Yashaswini parunandi 2024 A retro-prospective observational study was carried out at a Laxmi Narasimha hospital in Hanamkonda, Warangal district, over the course of six months, from July 2023 to December 2023, with 383 participants. The study included females aged 18 to 55, females with primary and secondary infertility, females with PCOD, thyroid

disorders, ovarian cysts, uterine fibroids, endometriosis, uterine abnormalities, and hormonal imbalance. According to our findings, PCOD is the leading cause of infertility in both primary and secondary infertility in females, with a higher prevalence of infertility in the 21–30 age group. Sixth of the patients had ovarian cysts, which can prevent the ovary from releasing an egg and cause hormonal imbalances that impact ovulation.[8]

Sampurna Kundu (2023) NFHS-1 was carried out in 1992–1993, NFHS-2 in 1998– 1999, NFHS-3 in 2005–2006, and the most recent round, NFHS-4 in 2015–16, was carried out in India. In this study, secondary data from all four rounds were used. Determining the overalltrend of infertility over time was the main objective of the four cycles. An extensive, multi-round survey, the NFHS is conducted in a representative sample of Indian households. Providing essential information on family welfare and health, as well as updates on new developments in these areas, is the primary objective of the NFHS. Important estimates of the rates of HIV infection, anemia, hypertension, starvation, and elevated blood sugar. [9]

On the Basics of Public Health Protection," Article 55 reveals public health system's inclusion of in vitro fertilization (IVF)-based assisted reproductive technologies (ART) allows anyone to become a parent, regardless of age, health, having a partner, etc. ART has evolved from a treatment approach to a means of addressing social and economic issues. Infertility is still a problem today, with many aspects that need to be resolved, according to research done by the World Health Organization and international professional communities in the early 2020s. Analysis of the impact of infertility treatments on Russia's yearly birth rate is the aim of the study. Effective instruments of the prenatal fertility policy include the detection of reproductive disorders and the growth of assisted reproduction initiatives. surrogacy programs by Law No. 323-FZ the partial donation is when embryo is made using donor eggs (oocytes) with the genetic father's germ cells or the couple's own oocytes with the donor germ cells, rather than their own eggs and sperm cells. [10]

Practice Committee of American Society of Reproductive Medicine. 2020 A precise definition of infertility is crucial. Infertility can be classified into two categories: primary infertility and secondary infertility. There exist distinct etiological factors that contribute to infertility. However, one of the main problems is secondary infertility. When a woman miscarries and is unable to carry the pregnancy to term. Thus, this is another reason for infertility. Infertility rates will drop automatically as we lower the miscarriage rate. The most crucial thing in treating this condition is determining its cause.[11]

2.1.2 literature Review related to IVF Treatment :

From January 2015 to November 2020, researchers looked through the PubMed and Cochrane databases for English-language research on the causes, symptoms, and treatments of infertility. This included randomized clinical trials (RCTs), meta-analyses, and systematic observational studies and reviews. 71 publications were found using these criteria, comprising 6 practice guidelines, 29 meta-analyses, 31 systematic reviews, and 5 clinical trials were observed. Infertility Treatment Program Commonly used infertility treatments include ovarian stimulation, which is done to induce multiple mature ovarian follicles, and ovulation induction, which is the use of pharmaceutical treatments to induce ovulation. Fertilization at the time of ovulation can be accomplished by intrauterine insemination (IUI) or timed intercourse. An ultrasoundguided needle (IVF) can also be used to remove mature oocytes straight from the ovary for fertilization. [12]

Between 25% and 40% of infertile women have endometriosis, which is defined as the presence of endometrial tissue outside the uterine cavity. Tubal patency, oocyte quality, and oocyte retrieval by tubal fimbria can all be hampered by anatomic distortions such as adhesions obstructing the fallopian tubes or compromising tubal patency, or ovarianmasses (such as endometriosis) that develop between the tube and the site of ovulation. Regarding whether endometriosis can impact endometrial receptivity, there is conflicting data. Even though laparoscopic surgery for endometriosis increases the likelihood of spontaneous pregnancies, it is not advised for women without endometriosis symptoms as part of a standard fertility assessment. [13]

Cervical and Uterine Elements Adverse pregnancy outcomes, including miscarriage and preterm birth, are linked to abnormalities of the uterine cavity and are not exclusive to infertile women. Leiomyomas, intrauterine synechiae, endometrial polyps, and congenital uterine malformations like septate uterus are among the factors that cause the uterine cavity to distort. HSG in the detection of polyps or leiomyomas, with sensitivity and specificity of 91% and 84%, respectively.[14]

Male factor In men with obstructive azoospermia, the finding of congenital bilateral absence of the vas deferens should prompt for a mutation in the cystic fibrosis transmembrane conductance regulator, the protein absent in patients with cystic fibrosis. The most common cause of non obstructive azoospermia is primary testicular failure. [15]

Mariyam Ghorbani 2020 claims that 488 patients from 28 French infertility clinics participated in the observational study, which examined the impact of patient-physician communication. In order to gather information on communication quality, patient knowledge, comprehension of treatment instructions, and adherence to treatment protocol, questionnaires were given out before treatment initiation (V1) and at oocyte retrieval (V2). Understanding possible side effects of the treatment, scoring an average of 71% on a 0– 100% rating scale. Variations amongst the patient's reports and the physician found that 20.5% of patients (n = 79/386) had treatment gaps, most frequently because of uncertainty regarding the gonadotropin dosage and units. In roughly onethird of cases, self-injection anxiety and low self-confidence in one's ability to perform the procedure correctly were evident. [16]

2.1.3 literature review related to coping strategies for IVF

Florentina Larisa 2023 used a multi-dimensional model of infertility-related stress to examine psychological distress and coping mechanisms among infertile women during the COVID-19 pandemic. She also looked at the relationships between individual factors—such as age—and situational factors related to infertility. A total of 193 women, ages 20 to 46, made up the sample; 102 of them were receiving ART treatments, while the remaining 91 were not. Participants completed questionnaires on the value of motherhood, coping mechanisms, and psychological distress. Analysis revealed a positive correlation between psychological distress and negative coping mechanisms and the value of motherhood. The relationship between the significance of motherhood and psychological distress was completely mediated by the negative selfperception. We discovered a significant mediation effect of denial in the non-ART sample on the relationship between psychological distress and the value of motherhood. [17]

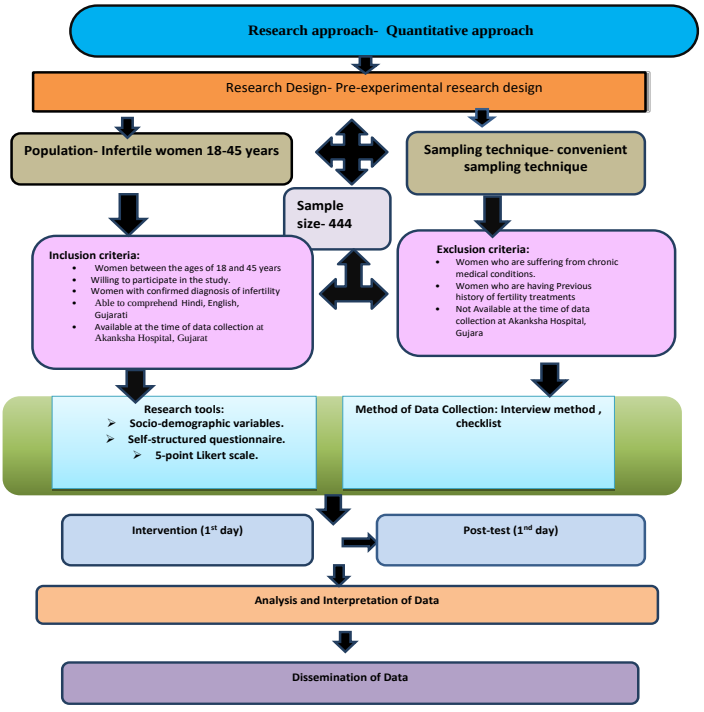
The psychological assessment score in infertility should be evaluated, according to Sayed Abolfazal's 2022 study. A random-effect model was used to gather the data in order to calculate the standard mean difference (SMD) for the analyses of the strength of associations. The most widely used ones, considering the psychological problems that infertile people encounter, are the State-Trait Anxiety Inventory Form (STAI), the Brief Symptom Inventory (BSI), the Symptom Checklist 90 (SCL90), and the Depression Anxiety Stress Scale (DASS). A non-significantly higher DASS score was also revealed by the data, along with a significantly higher SCL90 score It is imperative to find methods for helping infertile individuals get past psychological problems associated with their infertility. [18]

Halkola, Suvi-Tuvi,2022 disclosed in her research, where he obtained the data from Facebook using a qualitative purposeful sampling technique, An electronic questionnaire contained structured background questions as well as a qualitative openended question about coping mechanisms. A total of 101 women volunteered to take part in the study. Each of the participants had gone through at least a year of infertility. Inductive content analysis was used to examine the data. Results: Infertile women were able to cope because of personal qualities like mental health and problem-solving abilities. Coping also came from asking for help and maintaining positive relationships. Additionally, adaptability helped with coping. [19]

Johanna Czamanski 2018 tested CBI in 50 women undergoing IVF in a randomized controlled trial (NCT00685282). She discovered that CBI was linked to reductions in active-confrontive coping in more than half of the participants, and that this was also positively correlated with depressive symptoms. According to recent research, adaptive coping involves a high degree of flexibility in selecting the coping strategy that is best suited for a particular circumstance (Folkman, 2008). In Japan, improved psychological health and a reduction in depressive symptoms were linked to flexible coping. The limitations of the current study must be taken into account when evaluating the results. Because of the small sample size and brief time span (one IVF cycle), it is more difficult for us to draw conclusions about the causal relationship between the intervention's impact and changes in IVF Treatment. [20]

3. RESEARCH METHODOLOGY

FigureNo:2 Schematic Presentation of Research Methodology



4. DATA ANALYSIS AND INTERPRETATION

Analysis and interpretation impart meaning to collected information by comparing them with the existing information. According to C. William Emory, interpretation has two major aspects namely establishing continuity in research through linking the results of a given study with those of another and the establishment of some relationship with the collected data. In the present study, both descriptive and inferential statistics has been used to organize, interpret, and communicate numeric information. Descriptive statistics have been use to describe and synthesize data. Frequency and percentage distribution have been used to estimate parameters inferential statistics have been used to make inferences about the population. Chi square test is used to find association between Variables

4.1 OBJECTIVES OF THE STUDY

1. To assess level of knowledge about IVF treatment among infertile women.

2. To measure Coping Strategies regarding IVF Treatment among infertile women.

3. To assess effectiveness of Nurse Lead program for coping strategies & implementation of treatment.

4. To determine association of socio demographic variables with knowledge among infertile women.

In current study data analysis is described in 2 sections.

Section A: Frequency and percentage distribution of socio demographic profile of the patient.

Section B: Assessment of level of knowledge among infertile women

To measure Coping Strategy among infertile women.

To study the association between level of knowledge with Socio demographic variables.

Section A :This section describes the demographic characteristics of the sample under study. The data obtained describes the characteristics

Table 4.1 represents frequency and percentage distribution of socio demographic variables.

Demographic Variables		Percentage(%)	Frequency(f)
Age in actual years	33-37 years	100%	444
Education	Secondary upto 12th class	75%	288
	College education and above	35%	156
Occupation	Unemployed	89%	398
	Government employed	10%	46
Income	15,000-20,000	36%	160
	More than 25,000	64%	284
Type of family	Nuclear family	42%	186
	Joint family	49%	219
	Extended Family	9%	39
Religion	Hindu	11%	49
	Muslim	35%	156
	Others	54%	239

Residing area	Semi rural	100%	444
Sources of information regarding Infertility	Mass media	64%	284
	From parents/relatives	36%	160

Table 4.1 shows the distribution of socio demographic characteristics of a sample , including age, education, occupation, income, family type, religion, place of residence, and sources of infertility-related information. For those aged 33 to 37 the age range of the entire sample (100%, n=444) is 33–37 years old. Learning Seventy-five percent (n=288) of the sample has completed secondary school or less. 35% of the sample (n=156) have completed college or higher education. Employment Unemployed: Of the sample, 89% (n=398) are unemployed. Government employees: The government employs just 10% of people (n=46). Earnings between 15,000 and 20,000: This is the range of monthly income for 36% (n=160). Over 25,000: 64% (n=284) make over 25,000 per month. Family Type 42% (n=186) of the population are members of a nuclear family. Joint family: 49% (n=219) are members of a joint family. Extended family: 39 people, or 9% of the population, are part of an extended family. Faith Hindu: 11 percent (n=49) say they are Hindu. Muslim: 35% of respondents (n=156) say they are Muslim. Others: 239 people, or 54%, are members of other religious groups. Area of Residence Semi-rural Of the sample, 100% (n=444) live in semi-rural areas. This homogeneity implies that the sample is concentrated on people from semi-rural areas, who may have comparable experiences influenced by socioeconomic and cultural factors. Information Sources About Infertility Mass media: 64% (n=284) of respondents get their information about infertility from the media, such as radio, television, and internet sources. 36% (n=160) of respondents get their information from their parents or other family members. This demographic profile could be useful in understanding the socio-economic context of infertility awareness, educational needs, and information dissemination.

Objectives of the study:-To assess Level of knowledge among infertile mother

Table 4.2.1 represents level of knowledge among infertile women

Section B

Objectives of the study:-To assess Level of knowledge among infertile mothers

Sr no	**Question**	**adequate(%)**	**adequate (f)**
	Whatisinfertility?	90.1%	400
	Whichdiseasepreventyoutobecomepregnant?	82.6%	367
	whichagegroupinyouropinionisimpacted most with infertility ?	96.6%	428
	ifawomanover 35isdeemed infertile after ------- ofattemptingtoconceive?	85.3%	378
	Whatisthemaincauseofinfertility?	35.9%	160
	Whatallarethemeasurestobekept in mind for preventing infertility?	84.0%	373
	Whichamongthemisnotthe warning signs of infertility ?	93.7%	416
	What arethepotentialcausesof infertility being your test results are normal?	100.0%	443
	Treatmentmethodsforinfertility include?	91.4%	406

	Which among these should be avoidedwhentryingtogetpregnant?	99.8%	442
	Whichfoodsitemswillyoupreferto consume for maintaining fertility health?	91.2%	405
	Whichinfertilitytreatmenthasthe best rate of success?	94.4%	5.6%
	WhatarethecomplicationstoIVF?	91.9%	8.1%
	Inatreatmentplan,how many IUIs(intrauterineinsemination plus ovarian stimulation) are considered sufficient	94.4%	5.6%

Table 4.2 Provides summary of survey findings about participants' awareness and understanding of infertility, its causes, warning signs, available treatments, and related concepts. A high degree of comprehension of infertility is demonstrated by the fact that the majority of respondents (90.1%) accurately define the condition. The majority of those surveyed (82.6%) could name illnesses that could prevent pregnancy. 96.6% of respondents accurately identified the age group most affected by infertility, demonstrating a high level of understanding regarding the demographic aspects of infertility. While a sizable percentage of respondents (85.3%) were aware of the typical one-year period that characterizes infertility in women over 35, only 35.9% were able to accurately identify the primary cause of infertility. This implies that our knowledge of the underlying causes of infertility is lacking are of infertility prevention strategies.

The majority of respondents (93.7%) showed that they were aware of the warning signs of infertility and could distinguish between them. All respondents accurately identified potential causes of infertility despite normal test results, resulting in a perfect response rate of 100% to this question. A sizable portion of respondents (91.4%) knew about the various infertility treatment options. When attempting to conceive, nearly all respondents (99.8%) correctly identified harmful practices that should be avoided. 91.2 percent of respondents correctly identified foods that promote fertility health.

The majority of participants (94.4%) possessed knowledge regarding the most effective methods for treating infertility. Ninety-one percent of those surveyed knew about the possible risks of IVF. The majority of those surveyed (94.4%) knew about the effectiveness of treatment plan

Table 4.2.1Descriptive statistics of knowledge

DESCRIPTIVE STATISTICS	Mean	Median	S.D.	Maximum	Minimum	Range	Mean %
KNOWLEDGE SCORE	12.31	13	1.26	14	7	7	87.94

Table 4.2.1suggests with an average score of 12.31 out of 14, or an 87.94% success rate, the group did well overall, according to the Knowledge Score data. The median score was 13, which is marginally higher than the mean, and the majority of participants scored close to the higher end of the scale. This implies a positive skew, with fewer participants receiving low scores and more receiving high scores.

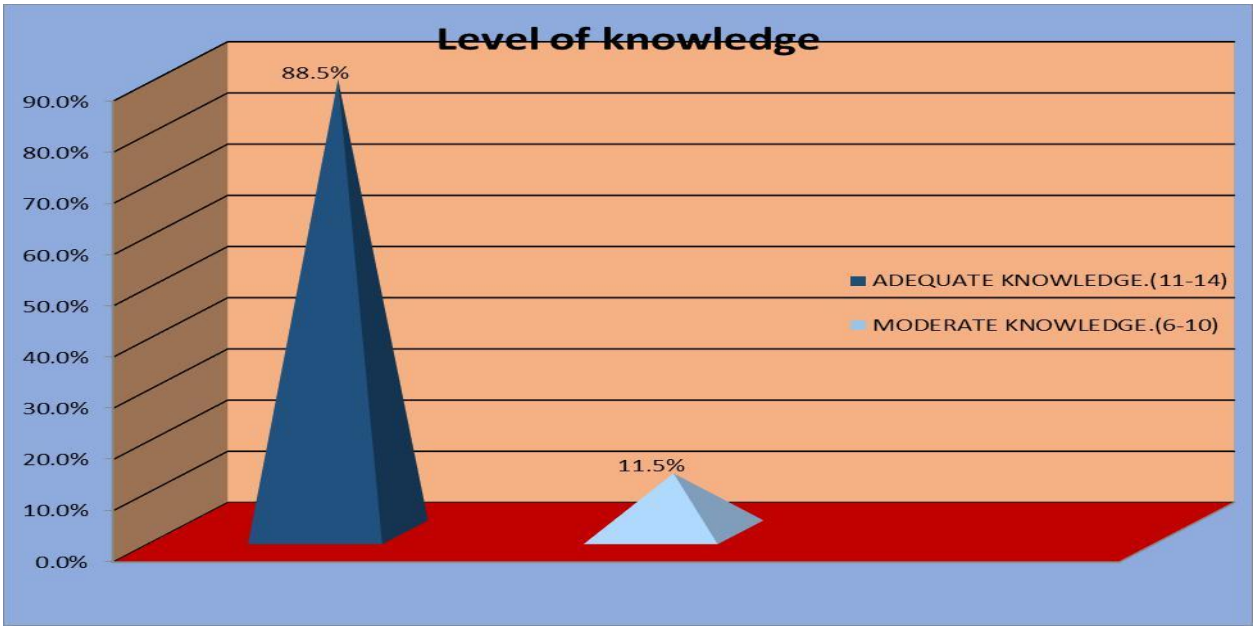


Figure 4.9 Pyramidal diagram represents level of knowledge among infertile women

Section B

Objective of the study: To measure coping strategy regarding IVF Treatment among infertile women

Table 4.2 represents level of coping strategy among infertile women

Variables	Options	Mean	SD	N	
Age in actual years	33-37 years	21.8	1.58	444	
Education	Secondary upto 12th class	21.8	1.58	288	
	College education and above	21.9	1.65	156	
Occupation	Unemployed	21.8	1.57	395	
	Government employed	21.9	1.65	46	
	Self employed	23.5	0.71	2	
Family income	15,000-20,000	21.8	1.56	160	
	More than 25,000	21.8	1.58	284	
Type of family	Nuclear family	21.8	1.50	186	
	Joint family	21.8	1.66	218	
	Extended Family	22.1	1.53	39	
Religion	Hindu	21.9	1.58	49	
	Muslim	21.9	1.64	156	
	Others	21.7	1.54	238	
Residing area	Semi rural	21.8	1.58	443	

Sources of information regarding Infertility	Mass media	21.9	1.59	284	
	From parents/relatives	21.7	1.57	159	

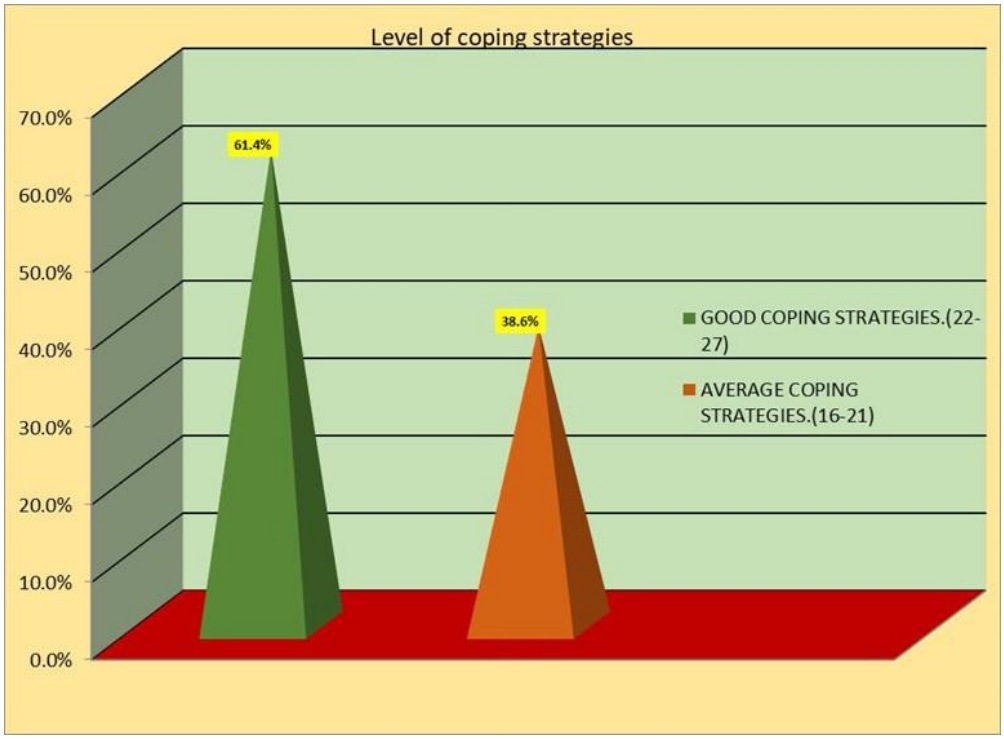
Table 4.2 Suggests for those in the 33–37 age range total score of sample is 444,where mean score is 21.8, SD = 1.58, for secondary education up to the 12th grade total score is 288where mean score is 21.8, SD is 1.58 Having a college degree or higher Occupation Unemployed the Mean score is 21.9, and SD = 1.65where total score of sample is 156 & 396 respectively, mean score is 21.8,& SD is 1.57, for Government-employed total score is 46, mean score is 21.9 & SD is 1.65 similarly for Self-employed score is 2, mean score is 23.5, SD is 0.71 for Family income in the range of 15,000 to 20,000 score is 160, mean score is 21.8, SD is 1.56, Over 25,000 for the Nuclear Family Type, the mean score was 21.8, the standard deviation was 1.58, and N was 284. Total score is 186, for Hindus score is 50, mean score is 21.9, SD is 1.58, total number is 156, for Muslim religion Mean score is 21.9, SD is 1.64 for semi-rural residential area is 21.7, SD is 1.54, total score is 444, mean score is 21.8, SD is 1.58 for the media total score is 284, mean score is 21.9, SD is 1.59 From relatives or parents total score is 160, mean score is 21.7, SD is 1.57.and mean score is 21.8, SD is 1.50, Joint family Extended family mean score is 21.8, SD is 1.66, N is 218 For religion,

TABLE 4.2.1.2

DESCRIPTIVE STATISTICS	Mean	Median	S.D.	Maximum	Minimum	Range
COPING STRATEGIES SCORE	21.84	22	1.58	26	18	8

With the median score of 22 being very close to the mean, indicating a balanced distribution of scores, the coping strategies scores are fairly consistent, with the majority of participants scoring near the mean of 21.84. The range of 8 points indicates that the scores are not widely spread out, and the relatively small standard deviation of 1.58 suggests that most people have similar levels of coping strategies.

Pyramidal diagram represents level of coping strategy scores of infertile women



Section B

Objective 3 : To determine association of socio-demographic variable with knowledge for IVF

TABLE 4.3represents association between knowledge scores with socio demographic variables

DEMOGRAPHIC DATA		LEVELS OF KNOWLEDGE (N=444)		ASSOCIATION WITH KNOWLEDGE SCORE			
Variables	**Option**	**ADEQUATE KNOWLE**	**MODERATE**	**Chi Test**	**P Value**	**Df**	**Result**
Age in actual years	33-37 years	392	51	N.A			
Education	Secondary up to 12th class	228	60	4.85	0.678	7	Not Significant
	College education and above	114	42				
Occupation	Unemployed	349	46	3.273	0.195	2	Not Significant
	Government employed	42	4				
	Self employed	1	1				
Family income	15,000-20,000	130	30	2.76	0.162	4	Not Significant
	More than 25,000	233	51				
Type of family	Nuclear family	163	23	1.139	0.566	2	Not Significant
	Joint family	196	22				
	Extended Family	33	6				
Religion	Hindu	41	8	1.363	0.506	2	Not Significant
	Muslim	140	16				
	Others	211	27				
Residing area	Semi rural	392	51	NA			
Sources of information regarding Infertility	Mass media	250	34	0.164	0.686	1	Not Significant
	From parents/relatives	142	17				

Table 4.3 Based on this dataset, shows there is no statistically significant correlation between any of the variables and the measured knowledge levels, with the possible exception of age. For the majority of demographic factors, statistical significance was not attained, despite certain trends (such as semi-rural residents having higher levels of knowledge).

5. DISCUSSION

This chapter deals with the findings of the present study entitled “A study to Assess Effectiveness of Nurse Lead Program for Implementation of In-Vitro fertilization treatment & related coping strategies among Infertile women at selected hospital Anand, Gujarat.”. Findings of the present study were discussed based on the previous study.

5.1 DISCUSSION

The findings of the study have been discussed in accordance with the objectives of study and previously reviewed literature.

5.2 OBJECTIVE 1:To assess knowledge on Implementation of IVF treatment among infertile mothers

Present study shows Over 90% of respondents showed adequate knowledge in multiple questions, indicating that most respondents exhibited high levels of knowledge in most areas. A significant knowledge gap exists regarding the primary cause of infertility: A significant percentage (64.1%) of respondents did not know the answer, while only 35.9% of respondents gave the right response. This suggests that there is a big need for awareness-raising and education. When asked, about the causes of infertility all respondents (100%) provided adequate answers. High levels of adequate knowledge were obtained regarding questions concerning IVF (intrauterine insemination) and infertility treatment methods. Additionally, a significant majority of respondents (91.2%) were aware of the foods that support fertility health, demonstrating awareness of fertility-related lifestyle choices. as per the data respondents' awareness of infertility is generally high, though some specific areas.

Andreotti et al. IVF is a psychologically and emotionally draining procedure. Before, during, and/or after IVF treatment, stress can take many forms. Chronic stressors include hopelessness and the potential for permanent infertility. Other sources of stress include the risk of an unplanned abortion and the actual treatment's danger. [21]

Omokanye et al According to the current study's findings, almost three-quarters of wives lack adequate knowledge about the IVF process, including the factors that increase the likelihood of success, necessary medications, post-procedure instructions, and complications. This result was consistent. [22]

A form of assisted reproductive technology called in vitro fertilization (IVF) is used to treat infertility. The study employed a descriptive research design. The study was carried out at the Ain Shams Maternity University Hospital's Assisted Reproductive Unit. A simple random sample of 98 couples was gathered, an interview questionnaire sheet was employed to gather information. The average age of the husbands in the study was 35.97 ± 5.47 years, while the average age of the wives in the study was 29.72 ± 4.14 years. The wives in infertile couples only have a satisfactory level of overall knowledge about the IVF process (12.8571±2.55767), whereas the husbands have a satisfactory level of overall knowledge about the IVF process (6.0408 ± 1.45715). [23]

Between March and August 2017, 205 women seeking fertility treatment at an assisted reproductive unit participated in a cross-sectional study. A fertility counselor used a structured questionnaire to interview the patients. After reviewing the prior research, a questionnaire was created based on our patient's socio demographic details and profile. The socioeconomic status was used to stratify knowledge and awareness. Concerns regarding their fertility were raised by the fact that many women (59%) were in their 20s to 30s. Most Indian women, regardless of their socioeconomic status, are ignorant of how age affects fertility. Young people should always receive fertility counseling and information from medical professionals. [24]

5.3 OBJECTIVE 2: To Measure Coping Strategies Regarding IVF Treatment among infertile mothers

For present study, majority (68.8%) are extremely afraid of their spouse or family leaving them, while 37% are only mildly afraid. When social events are challenging, the majority of people (62.1%) avoid them, and 37.9% avoid them to some degree. With 51.5% strongly and 48.1% somewhat unsure about accepting others' empathy and understanding, the data is distributed almost evenly. A higher percentage of respondents (57.3%) than those (42.7%) think that lifestyle modifications are not required. While 33.0% do so to some extent, the majority (66.8%) do not hold God or themselves responsible for their circumstances. While the majority (90.3%) believes that treatment strategies won't help them solve their problems, 9.7% of people partially believe that they are effective. The data reveals a wide variety of coping strategies employed by individuals, with particular attention to noteworthy tendencies toward psychological diversion, social disinterest, and mistrust of therapy-based and spiritual therapies.

Mahey R Regarding age, all respondents under 30 years old employed coping mechanisms in the self-control domain (100%) and were least likely to use acceptance responsibility (44.4%). Conversely, among respondents aged 30-39, escape avoidance was the most common coping strategy (97.5%), while acceptance responsibility was the least common coping strategy (43.8%). Positive reappraisal is the most commonly used coping strategy among women undergoing ART, according to this study. Educational attainment and the length of infertility predict the acceptance of responsibility and distancing strategies, respectively. Positive appraisal techniques are linked to age, while problem-solving techniques are linked to educational attainment. [25]

Kyei JM This qualitative study was carried out on 30 women's comments from two online forums between October and December 2020. Changes in social life, coping mechanisms, cognitive changes, and psychological changes were the four themes evaluated. Women said their lives had been negatively impacted by fertility clinic closures. They felt depressed, anxious, disappointed, angry, sad, and tired from waiting. It has been suggested that methods based on the model developed by Lazarus and Folkman could assist medical professionals in identifying possible stressors for infertile women during the pandemic and in recognizing areas which require better individual coping mechanisms. In present study for Good Coping Mechanisms (Score 22–27) this group comprises 61.4% of participants (272 out of 444), suggesting that most people use useful coping mechanisms. For Moderate Coping Techniques (Score 16–21). This suggests that none of the individuals had

any scores that would suggest using inefficient coping mechanisms. [26]

ArbagA cross-sectional study was conducted with 400 infertile couples who were enrolled at the Royan Institute in Tehran, Iran, between July and September 2014, were at least eighteen years old, and could read and write Persian. Husbands scored significantly higher on the self-control scale than wives did (P = 0.016). Wives also scored lower than their husbands on Confronted Coping and Distancing, but these differences were not statistically significant (P > 0.05). However, wives scored lower on Accepting Responsibility and Positive Reappraisal. The wives' escape avoidance and seeking social support mean scores were significantly higher (P = 0.022 and P = 0.037, respectively). [27]

MohommadiMPatients without a job and those with less education had lower problem-focused coping scores than those with a diploma and an employment, respectively, according to both adjusted and unadjusted analyses. Additionally, compared to diploma and under diploma, patients with over diplomas displayed less emotion-focused coping. These could be because there are more mental conflicts and a tendency toward emotion-focused coping rather than problem-focused coping when one is unemployed and less educated. While fertility treatments put financial strain on infertile patients, a person's job can have a direct impact on their socioeconomic status as an adult. As a result, coping mechanisms may be influenced by one's occupation and education. Chachamovich et al. revealed that a lower level of education can be a predictor of a lower quality of life, while Kristofferzon et al. showed that emotion-focused coping and quality of life are negatively correlated. [28]

5.4 OBJECTIVE 3: To assess Effectiveness of Nurse Lead program for coping strategies & implementation of treatment.

The current study's findings are If patients are unaware of the significance of an education program, it is deemed worthy, techniques and use of certain medical treatment for cure of any illness, because prevention is always better than cure in present study majority of participants, or 86.2% (382 out of 444), fall into the Good Nurse Led Program (Score 20–25) category, indicating that a significant number of program participants have positive opinions of the program .

Heba M mohommad Infertile women undergoing IVF showed improved knowledge, stress levels, and satisfaction as a result of the health education program. These results demonstrate how the program benefited the participants and stress the value of ongoing education about IVF to raise awareness, reduce stress, and boost patients' general satisfaction with the procedure. Additionally, to raise awareness of women undergoing IVF, we advise infertility clinics to provide educational materials like posters and guideline booklets. Additionally, additional research should be done to examine stress and satisfaction levels in order to recommend stress coping mechanisms. [29]

5.5 OBJECTIVE 4: To Determine Association of socio demographic variables with knowledge for IVF

In current study as per knowledge variable 51 moderate and 392 adequate knowledge scores suggests chi-squared test was either not used or is not appropriate. As a result, no inferences regarding the correlation between age and knowledge levels can be made. 228 students in secondary school (up to the 12th grade) had adequate knowledge, and 60 had moderate knowledge also There is no significant correlation between knowledge score and education level, as indicated by the p-value of 0.678, which is higher than 0.05. This indicates that there is no statistically significant relationship between education level and infertility knowledge levels in this dataset.

Chi-squared Test p is 0.195, 3.273 There is no significant correlation between knowledge levels and occupation status (self-employed, government employed, or unemployed). Between 15,000 and 20,000 30 have moderate knowledge and 130 have adequate knowledge. Over 25,000 51 have moderate knowledge and 233 have adequate knowledge. In this dataset, income does not seem to have a significant impact on infertility knowledge. 23 members of the nuclear family have moderate knowledge, while 163 have adequate knowledge. In Joint family 22 have moderate knowledge and 196 have adequate knowledge. 33 members of the extended family have sufficient knowledge, and 6 have moderate knowledge.

Knowledge of infertility is not statistically impacted by family type (nuclear, joint, or extended), as indicated by the p-value of 0.566.. A correlation between knowledge levels and religion is not supported by the data. The greater percentage of people with sufficient knowledge living in semi-rural areas (392 out of 444 total).The knowledge levels regarding infertility and the information source (parents/relatives or the mass media) do not significantly correlate, as indicated by the p-value of 0.686, which is higher than 0.05. This implies that the degree of knowledge on the subject is not greatly impacted by the information's source.

REFERENCES

1. Inhorn MC, Patrizio P. Infertility around the globe: new thinking on gender, reproductive technologies, and global movements in the 21st century. Hum Reproduction Update. 2015; 21(4):411–426. doi:10.1093/humupd/dmv016.
2. Rooney KL, Domar AD. The relationship between stress and infertility. Dialogues ClinicNeurosci. 2018; 20(1):1–9.
3. Manglayatan S. A study to assess the effectiveness of structured teaching program on infertility and its treatment

among clients attending selected hospitals of Srikakulam, Andhra Pradesh [Internet]. Shodhganga. Available from: https://shodhganga.inflibnet.ac.in:8443/jspui/handle/10603/566141.

4. World Health Organization. Infertility prevalence estimates, 1990–2021. WHO; 2023. ISBN: 978-92-4-006831-5 (electronic version). Available from: https://www.who.int/publications/i/item/978920068315.
5. Hull MG, Glazener CM, Kelly NJ, et al. Population study of causes, treatment, and outcome of infertility. Br Med J (Clin Res Ed). 1985;291(6510):1693–1697.
6. Kudesia R, Muyingo M, Tran N, Shah M, Merkatz I, Klatsky P. Infertility in Uganda: a missed opportunity to improve reproductive knowledge and health. Global Report Health. 2018; 3(4):e24. doi:10.1097/grh.0000000000000024.
7. Bakhtiyar A, Naimi A, Shamsi F. An investigation of the effects of infertility on women's quality of life: a case-control study. BMC Women's Health. 2019; 19:114. doi:10.1186/s12905-019-0805-3.
8. Thatipelli RC, Parunandi Y. An observational study on causes of female infertility. Int J Report Contracept Obstet Gynecol. 2024;13(9):2450–2456. doi:10.18203/2320-1770.ijrcog20242498.
9. Kundu S. Surging trends of infertility and its behavioural determinants in India. PLoS ONE. 2023;18(1):e0289096. doi:10.1371/journal.pone.0289096.
10. Rusanova NE. Infertility and fertility: demographic problems of assisted reproduction. Popul Econ. 2024;8(1):156–167. doi:10.3897/popecon.8.e108842.
11. Sharma SK. Nursing research. 2nd ed. Elsevier; 2011. p. 76–79.
12. Parry S. Recent advances in infertility treatments. Fertil Steril. 2005;83(4):823–835.
13. Broeze KA, Opmeer BC, Van Geloven N, et al. Are patient characteristics associated with the accuracy of hysterosalpingography in diagnosing tubal pathology? An individual patient data meta-analysis. Hum Reproduction Update. 2011;17(3):293–300. doi:10.1093/humupd/dmq056.
14. American Society for Reproductive Medicine. Endometriosis and infertility: a committee opinion. Fertility Sterility. 2012;98(3):591–598. doi:10.1016/j.fertnstert.2012.05.031.
15. Bittencourt CA, Dos Santos Simões R, Bernardo WM, et al. Accuracy of saline contrast sonohysterography in detection of endometrial polyps and submucosal leiomyomas in women of reproductive age with abnormal uterine bleeding: systematic review and meta-analysis. Ultrasound Obstetrical Gynecol. 2017;50(1):32–39. doi:10.1002/uog.17352
16. Annual Capri Workshop Group. IVF, from the past to the future. Hum Reprod Open. 2020;4(1):1–9. doi:10.1093/hropen/hoaa040.
17. Tan BK, Vandekerckhove P. Investigation and current management of recurrent IVF treatment failure in the UK. BJOG. 2005;112(4):420–429. doi:10.1111/j.1471-0528.2005.00523.x.
18. Maduakolam O, Umeh UA. Coping strategies of infertility clients attending gynecological clinic in southeastern Nigeria. Niger J Med. 2023;32(1):88–94. Available from: http://www.njmonline.org.
19. Tavousi SA. Psychological assessment in infertility: a systematic review and meta-analysis. Front Psychol. 2022;13:961722. doi:10.3389/fpsyg.2022.961722
20. Zhu H. Global research trends on infertility and psychology from the past two decades: a bibliometric and visualized study. BMC Public Health. 2023;23:1124.
21. Rasoulzadeh Bidgoli M. The effectiveness of a collaborative infertility counseling (CIC) on pregnancy outcome in women undergoing in vitro fertilization: a randomized trial. BMC Pregnancy Childbirth. 2020;20:1–9. doi:10.1186/s12884-020-03417-6.
22. Andreotti C, Thigpen JE, Dunn MJ, et al. Cognitive reappraisal and secondary control coping: associations with working memory, positive and negative affect, and symptoms of anxiety/depression. Anxiety Stress Coping. 2013;26(1):118–133.
23. Omokanye LO, Olatinwo AO, Durowade KA, et al. Determinants of utilization of assisted reproductive technology services in Ilorin, Nigeria. J Med Soc. 2017;31:109–113.
24. Hamido S, Shaban G. Assessment of infertile couples' knowledge regarding in vitro fertilization process. Egyptian J Health Care. 2020;10(1):1–7.
25. Mahey R, Gupta M. Fertility awareness and knowledge among Indian women attending an infertility clinic: a cross-sectional study. Int J Reprod Contracept Obstet Gynecol. 2017;6(3):1–6.
26. Kyei JM. Ways of coping among women with infertility undergoing assisted reproductive technologies in Ghana. Afr J Reprod Health. 2021;25(1):14–19.
27. Arbağ E. Emotions, thoughts, and coping strategies of women with infertility problems on changes in treatment during

Covid-19 pandemic: A qualitative study. Women Health Issues. 2023;32(4):102735.

28. Mohammadi M. Coping strategy in infertile couples undergoing assisted reproduction treatment. Int J Fertil Reprod Med. 2024;20(2):45–50.

29. Ohler U, Niemann H, Liao GC, Rubin GM. Joint modeling of DNA sequence and physical properties to improve eukaryotic promoter recognition. Bioinformatics. 2001;17(Suppl 1):S199–S206.