

The Relationship between Primary Infertility and Depression among Women Attending Royal Medical Services Hospitals in Jordan

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Received date: June 14, 2017; Accepted date: June 26, 2017; Published date: June 28, 2017

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Abstract

Being a mother is a passion and dream for each woman, that's the humanized effect and unconditional love between child and mother. Building family is the main target of marriage, it involves relationships between wife husband and children, but some of couples live a distressing experience about bearing a child; one of this is the infertility. Infertility is categorized as primary, secondary infertility and sterility.

According to the Center of Disease and Control Prevention (CDC) primary infertility defined as the inability to get pregnancy (conceive) after one year of unprotected sex. There are various causes of infertility in both men and women, they are mainly physiological dysfunctions and few of the causes are endocrine logical, anatomical, genetic and immunological reasons. Some of the physiological causes are related to the ovaries: Polycystic ovarian syndrome (PCOS), diminished ovarian reserves (DOR), premature ovarian insufficiency (POI), tubal occlusion and the causes may related to physical characteristics of the uterus.

Keywords: Depression; Primary infertility; Polycystic ovarian syndrome

Introduction

The prevalence of infertility differs greatly from one country to another, the findings in 2010 estimated that 48.5 million couples worldwide were unable to have a child after five years [1-5].

Each woman diagnosed with primary infertility strive in different medical techniques to solve this distressing problem according to the causes, starting from medical and sexual history, lab test and hysteroscopy and other methods [2], then according to the cause the specialist starts the plan for therapeutic treatment which may include surgeries and *In vitro* fertilization (IVF) [2].

From the point when the women diagnosed with primary infertility and during the treatment process they may suffer a part of psychological and physiological symptoms related to the situation, some of these symptoms could be listed under mental disorders which include depression [6].

World Health Organization (WHO) defined depression as one of the common mental disorder, characterized by psychological and physiological symptoms that interfere with job and enjoying life. Depression affects women rather than men, and estimated about 350 million cases all over the world [7].

The psychological symptoms include fluctuation of mood, loss of interest, sadness, or pleasure, feelings of guilt or low self-worth, poor concentration feeling sad and blues. Physiological symptoms include disturbed sleep, loss of appetite, headache, fatigue, back pain, and dizziness. Depression may lead to suicide, it estimated over 800,000 people attempt suicide and die yearly [7].

Purpose of the study

Primary infertility and depression are thought to be major public health problems. The purpose of this study is to examine the relationship between primary infertility and depression among women attending the Royal Medical Services hospitals in Jordan.

Significance of the study

This study will shed more light on the relationship between primary infertility and depression among women attending the Royal Medical Services hospitals in Jordan. The current study is one of few studies conducted in Jordan according to the current researcher knowledge. Health care policy makers in the Directorate of Royal Medical Services will also get the benefit from this study to plan for educational programs to the nurses in the communication skills with the infertile women whom attending the clinics, and providing health education to those women regarding mental health during this period of childless situation.

The results of the study will apply to the nursing directorate, and to gynecologists and obstruction department in the Jordanian Royal Medical Services therefore, the study could add more information regarding the primary infertility in women with depression.

Research question

For the purpose of this study the current researcher just wants to answer this research question: Is there a relationship between primary infertility and depression among women attending the Royal Medical Services hospitals in Jordan?

Variables under study: The conceptual and operational definitions

The variable of the study will be: Primary infertility (independent variable) and depression (dependent variable).

Infertility: Conceptually, the Oxford English Dictionary defined primary infertility as "infertile as not able to have babies or produce young, which implies a state of sterility rather than difficulty in conceiving which represents the view of many clinicians" [8].

Operationally, primary infertility will be measured by the following criteria, in which the women having regular sexual intercourse without using contraceptive methods for more than 12 months and have no alive child.

Depression: Depression defined conceptually according to American Psychological Association (APA) as a condition more than just sadness, the one who depressed is get experience a lack of interest and pleasure in daily activities, significant weight loss or gain, insomnia or excessive sleeping, lack of energy, inability to concentrate, feelings of worthlessness or excessive guilt and recurrent thoughts of death or suicide (APA, 2012).

Operationally, depression will be measured with the 20-items of the Center for Epidemiologic Studies Depression scale (CES-D) [9], which ranged from 0 to 60. Demographical variables listed on appendix 1.

Theoretical framework

Sister Roy adaptation model [10] provides the adaption model: A Conceptual Framework for Nursing. Roy believed that the person is an adaptive system and there are adaptive responses which consists function of group of income stimulus and the adaptive level. This adaptation is a process and out come as manifested by four interrelated modes: Physiological, self-concept, role function and interdependence in respond to stimuli through two processes called cognator and regulator subsystems.

Roy assumed that person is a bio-psycho-social being interact with the environmental change, and use the coping mechanism to cope with changes, however, health and illness are important dimension of person life. The overall goal of nursing in Roy's framework is that nursing can expand the adaptive abilities and enhances person and environmental transformation. In addition nurses can provide, promote and facilitate adaptation among individuals and groups.

In Roy adaptation model the (person) is the infertile women age between 20-40 years, those women diagnosed (health) with primary infertility after different diagnostic procedures: (lab tests, ultrasounds, and other methods), these infertile women live in Jordan near to extended family and friends (environment), as known the main goal of marriage is building family, for sorrow they failed to achieve the main goal, so women will develop symptoms (adaptation) of low self-esteem, blues, weight loss or gain, poor sleep quality, fear from the society stigma that they unable to bear a child, all these symptoms may develop to have one of the major mental health disorders, it's depression.

On the other hand, those women may be adapt well with their condition and live in normal way, so (nursing) role here is to care about infertile women, manipulate the environment and let them to fall on the adaption mode [11].

Summary

The purpose of this study is to examine the relationship between primary infertility and depression among women attending the Royal Medical Services hospitals in Jordan. The variable of the study will be: Primary infertility (independent variable) and depression (dependent variable). Sister Callista Roy adaptation model will use as theoretical frame work.

Literature Review

Introduction

Many studies have examined the association between primary infertility and depression because of the high prevalence of both. For the purpose of this study, the current researcher will mention some of the available studies that discussed primary infertility, and some of the available studies that discussed depression, then the researcher will focus on the studies that discuss the relation between primary infertility and depression using of Google scholar engine search, PMC, American psychological association and the free articles from science direct. The key words that used: Primary infertility, depression, primary infertility in women and depression. All the studies conducted from 2008 to 2015.

Related studies

Primary infertility: Infertility is a major concern, according to CDC it estimated that 60 to 80 million couples worldwide suffer from infertility and 6% of married women among ages range from 15 to 44 years in the United States are unable to get pregnant after one year of unprotected sex (CDC, 2010).

The extensive prevalence rate of infertility was in North Africa, Middle East, South Asia, Sub Saharan Africa, Central Asia, Central Eastern Europe and India respectively [12].

Causes and incidence of primary infertility in a rural region of northern China were examined by a prospective follow up design on 2151 newly married couples, the sample were followed up for two years, the results presented that 12 months infertility rates were 6%, and 24 months infertility rates were 8.5%. The researchers concluded that the main causes of female infertility were fallopian tube problems, ovulation disorders, and polycystic ovary syndrome [13].

Wani et al. [14] conducted a study of 100 infertile women (82 primary, 18 secondary) in prospective study, the researchers were performed laparoscopy for the participants to check the patency of tubes, before the procedure a complete history and full examination with kidney, liver function tests, blood sugar, complete blood count, chest X-ray and electrocardiogram (ECG), the results were: In primary infertility the laparoscopic finding was 18.3% causes of tubal occlusion, then (17.1%) was due to endometriotic deposits. Furthermore, findings (12.2%) were polycystic ovaries and (7.3%) were peritubal and periovarian adhesions, (6.1%) genital tract tuberculosis, (4.8%) were ovarian cysts, (2.4%) were hypoplastic uterus in and (2.4%) were pelvic inflammatory diseases. In the women with secondary infertility it was (27.7%), tubal occlusion and (22.2%) peritubal and periovarian adhesions.

In Jordan, according to the Jordanian Population and Family Health Survey (JPFHS) for the year 2012 they reported that the fertility level

drop in 50% drops between the years 1976 and 2012 (JPFHS, 2012) available at <http://www.jpffhs.jo>

Moreover, the primary infertility rate in Jordan is estimated to be 3.5% and the secondary infertility rate 13.5% [15].

Depression

Depression affects women rather than men specially the one who had a history of physical abuse or disability, trauma, sexual abuse, and insufficient family structure. The cause and risk factors are a combination of brain chemistry, family history, and psychosocial environment. Depression shown in different physiological and psychological signs and symptoms which includes feeling of sadness, restless, hopeless, fatigue, sleep disturbances, suicidal thoughts may occur, decrease the desire for sex and weight changes. Also in the psychological aspect we could find the depressed one feeling of low self-esteem, negative idea of self and pessimistic outlook [16].

The reported prevalence of depressive disorders varies throughout the world; in Asian and Southeast Asian have the lowest rates countries, Korea 3%, Taiwan less than 2%. While the Western countries report higher rates: France 16%, New Zealand 11%, and Canada 7%. The United States has of 6% of the rate. Also, higher rates of depression were reported in countries which plagued by protracted civil war [17].

In Jordan, the prevalence of depression among patients whom presented in primary health clinics in a total of 493 randomly selected patients was greater than 30% [18]. Hamdan et al. [19] stated that the depressive symptoms in the women attend primary health care centers in Sharjah-Emirate was approximately 33%.

Primary infertility and depression

Latest update articles conducted from 2010 to 2015 with different population and designs: Cohort study, cross sectional, interviews, case control and systematic review discussed the infertility and depression will be included in this section. Infertility estimated to affect as many as 186 million people worldwide, and has to affect some 15% of all couples in the western world who are trying to conceive [20].

One of the few studies that conducted by data collected through interviews with 30 Jordanian Muslim women who experienced failed assistive reproductive technology for infertility, the result showed that being infertile woman develop the experience of marital stressors, feeling social pressure, depression and disappointment [15].

In addition, infertility in woman leads to important boundary ambiguity within the relationship and family structure with increased level of anxiety, somatization, guilt and depression [21].

A new study conducted to examine the risk factors and prevalence of depression among 251 infertile women who attended the infertility and in vitro fertilization unit in Basrah city in Iraq. The prevalence of depression among infertile women was 68.9%. It was significantly related to primary infertility, threat of husband's remarriage, treatment and duration of infertility [22].

In addition Kazandi, et al. [23] designed a descriptive cross sectional study of infertile couples in Turkey with no psychiatric disturbance and couples who have children to evaluate the depression and anxiety levels between them. A gynecologist evaluated the demographic data for the participants then they referred to the psychologist to assess depression. The result was indicating that the infertile couples need psychotherapy in comparison with the fertile couple.

A cross sectional study from fertile and infertile women whom received care in public and private health centers in Ilam, western of Iran, the researchers compared the quality of life among the 450 women and compared them, the mean score of mental dimensions of quality of life in most infertile is lower in comparison with fertile women [24].

Also in Hamadan-Iran, a cross-sectional analytic study with a sample size of 120 women of PCOS ages between 18 and 45 years, the sample underwent a biochemical studies and depression assessment, according to the results the researchers transferred the participants to psychiatrist the result indicate that 82 women (68.3%) were non-depressed, and 38 patients (31.7%) had some degrees of depression. According to the psychiatric interview, 10 patients (8.3%) had major depression, 22 patients (18.3%) had minor depression and 6 patients (5%) had dysthymia [4].

This stressful childless situation may lead the women to develop suicidal attempt where the researchers conducted a cohort study included 51 primary infertile women and 221 secondary infertile women whom followed up on private fertility clinics and hospitals in Denmark the result was Danish woman who did not have a child after an initial fertility evaluation (primary) had a higher and greater risk of suicide rather than the women who had at least one baby [20].

In addition Peterson et al. [6] conducted a cross-sectional study in Denmark in total of 1049 men and 1131 women undergoing fertility treatments to examine the severe depressive symptoms in women and men undergoing infertility treatment, the result showed that severe depressive symptoms were reported in men 4.3% and 11.6% in women.

In Ghana, a study conducted in total sample of 100 infertile women, interview done with concerning on socio-demographic characteristics over approximately 5 months, the result showed that the women with primary infertility presented with high depression scores as measured by Beck Depression Inventory questionnaire (BDI).

The prevalence of depression among the women was 62.0% with positive correlation with age and the duration of infertility. And the level of depression was significantly higher among the unemployed subjects with low or no formal education [25].

In Pakistan, a study conducted as a case control study of 200 patients, 100 fertile and 100 infertile women attending obstetrics and gynecology department in of CMH Abbott bad in Pakistan for investigation and treatment of infertility. The result showed that depression was 95% in infertile women which significantly higher when compared to 63% in fertile women [26].

Summary and Conclusions

Overall, the association between primary infertility and depression differ among population according to the culture, the duration of marriage, women age and the treatment trails. In that primary infertility affected approximately 3.5% population in Jordan and according to the study the women whom experienced assistive reproductive methods for infertility developed symptoms of depression, stress and disappointment. Whereas in Turkish couple the psychological symptoms were significantly high in the infertile couple more than from the fertile couples. Moreover, the prevalence of depression in Basra city in Iraq was significantly high among infertile women in association with the threats of husband remarriage.

The quality of life among Iranian women whom shown in the study was lower in comparison with fertile women, in addition, the women who diagnosed with PCOS developed depression in different levels. Whereas it in the western world primary infertility it estimated about 15% of all couples. In Denmark, the studies showed that the primary infertility women developed depression and in some cases led to suicide. In Pakistan the study showed that the depression is significant among infertile women.

Therefore, it is important to note how perception of the primary infertility effects on mental health in women. In the present study, the current researcher will focus on the relationship between primary infertility and depression among women who attending the Royal Medical Services hospitals in Jordan.

Methodology

The design of the current study will assess the relationship between the primary infertility and depression among the women whom attending the Royal Medical services hospitals in Jordan by utilizing specific criteria.

Research design

A quantitative study, utilizing cross sectional descriptive correlational design will be used to assess the relationship between the concepts of primary infertility and depression. The main purpose of the non-experimental design, correlation research design, is to understand the relationships among variables without any intervention from the current researcher, and to describe the relationship among variables rather than to support inferences and causality. Threat to internal validity including attrition rate, increasing sample size will control of attrition. Threat to external validity will be Experimenter effect, using the therapeutic communication between the current researcher and the woman will decrease that threat. The inclusion criteria and homogeneity will control other confounding or extraneous variable.

Population, sample and sampling techniques

A convenience sampling technique (non probability sampling) will used to select a sample from a whole population because the convenience sampling is the most commonly used method in many disciplines. The whole population is the women attending Royal Medical Services hospitals, the accessible population is women attending the obstetrics & gynecology clinics in Royal Medical Services hospitals then, the target population will be the all women attending the fertility clinics.

This study has 30 variables, thus, according to Thorndike's rule each variable has to have 10-20 cases [27]. At least 300 women are needed; however, a larger convenient sample is needed. The sample size is 600 women to control the attrition rate.

Inclusion criteria: 1) Married women ages between (20-40) years old, 2) Women were diagnosed with primary infertility in duration of 1 year, 3) Women not using the contraceptive 4) Women having regularly sexual intercourse. Exclusion criteria: 1) Women were diagnosed with depression, 2) Women have at least one a live child, 3) Women whom miscarriage before.

Settings

This study will be conducted in four Royal Medical Services hospitals in Jordanian provinces; one hospital from the South, two from the Middle and one from the North. All of these hospitals have fertility clinics.

Protection of human rights

Ethical approval from the Hashemite University and the Directorate of Jordanian Royal Medical Services will be taken prior collection of data. Approval to participate will be obtained from participants before conducting the study. A copy of informed consent will be given to participants who will meet inclusion criteria prior to filling out the questionnaire.

Adequate information about the study purpose and significance will be given to each participant and that they have the right to refuse to participate. The participants will be assured of anonymity. Moreover, the participant has the right to withdraw at any time they cannot complete the questionnaire. The current researcher will fill the questioner according to the participant answers during the interview, thus because the scale will not translate to Arabic version. Data will be collected during a period of two weeks to eight weeks.

Planned data collection

Ethical approval will be assured prior to collect the data. The current researcher will use a survey questionnaire that will be submitted to the participants at one point of time in the hospitals that selected on provinces. The current researcher will collect the data and the participation in the study is voluntary.

Instruments

The current researchers will use the Center for Epidemiologic Studies Depression Scale [9]. The CES-D which available in public domain, the instrument will not translate into the Arabic version. The CES-D is a 20 item self-report symptom rating scale developed to measure current level of depression symptoms in general populations.

The frequency of occurrence of each symptom during the past week including today, it is rated on a 0-3 Likert-type scale ("rarely or none of the time" to "most or all of the time"), and total scores range from 0 to 60. The reliability of the tool was in internal consistency for the CES-D-20 (Cronbach's $\alpha=0.88-0.91$), Test-retest reliability for CES-D-20 (ICC=0.87), test-retest reliability for the individual items was poor to excellent (ICC=0.11-0.73).

The validity of the tool was in correlation of the CES-D-20 is poor to excellent for SF-36 subscales (ranging from Pain (Pearson's $r=0.27$) to Mental Health (Pearson's $r=0.75$)) and adequate with the Fatigue Severity Scale (Pearson's $r=0.58$). The sensitivity was found to be 80.0% and specificity 69.8% [28-32].

The instrument is appropriate for the population as women and according to the level of education. The instrument consists 20-item with simple language that facilitate answering the questions, moreover, the current researcher will fill the questioner according to the participant answers during the interview. A pilot study of 50 subjects will apply before the data collection.

Planned data analyses

Research question: "Is there a relationship between depression and primary infertility depression among women attending Royal Medical Services hospitals in Jordan?"

The data will be analyzed using the statistical package for social science (SPSS) version 20 (2012), and will be used to generate descriptive and inferential statistics at a significance level of (alpha) 0.05.

Depression is continues and dependent variable, while primary infertility, social support, educational level are categorical, dichotomous variables. Specific type of Pearson's test which called point-biserial correlation will be used to measure the strength and direction of the association that exists between one continuous variable and each of the dichotomous variables.

A Pearson's (point-biserial) correlation attempts to draw a line of best fit through the data of two depression and primary infertility, and the Pearson correlation coefficient, r , indicates how far away all these data points are to this line of best fit. Pearson correlation coefficient will present in table with P value.

Demographic variables for the total sample will be presented in a table. Demographic variables (age, income, employment, smoking, infertility family history and pressure from family to get pregnancy) will be analyzed by descriptive statistics. Continuous variables will be assessed using minimum, maximum, range, mean, median and standard deviations. Categorical demographic variables will be analyzed using frequencies and percentages.

Possible Limitations of the Study

In this study the limitations could be due to presence any family member with the women in follow up to the clinic, so they might feel impressed to answer the questions with the current researcher. In addition convince sampling results make it difficult to generalize the data in other hospitals and settings.

Possible Implications of the Study

If the result of this study will show that there is there a relationship between primary infertility and depression, it will provide an excellent information that will help in developing a plan for educational programs for nurses in the in communication skills with the infertile women whom attending these clinics and providing health education to the women regarding mental health during this period of childless situation, furthermore, the study will show the importance of the psychological support during the clinic visits because support is standing side by side with the physical treatment that the women enrolled with, so according to the results it will be desirable to establish psychological and psychiatric services in the fertility clinics in the Royal Medical Services hospitals, they could facilitate following up the treatment by reduce the psychological symptoms of these women.

Summary

Primary infertility is one of the most hard problem that might affect the women, childless situation might lead the women develop depression, this quantitative study, will utilize by a cross sectional descriptive correlational design to assess the relationship between the primary infertility and depression. The Center for Epidemiologic Studies Depression Scale [9], will be used to measure current level of

depression symptoms among the participants, and the data will be analyzed using the statistical package for social science (SPSS) version 20 (2012) and will present on tables.

Developing the symptoms of depression among the infertile indicates that it is a must to establish psychological and psychiatric services in the fertility clinics in the Royal Medical Services hospitals, they could facilitate following up the treatment by reduce the psychological symptoms of these women.

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