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Depression, Coping Strategies and Social Support among Infertile Women Attending Gynecology Clinics of a Tertiary Care Hospital in South-West Nigeria: Prevalence, Patterns, Peculiarities and Associated Factors

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ABSTRACT

Infertility is one of the fastest growing concerns when it comes to reproductive health and most often, women get the blame. Consequently, females suffer from major psychosocial and emotional problems that may lead to serious mental health concerns. The aim of this research was to study depression, coping strategies, and social support among infertile women attending gynecology clinics of a tertiary care hospital in South-West Nigeria, paying attention to their prevalence, patterns, peculiarities, and associated factors. A descriptive cross-sectional design was used involving 372 respondents. Simple random sampling technique was used to select the study population and sample size. Data collection was done using a semi-structured standardized questionnaire. Applied statistical tests of significance were stated and were tested using chi-square test, with p-value <0.05 considered statistically significant. 38.7% of the respondents were within the age range of 31-36 years and only 1.0% of the respondents were within the age range of 19-24 years. Majority of the infertile women in this study (39.2%) had a normal level of depression according to Beck Depression Inventory. Socio-demographic characteristics such as age, income, level of education, type of family, and duration of marriage were significantly related to occurrence of depression among the respondents. Most of the respondents (57.5%) had first degree (bachelor's degree) from the university. More than half (67.7%) had income >N100,000 monthly. Majority of the respondents (76.9%) came from a monogamous family and the duration of marriage in 34.4% of the respondents was 6-10 years (p<0.001). Majority of the respondents (55.9%) accepted sympathy and understanding from someone – Seeking Social Support coping strategy; 68.3% of the respondents do not think they brought the problem on themselves - Accepting Responsibility coping strategy; 50.0% of the respondents hoped a miracle would happen, and 43.0% of the respondents avoided being with people in general - Escape Avoidance coping strategy; 51.1% of the respondents concentrated on the next step to be done - Painful Problem-solving coping strategy; 71.0% of the respondents prayed - Positive Re-appraisal coping strategy; 45.2% of the respondents did not express their anger to the person(s) that caused the problem - Confrontative coping strategy; 31.7% of the respondents somewhat keep their feelings to themselves - Self-controlling coping strategy; and 43.0% of the respondents tried to forget the whole thing - Distance coping strategy. The relationships between coping ability and severity of depression were examined and it was discovered that there is statistically significant relationship between the coping ability and severity of depression among the infertile women. There is a need to assess infertile women's general and psychological health. Care for infertile women should be in a contextually and culturally appropriate manner to improve their health status and quality of life. Health policy in developing countries needs to recognize the public health burden of depression as it affects infertile women. Key health services available in the clinics should include integrating psychological care, strengthening social support network, counseling, and follow-up services in infertility management.

INTRODUCTION

Reproductive health is defined as a state of complete physical, mental, and social well-being, and not merely the absence of disease or infirmity, in all matters relating to the reproductive system, its functions and processes (WHO, 2021b). Global attention has been drawn to the importance of reproductive health. In fact, the United Nation's popular third Sustainable Development Goal (SDG) is "Good Health and Well-being", which is to actualize healthy lives and accelerate well-being for all, at all ages. The seventh target states that by 2030, there will

be universal access to sexual and reproductive healthcare services, including family planning, information and education, and the integration of reproductive health into national strategies and programs (United Nations, 2020). Globally, infertility affects 9-15% of couples, with higher rates reported in the developing countries (Zurlo, 2019). Gametes which refer to the male and female reproductive cells (sperm and ova) are haploid and contain one set of chromosomes which could be either 1–22 X or 1–22 Y (Ikwuka, 2023a). Even when fertilization occurs and results in pregnancy, the effects of tobacco consumption

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on pregnancy have been reported (Udeh, 2023a; Udeh, 2023b; Udeh, 2023c). The effects of hormonal imbalance on fertility (Aliu-Ayo, 2023a; Aliu-Ayo, 2023b), and anemia on pregnancy (Inya, 2023a; Inya, 2023b) have also been reported.

According to the WHO, the clinical description of the reproductive system disease known as infertility – is defined as a failure to conceive naturally after 365 days or more of uninterrupted sexual intercourse (Zurlo, 2019; Bakhtiyar, 2019). In Sub-Saharan Africa where Nigeria is located, infertility affects 25% of couples (Fehintola, 2017).

In addition, there are ongoing studies dwelling on the links between metabolic disorders and infertility. Metabolic Syndrome Diseases (MSDs) which include hypertension, obesity, diabetes mellitus, and dyslipidemia, are interlinked diseases and often occur concurrently. MSDs are associated with very high economic costs, morbidity and mortality rates (Ikwuka, 2015; Ikwuka, 2017a; Ikwuka, 2017c; Ikwuka, 2023c; Ikwuka, 2023f; Ikwuka, 2024; Virstyuk, 2016). Numerous studies have also reported associations between MSDs and increased levels of blood pressure, glucose and lipid metabolic disorders, asymptomatic hyperuricemia, systemic immune inflammation, and fibrogenesis – factors that may eventually lead to kidney damage (Ikwuka, 2017d; Ikwuka, 2017e; Ikwuka, 2018c; Ikwuka, 2018d; Ikwuka, 2019a; Ikwuka, 2019c; Ikwuka, 2022; Ikwuka, 2023d; Virstyuk, 2017a; Virstyuk, 2018a; Virstyuk, 2019; Virstyuk, 2021a; Virstyuk, 2021b).

Nonetheless, remaining involuntarily without issue, due to inability to conceive is one of life's highest misfortunes. Besides being a medical condition in itself, involuntary childlessness can have a significant impact on well-being and quality of life (Mol, 2018). Abnormal immune responses e.g. formation of anti-sperm antibodies in women against their partner's sperm cells have been identified as contributing factors to female infertility.

Additional immune-related mechanisms include antibodies to clotting factors, which may result in both thrombosis and hemorrhage; as well as hemolytic reactions which can occur in the process of transfusion of blood products (Ikwuka, 2023e). Oxidative stress has also been linked to infertility. The major contributors to oxidative stress are free radicals such as superoxide anions, hydroxyl radicals, and hydroperoxyl radicals and all are significant physiologically. A non-radical which is significant physiologically is hydrogen peroxide (Ama, 2023; Baysah, 2023; Ikwuka, 2023b; Uche, 2023). Infertility has been ranked as one of the high stressors in life with psychological, social, and cultural consequences (Maroufizadeh, 2018). One of the most common mental health problems among women with infertility is depression (Aflakseir, 2016).

Depression is defined as a disposition or expressive state that is marked by moods of low self-respect or guilt and a reduced ability to enjoy life (Britannica, 2021). Globally, depression affects up to 300 million persons of all ages

(Alimohamadi, 2020) and approximately 40% of infertile women are reported to have symptoms of depression and anxiety (Crawford, 2017; Cusatis, 2019). Many studies have revealed that couples with infertility are twice likely to suffer from anxiety and depression than couples who are fertile (Maroufizadeh, 2018; Cusatis, 2019).

The resultant psychosocial issues affect the female gender more adversely than her spouse, especially in societies where there are prejudices against women (Bakhtiyar, 2019). This is so, due to the association of infertility and the women's social role (Cusatis, 2019). Attitudes toward women's infertility are often influenced by ethnic and cultural groups with some cultures vindicating the male spouse from the issue of infertility thus making infertility solely the woman's challenge (Bakhtiyar, 2019). Men can easily cope with childlessness, more than women (Amini, 2020).

Moreover, treatments of infertility are quite expensive, emotionally draining, and time-consuming. Therefore, it is necessary for the clinicians to know the state of well-being of the infertile women before engaging them in the treatment. Findings from a study conducted by (Crawford, 2017) revealed that failure in infertility treatment leads to higher rates of depression and anxiety. Implications of infertility on the well-being of women are becoming alarming in the world, Nigeria inclusive.

On the other hand, metabolic syndrome diseases (MSDs) are interrelated diseases that contribute significantly to healthcare costs, morbidity, and mortality rates, thus requiring the search for new, effective, and innovative treatment options (Ikwuka, 2024). Innovative treatment options such as combining HMG-CoA reductase inhibitors, SGLT-2 inhibitors, and angiotensin II receptor blockers (type 1) i.e. A2RB (AT1), have shown clinical effectiveness indicated by marked improvements in the metabolic functions of the heart, liver, pancreas, and kidney (Ikwuka, 2017b; Ikwuka, 2018a; Ikwuka, 2018b; Ikwuka, 2021; Virstyuk, 2017b; Virstyuk, 2018b; Virstyuk, 2018c; Ikwuka, 2024). Additionally, Glucagon-like Peptide 1 Receptor Agonists (GLP-1 RAs) such as liraglutide have been shown to improve the clinical outcomes in patients with type 2 diabetes mellitus and hypertension (Ikwuka, 2019b).

Meanwhile, studying depression, coping strategies, and social support among infertile women will contribute to existing literature – which will in turn assist members of the healthcare team to understand how best to address the needs of these women and care for them holistically. In addition, findings from this study will serve as a reference source for policymaking on the healthcare needs of infertile women in Oyo State, and Nigeria, at large. Lastly, this study will broaden the knowledge of the researchers on the topic. Therefore, this research aimed to study depression, coping strategies, and social support among infertile women attending gynecology clinics of a tertiary care hospital in South-West Nigeria, paying attention to their prevalence, patterns, peculiarities, and associated factors.

MATERIALS AND METHODS

Study Area

This study was carried out at University College Hospital (UCH), Ibadan, Ibadan North Local Government Area (LGA), Oyo State, South-West Nigeria. The University College Hospital, Ibadan started with 500 bed spaces but has expanded overtime to 1,000 bed spaces and 163 examination couches with occupancy rates ranging from 55-60%. It has about 65 departments among which is the Department of Obstetrics and Gynecology which has five units namely Assisted Conception Unit (ACU), Fertility Research and Endocrinology Unit (FREU), Feto-Maternal Medicine Unit (FMMU), Genito-Urinary Unit (GUU), and Gyne-Oncology Unit (GOU). University College Hospital, Ibadan was chosen for this study because it is the only government (public) hospital that has a well-structured gynecology clinic and in-vitro fertility center within the Ibadan North LGA which caters for infertility cases.

Study Design

This study adopted a descriptive cross-sectional design.

Study Population

The study population consisted of infertile women (who

presented with a history of inability to conceive after a period of one year) attending gynecology clinics at UCH, Ibadan, irrespective of age, tribe or religious affiliation.

Sample Size

The Cochran equation for descriptive, cross-sectional studies with a study population >10,000 was used to determine the sample size (Singh, 2014).

n_0 , sample size for large population >10,000 = $(Z^2 PQ)/d^2$
Where:

Z is the abscissa of the normal curve that cuts off an area α at the tail set at a 95% confidence interval (1.96);

P is 32% (0.32) as derived from a comparative study of depression among fertile and infertile women in a South-western Nigerian city (Oladeji, 2018);

Q is $(1 - P) = (1 - 0.32) = 0.68$; and

d is the precision set at 5% ($p < 0.05$).

$n_0 = ((1.96^2 \times 0.32 \times 0.68) / 0.05^2) = 334.4$

The minimum sample size (n_0) of 334 respondents was generated. Meanwhile, after adjusting for non-response (attrition) rate of 10%; then, $1 - 0.1 = 0.9$. Thus, $334 \div 0.9 = 372$ which is the sample size.

Sample Size Distribution

Table 1: Sample Size Distribution

Unit	Clinic Days	Population	Proportion
GUU	Tuesdays	152	73
FMMU	Mondays	140	68
GOU	Thursdays	156	75
FREU	Mondays	129	63
ACU	Tuesdays	193	93

Inclusion Criteria

- Infertile women attending Gynecology Clinics at UCH, Ibadan within the period of this study for reasons connected with infertility
- Infertile women attending Gynecology Clinics at UCH, Ibadan within the period of this study, who have psychological problems such as depression, anxiety disorders linked to infertility

Exclusion Criteria

- All women attending Gynecology Clinics at UCH, Ibadan within the period of this study for other reasons which are not infertility
- Infertile women attending Gynecology Clinics at UCH, Ibadan within the period of this study, who have other existing psychological problems such as depression, anxiety disorders not linked to infertility

Sampling Technique

This study used the simple random sampling technique to recruit respondents on each clinic day. Each eligible respondent was asked to pick a ballot paper which was prepared by the one of the researchers before the clinic

starts. In this way, every eligible patient had equal chances of being selected to join the study.

Study Instruments

An adapted questionnaire was distributed to the study respondents. The questionnaire consisted of three parts. The first part included socio-demographic characteristics of the respondents such as age, tribe, marital status, type of marriage, duration of marriage, husband's and wife's educational qualifications, husband's occupation, monthly income, number of children, etc. The second part consisted of Beck's Depression Inventory which the validity and reliability has been tested by many researchers, the internal consistency ranged from 0.73 to 0.92 with a mean of 0.86 (Bowen, 2017; Park, 2020). The Beck's Depression Inventory (BDI) is a self-reporting catalogue that measures attitudes and symptoms of depression. It was developed into different forms. It was used in screening the infertile women for depression (American Psychological Association, 2021). In clinical practice, the Beck's Depression Inventory and ways of coping questionnaire assist clinicians in making judgments about the areas in which a patient is mostly affected

by the disease psychologically and in making treatment decisions. The third part consisted of revised ways of coping (Folkman, 1985), the validity and reliability of which was tested by (Soares, 2018). In order to ascertain the suitability of these standardized instruments locally, (Awoyinka, 2014) tested their reliability using a test-retest method, and 0.8 (Cronbach's Alpha) was the reliability coefficient gotten.

The adapted questionnaire has three sections with 62 items as follows:

Section A contains the socio-demographic characteristics of the respondents with 11 items that were developed by the researchers.

Section B contains causes of depression among the respondents with 21 items that were adapted from the Beck's Depression Inventory.

Section C contains coping strategies among the respondents with 30 items that were adapted from Folkman's ways of coping (revised).

Data Collection

A consent letter was written and attached to the questionnaire explaining the purpose of the study and period that the study will elapse. Consent was obtained and the respondents' pressing issues concerning the study (if there are) were answered. The data collection spanned through six weeks and it was ensured that all selected respondents participated in the study because they met the inclusive criteria and gave their consent voluntarily without any financial inducement.

Data Analysis

Data collected was analyzed using Statistical Package for Social Sciences (SPSS) version 22.0. Descriptive analysis was done using frequencies, tables, and percentages. Inferential analysis was done using Pearson correlation coefficient (r) and Chi-square, with statistical significance set at $p < 0.05$. The adjusted odds ratio (OR) was determined at 95% confidence interval (CI).

Ethical Considerations

The respondents were included in the study only after they gave their voluntary consent and were free to opt out of the study if they so wished without any prejudice. None of them opted out. Confidentiality of all data gathered was maintained. For ethical reasons, awareness on depression, and coping strategies among infertile women were created for the infertile women, and other health workers. All infertile women with depression and poor coping strategies were referred to psychotherapists while undergoing infertility treatment.

The research was registered by the University of Ibadan (UI) and University College Hospital (UCH), Ibadan Ethical Committee (EC) with the UI/UCH EC Registration Number: NHREC/05/01/2008a dated 23/07/2021. Notice of full approval after full committee review dated 21/10/2021 was given with the UI/UCH Ethics Committee Assigned Number: UI/EC/21/0365.

RESULTS AND DISCUSSION

Table 2: Socio-demographic characteristics of the respondents

Age	19-24 years	25-30 years	31-36 years	37-42 years	>42 years		
	2(1.1%)	140(37.6%)	144(38.7%)	70(18.3%)	16(4.3%)		
Tribe	Yoruba	Hausa	Igbo	Fulani	Others		
	200(53.8%)	66(17.7%)	106(28.5%)	0(0%)	0(0%)		
Marital status	Married	Divorced	Separated	Widowed			
	360(96.8%)	4(1.1%)	2(0.5)	6(1.6%)			
Type of marriage	Monogamy	Polygamy					
	286(76.9%)	86(23.1%)					
Duration of marriage	1-5 years	6-10 years	11-15 years	>15 years			
	100(26.9%)	128(34.4%)	74(19.9%)	70(18.8%)			
Husband's educational qualification	PhD	MSc	BSc	HND	OND	NCE	SSCE
	62(16.7%)	86(23.1%)	180(48.4%)	40(10.8%)	2(0.5%)	0(0%)	2(0.2%)
Wife's educational qualification	PhD	MSc	BSc	HND	OND	NCE	SSCE
	14(3.8%)	46(12.3%)	214(57.5%)	72(19.4)	14(3.8%)	10(2.7%)	2(0.5%)

Husband's occupation	Farmer	Artisan	Trading/ Business	Public servant	Private sector worker		
	20(5.4%)	6(1.6%)	52(14.0%)	172(46.2%)	122(32.8%)		
Monthly family income	<N10,000	N10,000-N50,000	N50,001-N100,000	>N100,000			
	0(0%)	18(4.8%)	102(27.4%)	252(67.7%)			
No. of children	None	One	Two	Three	> Three		
	86(23.1%)	210(56.5%)	64(17.2%)	12(3.2%)	0(0%)		

2(1.1%) of the respondents were within the age range of 19-24 years, 140 (37.6%) were within the age range of 25-30 years, 144(38.7%) were within the age range of 31-36

years, 70(18.3%) were within the age range of 37-42 years, and 16(4.3%) were within the age range of >42 years.

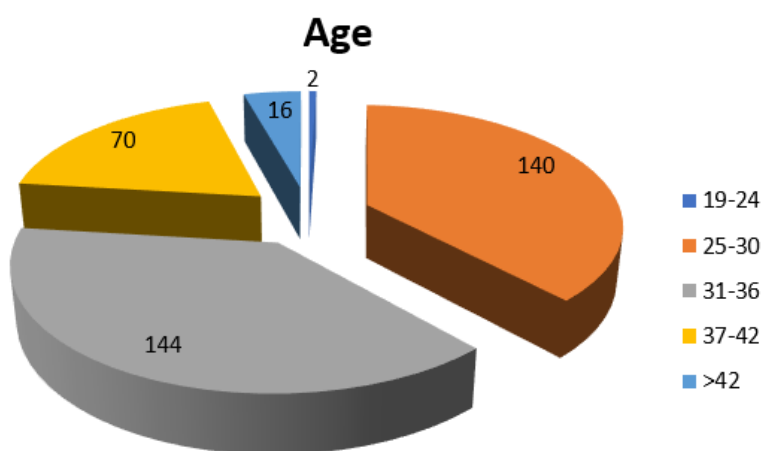


Figure 1: Pie chart showing age of the respondents

200(53.8%) of the respondents were Yoruba, 66(17.7%) were Hausa, and 106(28.5%) were Igbo. 360(96.8%) of the respondents were married, 4(1.1%) were divorced, and 2(0.5%) were separated, and 6(1.6%) were widows. 286(76.9%) of the respondents were in monogamous marriages while 86(23.1%) were in polygamous marriages. 100(26.9%) of the respondents were within the duration of marriage of 1-5 years, 128(34.4%) were within the duration of marriage of 6-10 years, 74(19.9%) were within the duration of marriage of 11-15 years, and 70(18.8%) were within the duration of marriage of >15 years. Concerning husband's educational qualification, 62(16.7%) of the respondents had husbands with PhD, 86(23.1%) had husbands with MSc, 180(48.4%) had husbands with BSc, 40(10.8%) had husbands with HND, 2(0.5%) had husbands with OND, and 2(0.5%) had husbands with SSCE. 14(3.8%) of the respondents had PhD, 46(12.4%) had MSc, 214(57.5%) had BSc, 72(19.4%) had HND, 14(3.8%) had OND, 10(2.7%) had NCE, and 2(0.5%) had SSCE.

With regards to the husband's occupation, 20(5.4%) have farmers as husbands, 6(1.6%) have artisans as husbands, for 52(14.0%) the husband's occupation was Trading/Business, 172(46.2%) have public servants as husbands, and for 122(32.8%) the husbands are private sector workers. 18(4.8%) of the respondents had monthly family income of

N10,000-N50,000, 102(27.4%) had monthly family income of N50,001-N100,000; and 252(67.7%) had monthly family income of >N100,000. 86(23.1%) of the respondents had no child, 210(56.5%) had one child, 64(17.2%) had two children, and 12(3.2%) had three children.

Using the Beck's Depression Inventory, Table 3 shows the level of depression among the respondents. The score added for each twenty-one question ranges from zero to three. The possible highest score is sixty-three and lowest score is zero. The total score is the level of depression.

0-10 was scored as minimal or normal
 11-16 was scored as mild mood disturbance
 17-20 was scored as borderline clinical depression
 21-30 was scored as moderate depression
 31-40 was scored as severe depression
 Over 40 was scored as extreme depression
 146(39.2%) of the respondents had a minimal or normal level of depression, 90(24.2%) had a mild mood disturbance level of depression, 36(9.7%) of the respondents had a borderline clinical depression, 68(18.3%) had a moderate depression, 18(4.8%) had a severe depression, and 14(3.8%) had an extreme depression.

34(9.1%) of the respondents do not use professional help, 104(28.0%) used somewhat, 156(41.9%) used

Table 3: Level of depression among the respondents

Level of Depression	Frequency	Percentage
Minimal or normal	146	39.2%
Mild mood disturbance	90	24.2%
Borderline clinical depression	36	9.7%
Moderate depression	68	18.3%
Severe depression	18	4.8%
Extreme depression	14	3.8%
Total	372	100.0%

Table 4: The use of Seeking Social Support coping strategy among the respondents

Seeking Social Support coping strategy	Not used, n(%)	Used somewhat, n(%)	Used quite a bit, n(%)	Used a great deal, n(%)
I got professional help	34(9.1%)	104(28.0%)	156(41.9%)	78(21.0%)
Accepted sympathy and understanding from someone	8(2.2%)	80(21.5%)	208(55.9%)	76(20.4%)
I asked a relative or friend whom I respected for advice	12(3.2%)	74(19.9%)	200(53.8%)	86(23.1%)
I talked to someone who could do something concrete about the problem	22(5.9%)	86(23.1%)	194(52.2%)	70(18.0%)
I talked to someone to find out more about it	14(3.8%)	76(20.4%)	160(43.0%)	122(32.8%)

quite a bit, and 78(21.0%) used professional help a great deal. However, 8(2.2%) of the respondents did not accept sympathy and understanding from someone, 80(21.5%) used somewhat, 208(55.9%) used quite a bit, and 76(20.4%) accepted sympathy and understanding from someone a great deal. In addition, 12(3.2%) of the respondents did not ask a relative or friend for advice, 74(19.9%) used somewhat, 200(53.8%) used quite a bit, and 86(23.1%) asked a relative or friend they respected

for advice a great deal. Moreover, 22(5.9%) did not talk to someone who could do something concrete about the problem, 86(23.1%) used somewhat, 194(52.2%) used quite a bit, and 70(18.0%) talked to someone who could do something concrete about the problem a great deal. Nevertheless, 14(3.8%) did not talk to someone to find out more about the situation, 76(20.4%) used somewhat, 160(43.0%) used quite a bit, and 122(32.8%) talked to someone to find out more about the situation a great deal.

Table 5: The use of Accepting Responsibility coping strategy among the respondents

Accepting Responsibility coping strategy	Not used, n(%)	Used somewhat, n(%)	Used quite a bit, n(%)	Used a great deal, n(%)
I realized that I brought the problem on myself	254(68.3%)	72(19.4%)	44(11.8%)	2(0.5%)
Criticized or lectured myself	14(3.8%)	70(18.8%)	188(50.5%)	100(26.9%)

254(68.3%) of the respondents did not realize that they brought the problem on themselves, 72(19.4%) used somewhat, 44(11.8%) used quite a bit, and 2(0.5%) realized that they brought the problem on themselves a

great deal. 14(3.8%) of the respondents did not criticize or lecture themselves, 70(18.8%) used somewhat, 188(50.5%) used quite a bit, and 100(26.9%) criticized or lectured themselves a great deal.

Table 6: The use of Escape Avoidance coping strategy among the respondents

Escape Avoidance coping strategy	Not used, n(%)	Used somewhat, n(%)	Used quite a bit, n(%)	Used a great deal, n(%)
Took it out on other people	160(43.0%)	104(28.0%)	54(14.5%)	54(14.5%)
Hoped a miracle would happen	10(2.7%)	42(11.3%)	134(36.0%)	186(50.0%)
Tried to make myself feel better by eating, drinking, smoking, using drugs or medication, etc	34(9.1%)	64(17.2%)	186(50.0%)	88(23.7%)
Avoided being with people in general	16(4.3%)	102(27.4%)	94(25.3%)	160(43.0%)
Talked to someone about how I was feeling	18(4.8%)	60(16.1%)	220(59.1%)	74(19.9%)

160(43.0%) of the respondents did not take it out on other people, 104(28.0%) used somewhat, 54(14.5%) used quite a bit, and 54(14.5%) took it out on other people a great deal. 10(2.7%) of the respondents did not hope that a miracle would happen, 42(11.3%) used somewhat, 134(36.0%) used quite a bit, and 186(50.0%) hoped a miracle would happen a great deal. 34(9.1%) of the respondents did not try to make themselves feel better by eating, drinking, smoking, using drugs or medication,

etc., 64(17.2%) used somewhat, 186(50.0%) used quite a bit, and 88(23.7%) used a great deal.

In addition, 16(4.3%) of the respondents did not avoid being with people in general, 102(27.4%) used somewhat, 94(25.3%) used quite a bit, and 160(43.0%) avoided being with people in general a great deal. 18(4.8%) of the respondents did not talk to someone about how they were feeling, 60(16.1%) used somewhat, 220(59.1%) used quite a bit, and 74(19.9%) used a great deal.

Table 7: The use of Painful Problem-solving coping strategy among the respondents

Painful problem-solving coping strategy	Not used, n(%)	Used somewhat, n(%)	Used quite a bit, n(%)	Used a great deal, n(%)
Just concentrated on what I had to do next - the next step	6(1.6%)	24(6.5%)	152(40.9%)	190(51.1%)

6(1.6%) of the respondents did not just concentrate on what they had to do next, 24(6.5%) used somewhat, 152(40.9%) used quite a bit, and 190(51.1%) used a great deal.

Table 8: The use of Positive Re-appraisal coping strategy among the respondents

Positive Re-appraisal coping strategy	Not used, n(%)	Used somewhat, n(%)	Used quite a bit, n(%)	Used a great deal, n(%)
I prayed	4(1.1%)	14(3.8%)	90(24.2%)	264(71.0%)
I found a new faith	10(2.7%)	48(12.9%)	72(19.4%)	242(65.1%)

4(1.1%) of the respondents did not pray, 14(3.8%) used somewhat, 90(24.2%) used quite a bit, and 264(71.0%) prayed a great deal. Moreover, 10(2.7%) of the respondents did not find a new faith, 48(12.9%) used somewhat, 72(19.4%) used quite a bit, and 242(65.1%) used a great deal.

Table 9: The use of Confrontative coping strategy among the respondents

Confrontative coping strategy	Not used, n(%)	Used somewhat, n(%)	Used quite a bit, n(%)	Used a great deal, n(%)
I expressed anger to the person(s) who caused the problem	168(45.2%)	94(25.3%)	58(15.6%)	52(14.0%)

168(45.2%) of the respondents did not express anger to the person(s) who caused the problem, 94(25.3%) used somewhat, 58(15.6%) used quite a bit, and 52(14.0%) used a great deal.

Table 10: The use of Self-controlling coping strategy among the respondents

Self-controlling coping strategy	Not used, n(%)	Used somewhat, n(%)	Used quite a bit, n(%)	Used a great deal, n(%)
I tried to keep my feelings to myself	58(15.6%)	118(31.7%)	106(24.2%)	90(24.2%)

58(15.6%) of the respondents did not try to keep their feelings to themselves, 118(31.7%) used somewhat, 106(24.2%) used quite a bit, and 90(24.2%) used a great deal.

Table 11: The use of Distance coping strategy among the respondents

Distance coping strategy	Not used, n(%)	Used somewhat, n(%)	Used quite a bit, n(%)	Used a great deal, n(%)
I tried to forget the whole thing	24(6.5%)	78(21.0%)	160(43.0%)	110(29.6%)

24(6.5%) of the respondents did not try to forget the whole thing, 78(21.0%) used somewhat, 160(43.0%) used quite a bit, and 110(29.6%) of the respondents tried to forget the whole thing a great deal.

Tests of Research Hypotheses

Hypothesis 1

There is no statistically significant relationship between socio-demographic characteristics (age, type of marriage,

duration of marriage, husband’s educational qualification, and presence of depression among the infertile women (wife’s educational qualification, and monthly income) (CI=95.0%).

Table 12: The test of hypothesis 1

	Total	Chi-square value	Degree of freedom (df)	p-value
Age	372	816.033	172	.000
Type of marriage	372	231.775	43	.000
Duration of marriage	372	629.925	129	.000
Husband’s educational qualification	372	1099.784	215	.000
Wife’s educational qualification	372	1122.456	258	.000
Monthly income	372	297.079	86	.000

Consequently, the relationship between the socio-demographic variables and the presence of depression was examined to look for association. A Chi-square test with age (df=172) was performed resulting in a test statistics of 816.033, type of marriage (df=43) was performed resulting in a test statistics of 231.775, duration of marriage (df=129) was performed resulting in a test statistics of 629.925, husband’s educational qualification (df=215) was performed resulting in a test statistics of 1099.784, wife’s educational qualification (df=258) was performed resulting in a test statistics of 1122.456, and monthly income (df=86) was performed resulting in a test statistics of 297.079. These results all had p-value less

than 0.001. Hypothesis 1 was rejected.

Therefore, there is a statistically significant relationship between socio-demographic characteristics (age, type of marriage, duration of marriage, husband’s educational qualification, wife’s educational qualification, and monthly income) and presence of depression among the infertile women.

Hypothesis 2

There is no statistically significant relationship between coping strategies and level of depression among the infertile women.

Table 13: The test of hypothesis 2

	Total	Chi-square value	Degree of freedom (df)	p-value
Coping strategies	372	6024.374	2623	.000

The relationship between coping strategies and level of depression among the infertile women was examined. A Chi-square with (df=2623) was performed resulting in a test statistics of 6024.374 (p<0.001). Hypothesis 2 was rejected. Therefore, there is a statistically significant relationship

between coping strategies and level of depression among the infertile women.

Hypothesis 3

There is no statistically significant relationship between

Table 14: The test of hypothesis 3

Seeking Social Support coping strategy	Not used, n(%)	Used somewhat, n(%)	Used quite a bit, n(%)	Used a great deal, n(%)	Degree of freedom (df)	Chi-square	p-value
I got professional help	34(9.1%)	104(28.0%)	156(41.9%)	78(21.0%)	129	548.155	.000
Accepted sympathy and understanding from someone	8(2.2%)	80(21.5%)	208(55.9%)	76(20.4%)	129	550.896	.000
I asked a relative or a friend whom I respected for advice	12(3.2%)	74(19.9%)	200(53.8%)	86(23.1%)	129	564.703	.000
I talked to someone who could do something concrete about the problem	22(5.9%)	86(23.1%)	194(52.2%)	70(18.0%)	129	492.142	.000
I talked to someone to find out more about it	14(3.8%)	76(20.4%)	160(43.0%)	122(32.8%)	129	536.501	.000

Seeking Social Support coping strategy and level of depression among the infertile women. With a p-value less than 0.001 in all checked parameters,

hypothesis 3 was also rejected.

Therefore, there is a statistically significant relationship between Seeking Social Support coping strategy and level

of depression among the infertile women.

Prevalence of Depression among the Respondents

Table 3 revealed that majority (39.2%) of the infertile women in this current study had a minimal or normal level of depression with a Beck's Depression Inventory (BDI) score ranging from 0-10. A few (9.7%) of the infertile women had a borderline clinical depression, while 18.3% had a moderate depression. Similar findings were recorded by (Odunvbun, 2018) where 48.1% prevalence of depression was reported among infertile women in Delta State, South-South Nigeria.

About 24.2% of the respondents in this current study had a mild mood disturbance level of depression, while 4.8% had a severe depression. This is in disagreement with a study conducted by (Alimohamadi, 2020) whose findings revealed that approximately 40.0% of the infertile women had symptoms of severe depression and anxiety.

However, it is safe to say that the infertile women in this current study were not depressed since majority of them had a good BDI score. This is quite impressive, because several studies have reported that infertility comes with its own social and psychological challenges such as anxiety, depression, and social withdrawal (Rooney, 2018).

Associated Factors of Depression among the Respondents

Table 12 revealed that socio-demographic characteristics such as age, type of marriage, duration of marriage, husband's educational qualification, wife's educational qualification, and monthly income were significantly related to presence of depression among the respondents. This finding is in consonance with the finding of another study (Oladeji, 2018) which identified that some socio-demographic characteristics associated with depression include age and duration of marriage (≥ 10 years). Similar finding was reported by (Yilmaz, 2020) who stated that education, age, socio-economic status, and individual characteristics could be great factors causing depression. The duration of infertility can result in depression (Szkodziak, 2020). It was further stated that women with infertility whose duration of infertility were between 4-6 years had the tendency of depressive symptoms (Szkodziak, 2020).

Factors causing depression are often multi-factorial. But then, socio-demographic characteristics being associated with depression in this current study are quite predictable, most especially age, educational qualification, type of marriage, and duration of marriage. Generally, the age of an individual determines how long the person has been on earth and what he or she has experienced. There is bound to be increased level of anxiety and depressive symptoms as infertile women move down the reproductive age as their chances of becoming mothers reduce. In fact, (Aiyenigba, 2019) noted that psychological distress such as depression was higher in infertile women above 35 years.

Regarding the level of education, education makes a woman feel independent, strong, and less vulnerable to

unjustified societal pressures. Indeed, every girl should be encouraged to receive higher education throughout the world so that she can be prepared to stand up for her rights and boldly face the challenges that come later. In many traditional societies to date, the main role of the females in the family is to bear children and be a home maker. So, when a woman fails to fulfil one of those roles, she is deemed useless and worthless by the society. On the other hand, professional women contribute financially to the family's well-being and stay productive, which automatically increases their value.

Nevertheless, the duration of marriage clearly reflects how long an infertile woman has been battling with infertility which in most cases discourages her.

Coping Strategies Adopted by the Respondents

The findings from this current study established that majority used seeking social support coping strategy as 28.0% got professional help somewhat, and 41.9% used it quite a bit. This finding agrees with (Steuber, 2015) findings which revealed that the respondents made known that social support decreases depression and infertile women who received family support were more likely to complete infertility treatment. Social support has a great impact on both physical and mental health. Social support influences people's choices on health issues and behaviors either positively or negatively. Social support helps people to cope well with stress and also enhances motivation (Cherry, 2020).

The use of Accepting Responsibility coping strategy was adopted as majority utilized "Criticized or lectured myself". This finding is in agreement with (Afshani, 2019)'s study which discovered that self-compassion which comprises of self-kindness, talking to self, common humanity, and mindfulness is a good way of coping with infertility.

The use of Escape Avoidance coping strategy was also utilized as infertile women tried to make themselves feel better by eating, drinking, smoking, using drugs or medication, etc., as 17.2% used it somewhat, 50.0% used it quite a bit, and 23.7% used it a great deal. Moreover, hoping for a miracle as a coping mechanism was used somewhat by 11.3%, whereas 36.0% used it quite a bit, and 50.0% used it a great deal.

In discordance with the findings of (Elyasi, 2020) which reported two main styles of coping strategies: emotion-focused style which includes ability to relieve negative emotional responses associated with distress, and problem-focused style which includes psychological-based processing of actions, and information, are majorly used for coping mechanism.

The use of Painful Problem-solving coping strategy was used by almost all the respondents (98.4%). However, Positive Re-appraisal coping strategy was of positive use as 71.0% of the respondents prayed a great deal. 65.1% of the respondents found a new faith a great deal. These findings are quite similar to (Mohammed-Durosolorun, 2019)'s study where it was established that most women

with infertility seek spiritual help relating to their faith, though some of the educated ones mixed spiritual help with medical treatment.

The use of Self-controlling coping strategy was of positive use as 84.4% in total tried to keep their feelings to themselves which agrees with the findings of (Elyasi, 2020).

The use of Distance coping strategy including trying to forget the whole thing was used somewhat by 21.0%, 43.0% used it quite a bit, and 29.6% used it a great deal. This is in agreement with (Jordan, 2015)'s study who reported two rationally derived theory of coping meta-categories called problem-focused coping and emotion-focused coping. Problem-focused coping included efforts to manage the stressor, and change the person's environment and relationship causing the stress, while emotion-focused coping was found to regulate emotional distress caused by stressors.

Various coping strategies utilized by the respondents in this current study include Seeking Social Support, Accepting Responsibility, Escape Avoidance, Painful Problem-solving, Positive Re-appraisal, Confrontative, Self-controlling, and Distance.

Nonetheless, it is pertinent to point out some of the limitations of this current study. Several parameters of the study were based on self-report and are subject to recall bias. Prospects for further research include the fact that the sample size was modest to make any wide-scale assumptions. Similar studies should be repeated using both rural and urban samples with different psychological variables to find the similarities and differences between various groups of people with diverse background.

CONCLUSION

There is a low level of depression among infertile women attending gynecology clinics at University College Hospital, Ibadan, South-West Nigeria. Infertile women seeking treatment for infertility should be screened for depression. Healthcare providers need to assess the general and psychological health of infertile women, and care for them in a contextually and culturally appropriate manner, in order to improve their health status and quality of life.

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