

Research Paper

Exploring the Relationship between Anxiety and Quality of Life in Females with PCOS / PCOD

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ABSTRACT

Polycystic ovary syndrome or disease is an endocrine disorder which can impact female's Quality of life and increase their level of anxiety. The objective of this research was to examine the relationship between Anxiety and Quality of life in females with PCOS/PCOD. There were a total 99 females who participated and were asked to fill out two questionnaire forms on Quality of life (QOLS) and Anxiety (STAI). The results showed that there is negative correlation between Anxiety and Quality of life in females diagnosed with PCOS/PCOD ($r = -.541, p < 0.01$) and the correlation of Quality of Life and State Anxiety obtained was $r = -.497, p < 0.01$, which indicates that it is moderately correlated. It can be concluded that the Quality of life will decrease with the increase in level of Anxiety in females diagnosed with PCOS/PCOD.

Keywords: PCOS/PCOD · Anxiety · Quality of Life · QOLS · STAI

A) Historical Perspective

1) Anxiety

Approximately around 460 BC to 370 AD, in a Greek medical text named as Hippocratic Corpus, in which Nicanor, a man who suffered from phobia was mentioned. There are many philosophical writings available by a Stoic in which modern perspectives on anxiety are mentioned. It mainly focuses on its clinical characteristics and cure. Cicero wrote that worry, affliction and anxiety are called disorders in his five books named Tusculan Disputations. His books also revealed that sadness and anxious affect are not the same and anxiety is a medical illness (aegritudo). The TD, written by Cicero is used as a reference mainly for cognitive therapy. He was the one who mentioned the difference between trait anxiety and state anxiety. But Cattell and Schleier, are known for popularizing these terms.

The literature of Greek and Latin provided information about how one can recognize chronic anxiety and its treatment. A book named "Peace of Mind" by Seneca explained how a person can get free from anxiety. He mentions that when a person is mentally undisturbed at that time, he is in an ideal state of according to him people cannot be carefree and enjoy life

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because of their fear of death. Based upon this thought Kierkegaard, Heidegger, and existentialist philosophers proposed that anxiety is caused when a man realize that he is on this planet for a certain period of time and focusing on the present can help them to stop worrying and prevent anxiety. Seneca in his book *Shortness of Life* suggest one should unite past, present and future at a time which in modern term is known as mindfulness meditation. Epicurius, founder of Epicureanism recommended on ways to get relief from anxiety and suggested that one should reach a state known as ataraxia in which the mind is care free to lead a happy life.

For many centuries the concept of anxiety was lost. People did suffer from anxiety but unfortunately, they were diagnosed with some other disorder. Robert Burton published a review of literature titled in 1621. The term melancholia was used for anxiety and depression both. He believed that fear and sorrow are interconnected. During the 18th century, the symptoms of panic attacks was considered as the symptoms of melancholia. 10 major classifications of disease were given by Boissier S. (1706- 1767), he subdivided the 8th class which was of Mental disorders into 4 categories. The disorder related to anxiety was Panophobia also known as panic terror. A similarity between the subtypes of panophobia and recent anxiety disorders can be seen, for instance, another name for panophobia phrontis is worry, which is quite similar to the recent GAD. Before 19th century, anxiety was not known as separate illness but things started to change and approximately around 20th century various new diagnostic categories had anxiety as an important element from neurasthenia to neuroses.

Freud was the first one to mention the impact of anxiety in personality theory and causes of psychoneurotic and psychosomatic disorders. Freud believed that anxiety was something that a person could feel and it is main reason for a person to suffer from neurosis. Neurasthenia was first explained by George Miller Beard in 1869. Pierre Janet believed that our subconsciously fixed ideas bring anxiety. Emil Kraepelin did not mention about anxiety as a separate diagnosis and consider it with other diagnoses. His major work was that in manic - depressive illness he mentioned that their mood can be anxious thus, he describes anxiety in manic-depressive illness.

DSM-I which was published in 1952 mentioned anxiety similar with psychoneurotic disorders. In DSM-III update the Phobic disorders were added to anxiety disorders and which also subdivided into Agoraphobia, with/out panic attacks, Social Phobia, and Simple Phobia. Then second section was of Anxiety states which was subdivided into panic disorder (PD), GAD, and obsessive-compulsive disorder (OCD) and third section was of post-traumatic stress disorder (PTSD). In Childhood or adolescence Separation Anxiety disorder, Avoidant disorder and Overanxious disorder was added. In DSM-IV a new classification was Acute stress disorder. Later in DSM-5 anxiety disorders was divided into three groups i.e., Anxiety, Obsessive Compulsive Disorder, and trauma and stress related disorders.

2) *Quality of Life*

In 1920, Pigou was the first person to mention the term Quality of life in a book on economics and welfare but the term was popularized in the 1960s and then in 1970 the concept of quality of life (QOL) came into focus in clinical practice and research. QOL was used as a measure for quality and outcome of any medical or mental treatment and there were over ten thousand mentions of the term QOL in many researches and it was also added in the Medline.

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In 1966, Elkington used the term QOL originally in medicine and he focused on development of new technologies and how it can improve quality of life of patients. In 1980, philosophers used QOL to make moral judgments, such as they validated infanticide, euthanasia and termination of treatment for certain severely ill or handicap patients. Later in 1990s, QOL was used to measure health and happiness and various tools were development. Firstly, the tools were used to measure QOL of all patients and later it was constructed focusing on a particular disease.

There was no proper concept or theory made for QOL yet. According to the World Health Organization (WHO) – “QOL is the subjective and it depends on how an individual’s sees themselves and his satisfaction with their life.” It is also believed that QOL can be objective in nature. The domains of QOL can be – physical ability, psychological well-being, social, economic, religious and spirituality.

3) *PCOS / PCOD*

In the year 1844, Chereau and Rokitansky in a report mentioned about fibrous and sclerotic injury in the ovaries which are of degenerative nature along with hydrops follicle. Later, Partial surgery of the ovaries was suggested but in 1915, John A. McGlenn proposed to puncture the cysts present on the ovaries instead of performing a surgery. In 1935, Stein and Leventhal were the first ones to explain the irregular or absence of menstruation was because the volume of the ovaries has been increased. They observed 7 women with common characteristics such as irregular periods, hirsutism and enlargement of the ovaries and small follicles presented inside the ovaries and performed ovarian wedge resection on them. The results were that menstruation cycles of all the patients became normal and 2 patients could even become pregnant and menstruation cycles became normal for 90% of women and 65% patients even became pregnant when bilateral ovarian wedge re section was performed. However, as the treatment development the professionals started using follicle stimulating hormone (FSH) and clomiphene citrate instead of performing a surgery.

Many researchers focused on studying the causes of cystic ovaries. Fogue and Massabuau gave 3 possible reasons - inflammation, congestion and dystrophy. Stein and Leventhal reported that improper hormonal stimulation caused bilateral cystic ovaries and Plate believed that androgens in women also releases from ovaries. In 1958, some investigators believed that abnormal release of LH/FSH and androgens can be seen in females with PCOS/PCOD.

It was difficult to diagnose women with PCOS/PCOD as there were no proper test available. Later the examination of the Ultrasound reproductive system came into usage. The first person to use ultrasonography for women with PCOS was Swanson.

A conference was kept to discuss about PCOS by a National Institutes of Health. In the conference diagnostic criteria were provided which was known as later in the year 2003 a conference was held in Rotterdam; Netherlands and they constructed a new criterion known as the diagnostic criteria given by them are - decrease or absence of ovulations, increase of androgens and examination of PCOS by ultrasound.

B) *Theoretical Perspective*

1) *Anxiety*

In DSM - I, anxiety was considered similar as psychoneurotic. Anxiety was explained as an unconscious automatic reaction to a situation which is managed different defence

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mechanisms. Anxiety which is a main element in psychoneurotic disorders works as an indicator of a threat to conscious part of the personality. Later in DSM-II, anxiety was the main element in Neuroses. The explanation was anxiety given was that anxiety can either be overtly expressed or can be unconsciously seen in the form of displacement, conversion and in various other ways. It was believed that hysteria was common in females as it was caused by uterus or female semen. They usually suffered with anxiety issues because they used to stay at home most of the time. But when American Civil War happened it was seen that men also suffer from anxiety. When Russia and Japan war took place in 1904, Russians asked psychiatrists to treat soldiers after war for anxiety.

Later in 1930, many therapies like muscle relaxation techniques and electroshock therapy were used for anxiety. In 1950 fear exposure therapy came into picture then 10 years later medication for anxiety and depression was used like antidepressants. There was limited research, but in about fifty years things developed. Anxiety was then added in various literature and finally in 1980 anxiety was regarded as a disorder. Also, various assessment tools were available to measure anxiety. The credit for popularizing anxiety goes to Cattell and Spielberger. The concept of State and Trait

Anxiety was given by them in which they mentioned that state anxiety is an unappealing feeling in a particular situation and trait anxiety is an individual's characteristics or traits and because of which they are anxious in most of the situation. The State and Trait anxiety was developed by them.

2) Quality of Life

In 1980 Kaplan believed that Quality of Life is related with health and also it is a way of measuring an impact of a disease on a person's day to day functioning and life. The therapy's aim is to improve quality of life of the client and also to measure the outcome of treatment. Frisch mentioned that QOL is related to life satisfaction, positive psychology, and positive mental health. He later added the spiritual aspect to it. Beck explained QOL with his cognitive theory, he mentioned that poor QOL can cause clinical depression and other related disorders.

The main focus on measuring and improving QOL is because when observed whether the psychological or medical illness have affected the person's Quality of life or not, the information would help to plan interventions. If the QOL is improved that the chances of relapses decrease and if the QOL is at focus then it improves a person life satisfaction and chances of getting any diseases or illness decreases. The day-to-day functioning of an individual improves if their quality of life is good. In 1970s, there were many tools available which helped in measuring health and Quality of life. The tools were

- Quality of Well Being Scale, The Sickness Impact Profile, McMaster Health Index Questionnaire, The Nottingham Health Profile, Duke Health Profile and Quality of Life-Index. In 1992, to measure QOL the most popular scale used was the 36-Item Short Form Health Survey. Then, the World Health Organization Quality of Life Assessment (WHOQOL) and The Quality-of-Life scale was developed.

3) PCOS/PCOD

Polycystic ovarian syndrome (PCOS) or Polycystic Ovarian Disease (PCOD) have become common in females. This was first reported in 1900s but there are not many research studies available however, over the last 100 years it became popular.

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PCOS/PCOD is an endocrine disorder. It impacts female's ovaries and their hormonal functions. Females who are diagnosed with PCOS/PCOD is because their ovaries release premature eggs and it converts into cysts. This leads to the increase in size of the ovaries and hormone such as androgen and estrogen increases. This can cause problems like irregular periods, weight gain, acne, increase in hair growth, infertility, obesity, mood swings, type 2 diabetes, sleep apnea, fatty liver disease and can also suffer with mood disorders, depression, anxiety, irritability, distress and altered behavior. The reason why female's get PCOS/PCOD is not sure but nature and nurture both plays a role. In a twin study the correlation of family factors and women diagnosed with PCOS/PCOD can be seen. Other factors can be unhealthy lifestyle, stress, poor quality of sleep and food. The treatment used to cure are medication, lifestyle changes, exercise and therapy. The medication is suggested to be avoided, it has many side effects and it does more bad than good.

C) *Conceptual Perspective*

1) **Anxiety**

Anxiety is not a new term. It is a part of our evolution. It is normal to experience anxiousness in some situation as it's our body's reaction towards stressful or threatening situation as it activates fight or flight responses. Anxiety and fear are different concepts. Fear is experienced when there is a real threatening situation, whereas, a person can suffer from anxiety when an individual perceives that the situation is threatful or stressful. Anxiety is a very common and a serious illness. It affects around 30% of adults at least once in their lifetime. It can affect any age groups. The gender difference in prevalence can be seen. The chances of women getting an anxiety disorder is high as compared to men (2:1 ratio).

In DSM-5, anxiety disorder is added in the 5th category. It is subdivided into - generalized anxiety disorder, panic disorder, specific phobias, agoraphobia, social anxiety disorder and separation anxiety disorder. In DSM - 5 it is mentioned that anxiety disorder is diagnosed when an individual is experiencing extreme anxiety all the time for at least six months and more and it impairs an individual's day to day functioning. This anxious feeling is not because of any substance/medication use or any other mental disorder.

Symptoms of anxiety usually are increase in heart rate and breathing, restlessness, difficulty in falling asleep and concentrating. It can affect a person's relationships, cannot perform well at school or workplace, they lose confidence and self-esteem, it causes them stress and they get mentally tired. A proper treatment should be given to an individual to overcome anxiety.

2) **Quality of Life**

The Quality-of-life is used to measure a person's health, functioning and improvement. This concept believes that happiness and satisfaction lead to a meaningful life. Good QOL leads a person to live a healthy and long life, they perform well in their respective areas, they become more creative, extrovert and also their relationships improve. Whereas, Poor quality of life leads to poor functioning and more prone to illnesses and disease.

Statement of the problem: To study the relationship between anxiety and quality of life in females diagnosed with PCOS/PCOD.

Significance of the study: Psychiatric illnesses in women diagnosed with PCOS/PCOD are often undetected. Research shows that at least any one mental health concerns such as depression, anxiety, sleep disorder, poor body image, an eating disorder, negative self-

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esteem, risk of suicide can be seen. Many research studies show that there is an increase in need for mental health professionals such as psychologists and counsellors to focus and help females having PCOS / PCOD. The present study focuses on the relationship between anxiety and quality of life in females with PCOS/PCOD. The results of this study will help researchers to understand the psychological aspect of PCOS/PCOD and also it will help in probing more on this area. It is anticipated that the results of this study will show if there is a correlation or not between anxiety and QOL. This result will guide mental health practitioners to make a proper treatment plan. The duration, intensity of mental illness and its impact on quality of life differs from female to female therefore, it becomes crucial to treat each female with PCOS/PCOD differently. Studying these variables will also help us to know the outcome of the treatment.

Rationale

Menstrual cycles and PCOS/PCOD have a lot of stigmas associated with it. Society do not openly talk about menstruation, infertility, or problem of conceiving because of which most of the females avoid visiting a doctor or mental health professional because of which they do not get proper care and treatment. Some females don't even take their PCOS or PCOD symptoms seriously. There are not many research paper available on these variables. However, this research paper will bring more clarity as it aims to examine the relationship between Anxiety and the Quality of life of Females with PCOS/PCOD.

Objectives

To examine the relationship between Anxiety and Quality of life in females with PCOS/PCOD.

Summary

Focuses on the introduction of the research paper. This Chapter includes overview which explains historical perspective, theoretical perspective and conceptual definition of Anxiety, Quality of Life, PCOS/PCOD, statement of the problem, significance of the study and objective of this research paper.

LITERATURE REVIEW

Overview

Research studies have shown that the women with PCOS/PCOD may suffer from depression, eating disorders, mood disorders, lower self-esteem, etc. The review of the literature mentioned below are of the variables used in the current studies - anxiety and quality of life in the females with PCOS/PCOD. The following studies are essential and evidence for the present study.

Anxiety and females with PCOS/PCOD

Research studies suggests that anxiety is associated with females diagnosed with PCOS/PCOD. There are many research papers on Anxiety and Depression as the variables used for PCOS/PCOD population. Varvara Laggari, et. Al., (2008) conducted a study on anxiety and depression in adolescents with polycystic ovary syndrome and Mayer-Rokitansky-Küster-Hauser syndrome. The 49 adolescent girls (27 females with a menstrual disorder, 22 females having PCOS and 5 with MRKHS; and 22 were healthy eumenorrheic adolescents) were asked to fill the Beck Depression Inventory and the State-Trait Anxiety Inventory. The result indicated that there is a relationship between PCOS and MRKHS and anxiety and depressive symptoms in adolescents.

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A study was conducted by A.A. Deeks, et al., (2011) on: Is having polycystic ovary syndrome a predictor of poor psychological function including anxiety and depression? It was a cross-sectional study compared between women (N=177) with PCOS and healthy controls (N=109). The women complete the questionnaire assessing Hospital Anxiety Depression Scale (HADS) and Multidimensional Body-Self Relations Questionnaire (MBSRQ). The finding of the study revealed that women with PCOS had increased anxiety, depression and negative body image compared to non-PCOS women. Anxiety can be predicted by the body image and self - worth and depression can be predicted by body image, self - worth and Quality of Life.

Gökhan Açmaz et al., conducted research on Level of anxiety, depression, self- esteem, social anxiety, and quality of life among the women with polycystic ovary syndrome. The tools used were Liebowitz' Social Anxiety Scale, Rosenberg' Self-Esteem Scale, Short-Form 36, Quality of Life Scale, Beck Anxiety Inventory, and Beck Depression Inventory to compare women with PCOS and women who were healthy. The result was that the infertile group had high scores for depression. For the obese group, anxiety and sensitiveness to criticism scores was high and for self-esteem and trust in people it was low. Oligomenorrhea-hirsutism group were severe for physical functioning, physical role function, pain, social functioning, emotional role function, and emotional well-being.

A research titles as: A Cross-sectional Study on the Proportion of Anxiety and Depression and Determinants of Quality of Life in Polycystic Ovarian Disease was conducted by A.Prathap, T. P. Subhalakshmi, P. J. Varghese(2018). The tools used were Hamilton Depression Rating Scale, Hamilton Rating Scale for Anxiety, Ferriman– Gallewey score for hirsutism and WHO-quality of life (QOL) BREF. Results for 64 PCOD patients showed that most of them had depression, anxiety and low quality of life.

Quality of life and females with PCOS/PCOD

Quality of life (QOL) refers to the impact of health on a person to live a satisfying life. Pinar Angin, TevfikYoldemir and Kemal Atasayan (2019) describes Quality of life among infertile PCOS patients. They compared the quality of life between PCOS and non- PCOS infertile women and were asked to fill the two questionnaires of quality of life (PCOSQ, SF-36). The quality of life was lowest among infertile PCOS women as they scored lowest on PCOSQ and SF-36.

Another study was conducted in Poland by Ewa Rzońca et.al. on the determinants of Quality of Life (QOL) and Satisfaction with Life (SwL) in Women with Polycystic Ovary Syndrome. They women with PCOS were compared with healthy controls and they completed the World Health Organization Quality of Life-BREF (WHOQOL-BREF) questionnaire, the satisfaction with life scale (SWLS), and an interview questionnaire. The results showed that the women with PCOS had lower QOL and the determinants of QOL included socio- economic standing, time from PCOS diagnosis, BMI, age, and professional activity. The SwL score was also low and the factors affecting included socio-economic standing, having children, BMI, and time from PCOS diagnosis.

Polycystic ovary syndrome/disease has an impact on woman physical and mental health this can lead to a poor quality of life. A study was conducted by Mahnaz Bahri Khomami et al. (2015) with the title: Of PCOS Symptoms, Hirsutism Has the Most Significant Impact on the Quality of Life of Iranian Women. The patients diagnosed with Polycystic ovary syndrome were asked to fill Health-related quality of life questionnaire (Persian version).

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The finding of the study revealed that the health-related quality of life was most impacted by Hirsutism, then body mass index, irregular menses, and infertility.

Aditi P. Chaudhari et al., (2018) conducted research about Anxiety, Depression, and Quality of Life in Women with Polycystic Ovarian Syndrome. To collect the data, seventy females with PCOS were clinically interviewed and they completed Hamilton scales for anxiety and depressive disorders and World Health Organization- QOL-BREF for QOL. The finding of the study revealed that Infertility and alopecia caused anxiety, acne caused depression and Lower QOL was with Hirsutism. Lower QOL was seen in psychiatric morbidity compared to those without.

In Iran, Fatemeh Bazarganipour, et al., (2013) conducted a study on psychological investigation in patients with polycystic ovary syndrome. 300 women with PCOS completed Hospital Anxiety and Depression Scale (HADS) and Short - Form Health Survey (SF-36). The result showed high anxiety and depression and menstrual irregularities. Quality of life was low in women.

Anxiety and Depression are the most common problem faced by females with PCOS/PCOD because of which they have poor Quality of Life.

Ruby Varghese et al. (2018) conducted research on Health-related complications associated with polycystic ovarian disease (PCOD). The sample size was of 100 PCOD patients and the tools used were HADS and PCOD HRQOL questionnaire. Along with this Weight gain, Obesity, Abortion, Irregular bleeding, Infertility, Acne, Acanthosis Nigricans, TSH abnormalities, Hirsutism and Hair fall were evaluated by patient history interview, case record analysis and from laboratory values. The results suggested that the patients of 17-21 years old had high BMI score (obese). The results shows that women with PCOD faces many complications. Anxiety and depression impact the most and it leads to poor Quality of life.

Summary

The contains literature review. It includes few of the past researchers and summary of the research – its title, name of the researchers, method, scales used and results etc. which aided in formulating the hypothesis of the current study.

METHODOLOGY

Introduction

The focuses on the Hypotheses (Null, Alternate and directional), sample (inclusion and exclusion criteria), tools (The State- Trait anxiety inventory and Quality of Life Scale), Research Design, Procedure, Statistical Analysis used in this research and summary.

Hypotheses

1. There will be no significant relationship between Anxiety and Quality of life in females diagnosed with PCOS/PCOD
2. There will be a significant relationship between Anxiety and Quality of life in females diagnosed with PCOS/PCOD.
3. There will be a negative correlation between Anxiety and Quality of life in females diagnosed with PCOS/PCOD

Sample: The samples size will include 100 females diagnosed with PCOS/ PCOD.

Inclusion criteria -

- Participants from only one sex i.e., Female will participate in the study.
- A Female with a diagnosis of PCOS/ PCOD by the doctor and who have a proper primary clinical record will be included.
- Female with at least fourth- or fifth-grade English reading ability.
- Female who will not be pregnant or have any background of childbirth at the time of the study.

Exclusion criteria -

- Males, females with regular periods, menarche or have reached to menopause period and other health problems.
- Females with significant chronic co-morbidities that are not related to PCOS/ PCOD.
- Females with a history of severe psychiatric disorders and those taking medications related to it were excluded.
- Females who will be pregnant or have any background of childbirth at the time of the study.

Data collection Tools

Two scales State - Trait Inventory (STAI) and Quality of Life Scales (QOLS) would be administered to the participants for inclusive groups.

1. The State - Trait Anxiety Inventory (STAI):

STAI is used to assess anxiety in females diagnosed with PCOS. This scale was developed by Spielberger and colleagues (1983). Form X and Form Y are the two main forms of the Inventory. The items in form X were replaced in Form Y of the STAI. Form Y has a simple structure, better-defined state, and trait anxiety factors and also anxiety factors are properly differentiated and stable compared to Form X. The State-Trait Anxiety Inventory is one of the first tests to assess both state and trait anxiety separately. It was designed to be self-administering and have no time limit. The S-Anxiety scale was always administered first, followed by the T-Anxiety scale. It includes 40 items with two subscales: 20 items assess state anxiety (S-Anxiety) and 20 items assess trait anxiety (T- Anxiety). The state anxiety of a person can increase in response to psychological stress and/or certain difficult situation. The state anxiety asks about how a person is feeling at the moment, S- anxiety has the 4-point Likert scale which is – 1.) Not at all, 2.) Somewhat, 3.) Moderately so, 4.) Very much so. Trait anxiety is more related to a personality trait or characteristic and not directly relating to any external challenges or psychological stress and the trait scale asks about how a person feels generally. The 4-point scale for T-anxiety is: 1.) Almost never, 2.) Sometimes, 3.) Often, 4.) Almost always.

Each STAI item is given a weighted score of 1 to 4. Scores range from 20 to 80. Low scores indicate a mild form of anxiety whereas median scores indicate a moderate form of anxiety, and high scores indicate a severe form of anxiety.

The reliability and validity of the STAI is Cronbach's alpha = 0.896. On initial development, the Test-retest reliability coefficients ranged from 0.31 to 0.86, with intervals ranging from 1 hour to 104 days. S- Anxiety was lower in the test-retest coefficients compared to the T-Anxiety. The Internal consistency alpha coefficients were high ranging from 0.86 for high school students to 0.95 for military recruits. Correlations between the STAI and the other 2

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measures- Taylor Manifest Anxiety Scale and Cattell and Scheier's Anxiety Scale Questionnaire was 0.73 and 0.85, respectively.

2. Quality-of-Life Scale (QOLS):

The quality-of-life Scale (QOLS) will be used to administer an individual's Quality of Life. The Quality-of-Life Scale (QOLS) was created by American psychologist John Flanagan in the 1970s. The original version of QOLS was known as the "Flanagan Quality of Life Scale" or "Adapted Quality of Life Scale". It had 15 items that measured five conceptual domains of quality of life: material and physical well-being, relationships with other people, social, community and civic activities, personal development and fulfilment, and recreation.

This scale was later adapted by Burckhardt and colleagues for use in chronic illness groups. They named this scale as Quality-of-Life Scale (QOLS). It has 16 items rather than the 15 items which were found in the original Flanagan version. The QOLS is usually self-reported but can also be completed by interview format it takes about 5 minutes to complete. This tool has a seven-point Likert scale, The seven responses were 7 - delighted, 6 - pleased, 5- mostly satisfied", 4- mixed, 3- mostly dissatisfied, 2- unhappy, 1- terrible.

The scores are summed, and a higher score indicates a higher quality of life. The average total score for healthy populations is 90. The QOLS is a valid instrument for measuring quality of life. It has content validity and low to moderate correlations with physical health status and disease measures. Researchers have estimated that the reliability of QOLS 16-item scale is similar to the QOLS 15-item scale. The scale is internally consistent ($\alpha = .82$ to $.92$) and have high test-retest reliability ($r = 0.78$ to $r = 0.84$)

Research Design: Correlational research design

Procedure

Those who fulfill the inclusion criteria will be sent a google form which they have to fill. The form contains information about the purpose of the study, a brief description of their involvement required and their rights as a participant. Then they have to approve to an informed consent that will assure them that the information provided by them will be kept confidential, it will be used for academic purpose only and if during the process they wish to withdraw from the study then they are free to do so. Any doubt they might have regarding the research study, or the scales would be immediately cleared, and contact information will be shared if they have any future queries.

This research tries to reduce the possibility of any negative experience a participant may face. Then the participants must fill in their demographic details and give honest responses to both the questionnaire (STAI and QOLS). Necessary instructions to complete the questionnaires will be given to them. Once the participants have submitted their responses via google forms, the data received will be scored and interpreted. Then the participants will be given a debriefing about the purpose of the study and their doubts regarding the same will be cleared. They are informed that the result of the study will be shared with them once it will be published. The participants would be thanked for their participation and contribution towards the study.

Statistical analyses

Pearson's correlation test for calculating the statistics.

Summary

This Section explained the method of this research paper which will help the reader to understand how the research was conducted. It includes the hypothesis of this research which is the prediction of the outcome and null hypothesis will be accepted or rejected depending on the results of the study. The sample and its inclusion and exclusion criteria are mentioned, this describes how and on what basis the sample was selected. Further this chapter includes the details of the data collection tools (The State-Trait Anxiety inventory and Quality of life scale) which were used in this research and mentions their developer, number of items on the scale, psychometric properties, methods of scoring and interpretation. Also includes research design, description of the whole procedure that was followed for the research and statistical analysis.

RESULTS AND DISCUSSION

Introduction

This section includes tables and graphs of the Descriptive Statistics, Correlation and Normality. The Tables and Graphs are explained in details in the Discussion.

Tables and Graphs –

Tables –

Table 1: Descriptive Statistics.

Descriptive Statistics

	N	Range	Minimum	Maximum	Sum	Mean		Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
QOLS	99	74	38	112	7608	76.85	1.317	13.108	171.824	-.307	.243	.425	.481
TA	99	99.00	49.00	148.00	10160.00	102.6263	2.15860	21.47784	461.298	-.125	.243	-.063	.481
Valid N (listwise)	99												

The Descriptive statistics of Quality of life (QOLS) and Total Anxiety (TA) was obtained on the SPSS software. The Total number of responses were 99 (N=99) of females diagnosed with PCOS/PCOD. In Quality of Life the mean statistic obtained was 76.85 and Standard Error was 1.317. The Standard Deviation and Variance was 13.108 and 171.824 respectively. In Total Anxiety which was the sum of State and Trait Anxiety the Mean statistics attained was 102.6263 and Standard error was 2.15860. Standard deviation and variance are 21.47784 and 461.298 respectively. The normality of the data collected can be analysed by reviewing Skewness and Kurtosis. In Quality of Life, Skewness statistic was -.307, Standard Error was .243 and Kurtosis Statistics was .425 and Standard Error was .481. Whereas, in Total anxiety, Skewness statistics was -.125, Standard Error is .243 and Kurtosis statistic -.063 and Standard Error is .481. Hence by interpreting the data obtained in Skewness and Kurtosis of Quality of Life and Total Anxiety, it is concluded that the data collected is normally distributed.

Table 2: Pearson’s Correlation of Quality of Life and Total State and Trait Anxiety Correlations

		QOLS	TA
QOLS	Pearson Correlation	1	-.541**
	Sig. (1-tailed)		<.001
	N	99	99
TA	Pearson Correlation	-.541**	1
	Sig. (1-tailed)	<.001	
	N	99	99

** . Correlation is significant at the 0.01 level (1-tailed).

Table 3: Pearson’s Correlation of Quality of Life and State Anxiety Correlations

		QOLS	SA
QOLS	Pearson Correlation	1	-.497**
	Sig. (1-tailed)		<.001
	N	99	99
SA	Pearson Correlation	-.497**	1
	Sig. (1-tailed)	<.001	
	N	99	99

** . Correlation is significant at the 0.01 level (1-tailed).

Graphs –

The order of the graphs is arranged according to the following:

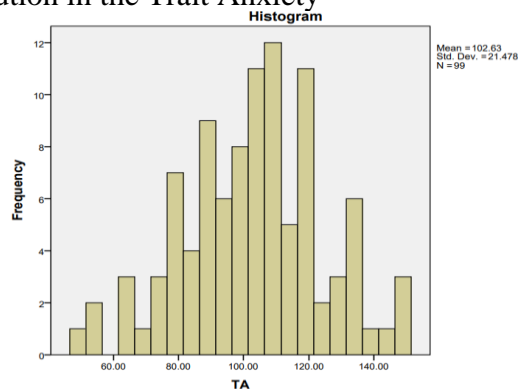
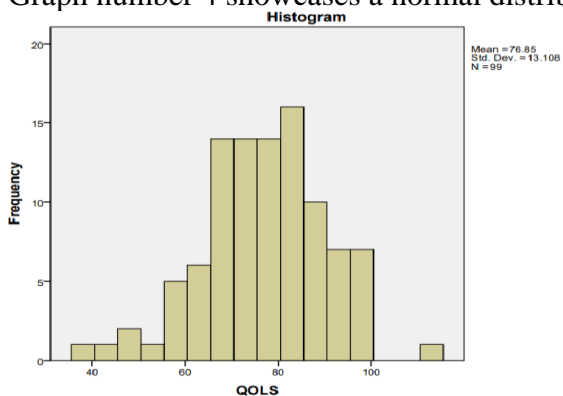
- 1) Quality of life
- 2) Anxiety
 - a. State Anxiety
 - b. Trait Anxiety

Graph number 1 showcases a normal distribution in the Quality of Life

Graph number 2 showcases a normal distribution in the Total State and Trait Anxiety

Graph number 3 showcases a normal distribution in the State Anxiety

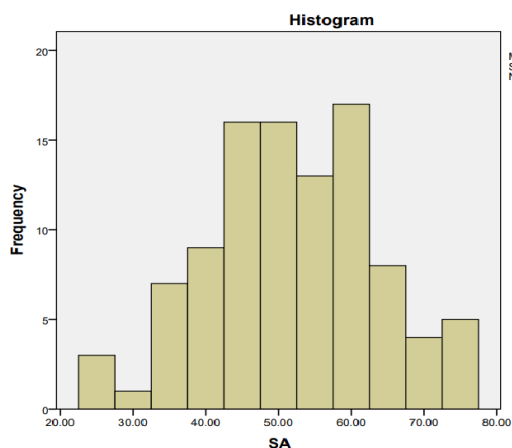
Graph number 4 showcases a normal distribution in the Trait Anxiety



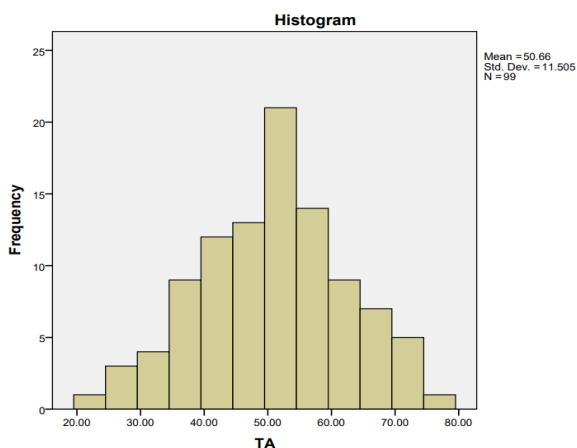
Graph number 1 showcases a normal distribution in the Quality-of-Life

Graph number 2 showcases a normal distribution in the Total State and Trait Anxiety

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Graph number 3 showcases a normal distribution in the State Anxiety



Graph number 4 showcases a normal distribution in the Trait Anxiety

DISCUSSION

Hypothesis stating that, there will be a negative correlation between Anxiety and Quality of life in females diagnosed with PCOS/PCOD was supported as the correlation between Quality of Life and Anxiety was found to be $r = -.541$, $p < 0.01$, which means it is significant and moderately correlated. It can be inferred that the Quality of life will decrease with the increase in level of Anxiety and vice versa in females diagnosed with PCOS/PCOD therefore, the hypotheses which stated that there will be no relationship between Anxiety and Quality of life in females diagnosed with PCOS/PCOD was rejected. State anxiety is when an individual has anxiety in a particular situation which s/he perceive it as threat or dangerous. Thus, it can be seen that, females diagnosed with PCOS/PCOD are anxious when they anticipate their periods or visit clinics for follow up. The correlation of Quality of Life and State Anxiety obtained was $r = -.497$, $p < 0.01$, which indicates that it is significant and moderately correlated. We can conclude that there is a negative correlation between Quality of Life and State anxiety in females diagnosed with PCOS/PCOD. Hence, Quality of Life will be poor if the level of State Anxiety is increased and vice versa. According to a study conducted in Iran by Fatemeh Bazarganipour, et al., (2013) titled - psychological investigation in patients with Polycystic Ovary Syndrome, which was conducted on 300 women with PCOS showed high anxiety and depression and menstrual irregularities and Quality of life was low in women.

Summary

This contains the tables and graphs of the data calculated. The tables included are the descriptive analysis, two Pearson's correlation table and four graphs representing the normally distributed data. The result and each table and graphs are explained in the discussion.

CONCLUSION

This research was about exploring relationship between Anxiety and Quality of life in females with PCOS/PCOD.

Hypothesis

Based on the review of literature, the following hypothesis were framed –

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- There will be a negative correlation between Anxiety and Quality of life in females diagnosed with PCOS/PCOD.

Method -

The scales used in this research to measure Anxiety and Quality of Life was State and Trait Anxiety (Charles D. Spielberger) and Quality of Life scale (Burckhardt et al.) respectively. The data was collected via google form. The participants in this research study were 99 females diagnosed with PCOS/PCOD. They were all from different age, occupation and marital status. Scoring and interpretation was done according to the instructions given in the manual. Statistical analysis was carried out on the SPSS software and Pearson's correlation was used to study the relationship between Anxiety and Quality of Life in females diagnosed with PCOS/PCOD.

Conclusion

Based on the results it can be concluded that –

- There is a negative correlation between Anxiety and Quality of life in females diagnosed with PCOS/PCOD.

Limitations of the present study –

The results of the study were that the Anxiety and Quality of life in females diagnosed with PCOS/PCOD are moderately correlated which can be because of the limitations in the design of the study.

The limitations of the study is as following –

1. The research study was conducted on the sample of clinically diagnosed PCOS/PCOD population but it was not taken into consideration whether the person had any co- morbid disease or not.
2. The psychological issues like anxiety can be caused due to other life events so it was difficult to differentiate the reason for high on anxiety.
3. Majority of response collected was from a particular vicinity, therefore, the results cannot be generalized.
4. The responses were collected by fill up the questionnaire of State and Trait Anxiety Inventory and Quality of Life Scale was by self - report method. Therefore, there are high chances that the responses given are subjective and can be randomly answered.
5. It is quite possible that the participants were at varying stages of their treatment. Their duration of treatment, use of medication, intensity of their disease and the environment in which they live, the relapse of the disease etc. are some of the factors that may have influenced the results.

Suggestions –

1. For future studies all the confounding variables and limitations of this research papers should be considered and again this research should be conducted.
2. The future research can focus on a various other disease or on risk of various comorbidities of PCOS/PCOD which include sleep apnea, cardiovascular disease, type 2 diabetes, hypertension etc. in relation with Anxiety and Quality of life.
3. Research can be again conducted by focusing on data collection from different cultural population and vicinity so that the results can be generalized.
4. The research with the focus on anxiety and quality of life of a female with respective to their duration of treatment, use of medication, intensity of their disease and the environment in which they live can be conducted.

Summary

It contains the conclusion in which the summary of the paper and result is concluded. Then the limitations are given of the research that reveals the confounding variable missed during the research procedure which affected the result. In the end, suggestions are given for future research with respect to this paper.

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Conflict of Interest

The author(s) declared no conflict of interest.

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