

Cognitive Distortion, Interpersonal Dependency, and Suicidal Ideation Among Women with and without PCOS

Niranjana Rajesh^{1*}, Femilin Davis²

ABSTRACT

Polycystic ovarian syndrome or PCOS is the most frequently diagnosed endocrine condition among women of reproductive age, where larger ovaries with tiny cysts alongside the margins are identified. Previous studies indicated that women with PCOS tend to have mental disorders like depression and anxiety and other issues related to their cognitive functioning such as decision making and problem solving. This study sought to examine: (1) the correlation between cognitive distortion, interpersonal dependency and suicidal ideation among women of reproductive age with and without PCOS and (2) the difference in the levels of cognitive distortion, interpersonal dependency and suicidal ideation among women of reproductive age with and without PCOS. A cross-sectional comparative research design will be used in the present study. A sample of 130 participants, collected through purposive sampling method, both with (N=65) and without (N=65) PCOS, were studied upon and results indicated that there exists a significant negative correlation between Cognitive Distortion with Interpersonal Dependency and Suicidal Ideation as well as significant positive correlation exists between Interpersonal Dependency and Suicidal Ideation among women with and without PCOS. The current study was inclusive, ensuring that it was not limited to the traditional dichotic view of genders. Everyone on the gender spectrum who was either affected or had the potential to be affected by the condition was included in the study, including females and non-binary categories of transgender, gender queer, a gender, gender fluid, and gender non-conforming individuals. As a result, this could pave the way for future studies to be more open and inclusive, resulting in a more accurate picture of the population. we can expand this study with the same variables and repeat it with a larger sample size to obtain more accurate results.

Keywords: PCOS, Cognitive Distortion, Interpersonal Dependency, Suicidal Ideation

The most frequent endocrinopathy (hormonal disorder) affecting women of reproductive age is polycystic ovarian syndrome (PCOS), which occurs during the early pubertal years. Polycystic ovarian syndrome is a frequent condition among women nowadays. It could be due to changes in our lifestyle, genetic issues, hormonal imbalances, and so on. Infertility is the most common problem among PCOS women. In

¹Student

²Assistant Professor

*Corresponding Author

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Cognitive Distortion, Interpersonal Dependency, and Suicidal Ideation Among Women with and without PCOS

light of these concerns, we can look at a case study of a woman with the polycystic ovarian syndrome. The majority of study results indicate that PCOS-afflicted women suffer cognitive deficits in several domains, including problem-solving, decision-making, and many facets of daily living. According to several research findings, women with PCOS are particularly vulnerable to personality and mood disorders. Due to the aforementioned factors, they might not have healthy interpersonal interactions and may have more suicidal thoughts than women without PCOS. According to the majority of research data, PCOS-positive infertile females are more likely to have these problems. Patients with PCOS have infertility more frequently. Leventhal and Stein first identified polycystic ovarian syndrome (PCOS) in 1935. The Rotterdam consensus states that PCOS should be diagnosed if two of the following three criteria are present: (a) irregular menstruation, such as oligomenorrhea and/or anovulation, (b) clinical and/or biochemical evidence of hyperandrogenism, and (c) ultra-sonographic evidence of polycystic ovaries. Despite being a common disease in women, an estimated 68 percent of total cases remain undetected. It is a hyperandrogenic disorder with an estimated frequency of 15% to 20%. At least a third of women said they saw many doctors before getting a diagnosis. Women have polycystic ovary syndrome (PCOS), the symptoms usually appear in their late teens or early twenties. Girls who show early signs of puberty, such as developing underarm or pubic hair before the age of eight, may be predisposed to PCOS later in life. Not all PCOS women will experience all of the symptoms, and each symptom can range from mild to severe. Women may appear with a variety of symptoms to various healthcare practitioners, and they may be treated just for the presenting symptoms without having the condition and its related morbidities evaluated. Because women with PCOS have an increased risk of obesity, impaired glucose tolerance, diabetes, dyslipidemia, metabolic syndrome, infertility, endometrial cancer, and anxiety and mood disorders, timely evaluations, accurate diagnosis, appropriate interventions, and multidisciplinary healthcare teams can be beneficial. The cause of PCOS is unknown, but there is substantial evidence that it is a complex trait caused by heritable influences, nonheritable intrauterine and extrauterine environmental factors, variations in insulin resistance, alterations in steroidogenesis/steroid metabolism, and alternative adaptations to energy excess. (R and colleagues, June 2020). The cause of PCOS has yet to be determined, but it is known to run in families. If any of your relatives (mother, aunts, sisters) have PCOS, your chances of developing it are increased. The following symptoms are linked to elevated hormone levels: Testosterone and androgen are male hormones that are produced in small amounts by all women's ovaries. Women with PCOS have slightly higher than normal levels of androgen, which can be linked to several of the condition's symptoms. Insulin is a hormone that regulates the amount of glucose (a type of sugar) in the blood. If you have PCOS, your body may not respond to insulin (this is known as insulin resistance), resulting in a higher glucose level. To prevent glucose levels from rising, your body produces even more insulin. High insulin levels cause weight gain, irregular periods, fertility problems, and increased androgen levels. PCOS is a common endocrine disorder that is often diagnosed in adolescence or early adulthood. The many similarities between normal puberty and PCOS symptoms in adolescence make it difficult to confirm the diagnosis. PCOS can be detrimental to a girl's self-esteem. Fortunately, there are things you can do to alleviate physical symptoms while also dealing with the emotional aspects of living with PCOS. Some PCOS girls may develop depression, in which case speaking with a therapist or other mental health professional may be beneficial. Talking with other PCOS teens and women is a great way to share treatment information and get support.

Cognitive Distortion, Interpersonal Dependency, and Suicidal Ideation Among Women with and without PCOS

Interpersonal Dependency is a fairly stable personality trait defined by the proclivity to rely on others for nourishment, support, and guidance. Interpersonal Dependency reflects a fundamental desire to establish and maintain nurturing and supportive interpersonal relationships. However, rigid and inflexible dependency has a negative impact on people's social, professional, and romantic relationships. Dependency is especially linked to negative emotions when relationships are strained. Individuals with higher levels of dependency are more sensitive to interpersonal cues and experience more negative emotions in response to interpersonal conflict and stressors. Actual or anticipated relationship disruption causes increased anxiety and depression in dependent individuals, as well as an increased risk of illness. As a result, dependency shows a link between interpersonal phenomena and emotional functioning. Cognitive Distortions are irrational or negative patterns of thought. These negative thought patterns can reduce motivation, lower self-esteem, and contribute to problems such as anxiety, depression, and substance abuse. There are various types of Cognitive Distortions that exist. One type of Cognitive Distortion is all-or-nothing thinking, which frequently involves the use of absolute terms such as never or ever. This type of faulty thinking can also include an inability to see alternative solutions or alternatives in a situation. For people suffering from anxiety or depression, this often means focusing solely on the negative aspects of any given situation. People who believe in all-or-nothing thinking believe they are either successful or total failures in life. Another sort of Cognitive Distortion is over-generalization. Overgeneralization has been linked to the onset and maintenance of a variety of anxiety disorders. People with Suicidal Ideation refer to the desire or consideration of suicide. Suicidal Ideation, on the other hand, is classified into two types: passive and active. Passive Suicidal Ideation occurs when you wish you were dead or that you could die but have no intention of committing suicide. Active Suicidal Ideation, on the other hand, is more than just thinking about it; it also includes planning how to commit suicide. Suicidal Ideation is a symptom of both major depression and bipolar disorder depression, but it can also occur in people with other mental illnesses or no mental illness at all. Suicidal Ideation can be influenced by a variety of factors. These thoughts frequently occur when you are feeling hopeless and out of control in your life, and/or as if it has no meaning or purpose. People assume that if they have a terrible experience in one setting, it will happen again in the future.

METHODOLOGY

Aim

The study intends to measure cognitive distortion, Interpersonal dependency and suicidal ideation among women with and without PCOS.

Objectives

- To assess the relationship between Cognitive distortion and Interpersonal dependency among women with and without PCOS
- To assess the relationship between Cognitive distortion and Suicidal ideation among women with and without PCOS
- To assess the relationship between Suicidal Ideation and Interpersonal dependency among women with and without PCOS
- To compare Cognitive Distortion among women with PCOS and without PCOS.
- To compare Interpersonal Dependency among women with PCOS and without PCOS.
- To compare Suicidal Ideation among women with PCOS and without PCOS.

Cognitive Distortion, Interpersonal Dependency, and Suicidal Ideation Among Women with and without PCOS

Hypotheses

To meet the objectives of the study the following hypothesis has been put forward.

1. H0:1. There is no significant relationship between Cognitive distortion and Interpersonal dependency among women with and without PCOS
2. H0:2. There is no significant relationship between Cognitive distortion and Suicidal ideation among women with and without PCOS
3. H0:3. There is no significant relationship between Suicidal Ideation and Interpersonal dependency among women with and without PCOS
4. H0:4. There is no significant difference in Cognitive Distortion among women with PCOS and without PCOS.
5. H0:5. There is no significant difference in Interpersonal Dependency among women with PCOS and without PCOS.
6. H0:6. There is no significant difference in Suicidal Ideation among women with PCOS and without PCOS.

Variables

- **Independent variable:** cognitive distortion, Interpersonal dependency
- **Dependent Variable:** suicidal ideation

Sample

The study was conducted in Kerala. The study is conducted among women with PCOS (n=65) and without PCOS (n=65). The purposive sampling method is used to select samples. It was based on the characteristics of the population and the objective of the study. This kind of sampling is highly effective in situations where the researcher needs to quickly reach a targeted sample and save both time and money.

Instruments

Dysfunctional attitude scale, DAS (Weissman,1980): The DAS is a 40-item instrument designed to identify cognitive distortions particularly the distortions that may underlie or cause depression. Based on the cognitive therapy model of Aaron Beck, the items on the DAS were constructed so as to represent seven major value systems: approval, love, achievement, perfectionism, entitlement, omnipotence, and autonomy. Two 40-item parallel forms of the DAS, which are highly correlated and have roughly the same psychometric properties, were derived from an original pool of 100 items. Although the overall score on the DAS is considered the key measure, practitioners can also examine areas where the respondent is emotionally vulnerable or strong by analyzing responses to specific items. The DAS is easily scored by using zeros for items omitted, assigning a score of 1 (on a 7-point scale) to the adaptive end of the scale, and simply summing up the scores on all items. With no items omitted, scores on the DAS range from 40 to 280 with lower scores equaling more adaptive beliefs (few cognitive distortions).

Interpersonal dependency inventory, IDI (Hirschfield, et.al.,1977): The interpersonal dependency inventory scale is used to measure interpersonal dependency. The IDI is a 48-item instrument designed to measure the thoughts, behaviors, and feelings revolving around the need to associate closely with valued people. The theoretical base for the IDI is a blend of psychoanalytic, social learning, and attachment theories emphasizing the importance of excess dependency for a range of emotional and behavioral disorders. Based on an initial pool of 98 items, the 48-item scale was developed using factor analysis. This resulted in three subscales: Emotional reliance on others (items 3, 6, 7, 9, 12, 15, 16, 19, 22, 26, 29, 33,

Cognitive Distortion, Interpersonal Dependency, and Suicidal Ideation Among Women with and without PCOS

35, 38, 40, 43, 45, 47), lack of self-confidence (items 2, 5, 10, 13, 17, 19, 20, 23, 24,27, 30, 32, 36, 29, 41,44,46) and assertion of autonomy (items 1,4, 8, 11,14, 18, 21, 25, 28, 31, 34, 37,42, 48). The IDI is scored by summing the responses from each of the three subscales to yield scores for each one. Items 10, 23, and 44 on the self-confidence subscale are rescored by subtracting the item response from 5. The scores on the three subscales can be summed for the overall score. A new, more complicated scoring system for the total score, utilizing weighted scores and producing means of around 50 for normal samples, is available from the author.

Suicidal ideation scale (Sisodia & Bhatnagar ,2011): The suicidal ideation scale consists of 25 items. The scale consists of 21 positive statements and 4 negative statements. The numbers of negative statements are 11,13,18 and 24. Reliability: The reliability of the scale was determined by the test-retest method and internal consistency method. The test-retest reliability was 0.78 and the internal consistency value for the scale is 0.81 Validity: Besides the face validity as all terms of the scale are concerned with the variable under focus the scale has high content validity. The scale was validated against the external criteria and the coefficient obtained was 0.74

Procedure

For the purpose of the data collection participant were selected from the following inclusion-exclusion criteria through the purposive sampling method. All participants are informed about the nature of the study and assurance is given that their responses to the study questions will remain confidential. To participate in the study, all respondents gave their informed consent. The participation is on a voluntary basis and did not receive any financial reward. Data is collected through the direct visit and by circulating Google Forms. For participants who found it difficult to follow the questionnaire, the researcher given assistance.

RESULT AND DISCUSSION

Table 4.1 Mean and standard deviation of cognitive distortion, interpersonal dependency, and suicidal ideation, among women with and PCOS

Variables	N	Mean	SD
Cognitive distortion total	130	168.95	26.555
Interpersonal dependency total	130	114.34	17.494
Emotional reliance on others	130	43.62	9.940
Lack of self-confidence	130	36.58	8.244
Assertion of autonomy	130	34.14	7.431
Suicidal ideation total	130	59.42	16.660

For the Dysfunctional Attitude scale measuring cognitive distortions, the maximum possible score is 280 with mean score of 168.95 and standard deviation of 26.555. For the Interpersonal Dependency scale, the maximum possible score is 192 with mean score of 114 and standard deviation of 17.494. The mean and standard deviation of the dimensions of Interpersonal Dependency. For the dimension of Emotional reliance on others, the maximum score possible is 72 with a mean score of 43.62 and standard deviation of 9.940. The maximum score possible for the Lack of self-confidence is 64 with a mean score of 36.58 and standard deviation of 8.244. The maximum score possible for the Assertion of autonomy is 56 with a mean score of 34.14 and standard deviation of 7.431. For the Suicidal Ideation

Cognitive Distortion, Interpersonal Dependency, and Suicidal Ideation Among Women with and without PCOS

scale, the maximum possible score is 125 with mean score of 59.42 and standard deviation of 16.660.

Table 4.2 Mean and standard deviation of cognitive distortion, interpersonal dependency, and suicidal ideation, among women without PCOS

Variable	N	Mean	SD
Cognitive distortion total	130	170.51	34.020
Interpersonal dependency total	130	114.60	19.908
Emotional reliance on others	130	42.51	9.978
Lack of self-confidence	130	36.57	7.529
Assertion of autonomy	130	35.52	8.191
Suicidal ideation total	130	58.02	18.485

For the Dysfunctional Attitude scale measuring cognitive distortions, the maximum possible score is 280 with mean score of 170.51 and standard deviation of 34.020. For the Interpersonal Dependency scale, the maximum possible score is 192 with mean score of 114.60 and standard deviation of 19.908. The mean and standard deviation of the dimensions of Interpersonal Dependency. For the dimension of Emotional reliance on others, the maximum score possible is 72 with a mean score of 42.51 and standard deviation of 9.978. The maximum score possible for the Lack of self-confidence is 64 with a mean score of 36.57 and standard deviation of 7.529. The maximum score possible for the Assertion of autonomy is 56 with a mean score of 35.52 and standard deviation of 8.191. For the Suicidal Ideation scale, the maximum possible score is 125 with mean score of 58.02 and standard deviation of 18.485

The results of the hypothesis testing are given below:

Hypothesis 1: There is no significant relationship between Cognitive distortion and Interpersonal dependency among women with and without PCOS.

Table 4.3 Spearman's Rank Correlation of Cognitive distortion and Interpersonal dependency among women with and without PCOS

Variable	PCOS	Interpersonal dependency	Emotional reliance on others	Lack of self-confidence	Assertion of autonomy
Cognitive distortion	yes	-.459**	-.359**	-.488**	.025
	no	-.354**	-.420**	.342**	-.098

**= $p < 0.01$, *= $p < 0.05$

The above table shows that there exists a significant negative correlation between Cognitive Distortions and Interpersonal Dependency, emotional reliance on others the dimensions of Interpersonal Dependency among women with and without PCOS. High negative correlation exists between lack of self-confidence dimensions of Interpersonal Dependency and Cognitive Distortions among women with PCOS and high positive correlation exists between lack of self-confidence dimensions of Interpersonal Dependency and Cognitive Distortions among women without PCOS. Hence hypothesis rejected.

Cognitive Distortion, Interpersonal Dependency, and Suicidal Ideation Among Women with and without PCOS

Hypothesis 2: There is no significant relationship between Cognitive distortion and Suicidal ideation among women with and without PCOS.

Table 4.4 Spearman's Rank Correlation of Cognitive distortion and Suicidal ideation among women with and without PCOS

Variable	PCOS	Suicidal ideation
Cognitive distortion	Yes	-.589**
	No	-.289*

**= $p < 0.01$, *= $p < 0.05$

High negative correlation exists between Cognitive Distortions and Suicidal Ideation among women with PCOS and significant negative correlation exists between Cognitive Distortion and Suicidal Ideation among women without PCOS. Hence hypothesis rejected.

Hypothesis 3: There is no significant relationship between Suicidal Ideation and Interpersonal dependency among women with and without PCOS.

Table 4.5 Spearman's Rank Correlation of Suicidal Ideation and Interpersonal dependency among women with and without PCOS

variable	PCOS	Interpersonal dependency	Emotional reliance on others	Lack of self-confidence	Assertion of autonomy
Suicidal ideation	Yes	.475**	.318**	.401**	.187
	No	.527**	.510**	.539**	.092

**= $p < 0.01$, *= $p < 0.05$

High positive correlation exists between Suicidal Ideation and Interpersonal Dependency, emotional reliance on others and lack of self-confidence dimensions of Interpersonal Dependency among women with and without PCOS. Hence hypothesis rejected.

Hypothesis 4: There is no significant difference in Cognitive Distortion among women with PCOS and without PCOS.

Table 4.6 Summary of Mann-Whitney U test of comparing cognitive distortion among women with PCOS and without PCOS

	PCOS	N	Mean Rank	Z	U	Sig.
Cognitive Distortion	Yes	65	62.11	-1.027	1892.000	.304
	No	65	68.89			

The result shows that there is no significant difference in cognitive distortions among women with PCOS and without PCOS, $P > 0.05$. Hence the hypothesis accepted. Hypothesis 5: There is no significant difference in Interpersonal Dependency among women with PCOS and without PCOS.

Cognitive Distortion, Interpersonal Dependency, and Suicidal Ideation Among Women with and without PCOS

Table 4.7 Summary of Mann-Whitney U test of comparing interpersonal dependency among women with PCOS and without PCOS

	PCOS	N	Mean Rank	Z	U	Sig.
Interpersonal dependency	Yes	65	66.04			
	No	65	64.96	-.163	2077.500	.871
Emotional reliance on others	Yes	65	67.66			
	No	65	63.34	-.655	1972.000	.513
Lack of self-confidence	Yes	65	65.72		2098.500	.948
	No	65	65.28	-.065		
Assertion of autonomy	Yes	65	61.89			
	No	65	69.11	-1.093	1878.000	.274

The result shows that there is no significant difference in Interpersonal Dependency among women with and without PCOS and the corresponding dimensions of Interpersonal Dependency such as Emotional reliance on others, Lack of self-confidence and Assertion of autonomy also have no significance difference among women with and without PCOS, $P > 0.05$. Hence the hypothesis accepted.

Hypothesis 6: There is no significant difference in Suicidal Ideation among women with PCOS and without PCOS.

Table 4.8 Summary of Mann-Whitney U test of comparing suicidal ideation among women with PCOS and without PCOS

	PCOS	N	Mean Rank	Z	U	Sig.
Suicidal ideation	Yes	65	67.83			
	No	65	63.17	-.706	1961.000	.480

The result shows that there is no significant differential Ideation among women with and without PCOS, $P > 0.05$. Hence the hypothesis accepted.

SUMMARY AND CONCLUSION

Implications of the Study

According to the current study's findings, there is no statistically significant difference between women with and without PCOS in terms of cognitive distortion, interpersonal dependency, and suicidal ideation. In the future, we can expand this study with the same variables and repeat it with a larger sample size to obtain more accurate results. We exclude some populations from this study, such as pregnant women with PCOS. In future research, we can include this population and compare it to other populations, such as married women who are not pregnant and have PCOS. The current study was inclusive, ensuring that it was not limited to the traditional dichotic view of genders. Everyone on the gender spectrum who was either affected or had the potential to be affected by the condition was included in the study, including females and non-binary categories of transgender, genderqueer, agender, gender-fluid, and gender non-conforming individuals. As a result, this could pave the way for future studies to be more open and inclusive, resulting in a more accurate picture of the population. Our research focused on a specific age group of women. As a result, more research could be done on the age-specific factors that act as a buffer, protective factor, or

Cognitive Distortion, Interpersonal Dependency, and Suicidal Ideation Among Women with and without PCOS

risk factor in the development of negative mental health functioning. It will improve the accuracy of the research results. Future studies could compare these variables with a large population sample of women with PCOS after some intervention to improve their overall mental health, versus a control group of participants who receive no such intervention. The current study's findings may be useful for medical professionals who work with PCOS patients, as they may be more sensitive and careful when dealing with these patients, knowing about not only their physical but also their mental and emotional struggles. Treatment and intervention to improve their mental health may help to improve their physical condition as well, because a mentally healthy person will fare better under adverse conditions.

Limitations of the Study

The current study included only 130 people. As a result, our analysis of the data is very limited to a small number and cannot be generalized to a larger population with greater accuracy. The majority of those who took part in the study came from cities, and their highest level of education was higher than a high school diploma. Most of the participants are unmarried. As a result, future research can concentrate on examining the impact of environmental resources or stressors in the participants' lives on cognitive distortions, interpersonal dependency, and suicidal ideation, in addition to the diagnosis of PCOS.

Participants in the study ranged in age from 18 to 25. Future studies could be more age inclusive to examine how a PCOS diagnosis affects the various age groups on the spectrum. Purposive sampling was used in this study to complete the sampling procedure and collect data from participants. As a result, the study's findings may contain errors due to biased sampling. As a result, any future research on the subject could use a probability sampling method rather than a non-probability sampling method to produce results with far greater accuracy when applied to a larger population. Only the cognitive distortion, interpersonal dependency, and suicidal ideation aspects of PCOS were studied in this study. As a result, future studies could broaden the scope of the study and delve deeper into the vast array of areas associated with a PCOS diagnosis. The current study did not account for cultural influences on the severity of the conditions experienced by women with PCOS.

Data was collected by sending Google forms to participants via online platforms; some data was also collected offline. This online participation raises the possibility of bias in the responses collected, as participants may have skimmed over, been confused about, or skipped reading some questions before responding. As a result, greater accuracy in responses could be obtained in future studies if researchers collected data offline, in person. Furthermore, if any question causes confusion in the respondent, the researcher could provide direct assistance.

Suggestions for Future Research

The variables included in the present study were limited. Hence further studies may be conducted incorporating new variables. The study can redesign to include more samples from different area. Various extraneous factors, such as family structure, physical status, emotional maturity etc. should also be explored in the future study. The study can redesign by following longitudinal study. Limitations are lessened as a result.

CONCLUSION

Cognitive distortion and interpersonal dependency, as well as cognitive distortion and suicidal ideation, have a significant negative correlation. It should also be noted that there was no statistically significant difference between PCOS and non-PCOS women in cognitive distortion, interpersonal dependency, or suicidal ideation.

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Cognitive Distortion, Interpersonal Dependency, and Suicidal Ideation Among Women with and without PCOS

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Conflict of Interest

The author(s) declared no conflict of interest.

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