

RELATIONSHIP BETWEEN PSYCHO-SOCIO-SPIRITUAL DISTRESS AND RELIGIOSITY AMONG WOMEN WITH POLYCYSTIC OVARY SYNDROME

Wardah Ishfaq^a, Rabia Mushtaq^b, Nosheen Khalily^c, & Rahma Sohail^d

^a Assistant Professor, Department of Clinical Psychology, Shifa Tameer-e-Millat University, Islamabad, Pakistan

^b Assistant Professor, Department of Clinical Psychology, Shifa Tameer-e-Millat University, Islamabad, Pakistan

^c PhD Scholar, Department of Psychology, Rawalpindi Women University, Rawalpindi, Pakistan

^d Lecturer, Department of Clinical Psychology, Shifa Tameer-e-Millat University, Islamabad, Pakistan

* Corresponding Author: Dr. Wardah Ishfaq. Department of Clinical Psychology, Shifa Tameer-e-Millat University, Islamabad, Pakistan. Email: wardahfiaz@gmail.com

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ABSTRACT

Polycystic Ovary Syndrome (PCOS) is a complex reproductive and metabolic condition associated with psychological, social, and quality-of-life difficulties in addition to its physical manifestations. Women with PCOS may experience depression, anxiety, body-image concerns, fertility-related difficulties, interpersonal concerns, and culturally mediated expectations concerning femininity, marriage, and motherhood. Although the psychological and social dimensions of PCOS have received increasing empirical attention, the spiritual dimension remains comparatively underexplored, particularly among Muslim women. The present study examined psycho-socio-spiritual distress and Islamic religiosity among women with PCOS and investigated the relationships among psychological, social, spiritual, and religious dimensions of their experience. Differences in distress between married and unmarried women were also examined. A cross-sectional design was employed with a sample of 200 women diagnosed with PCOS, aged 18–45 years, selected through purposive sampling. Participants completed the Multidimensional Distress Inventory for Polycystic Ovary Syndrome–Urdu (MDDI-PCOS-U) and the Urdu-translated IIUM Religiosity Scale (IIUMRelS). Data were analyzed using SPSS Version 27. Participants reported psychological distress ($M = 55.86$, $SD = 11.74$), social distress ($M = 49.32$, $SD = 11.15$), spiritual distress ($M = 46.83$, $SD = 12.01$), and total psycho-socio-spiritual distress ($M = 152.01$, $SD = 26.73$). Islamic religiosity had a mean score of 26.53 ($SD = 4.12$). Religiosity was significantly negatively associated with psychological distress, $r(198) = -.74$, $p < .001$; social distress, $r(198) = -.71$, $p < .001$; spiritual distress, $r(198) = -.86$, $p < .001$; and total distress, $r(198) = -.81$, $p < .001$. Psychological, social, and spiritual distress were significantly positively intercorrelated. Married women reported higher psychological, social, spiritual, and total distress than unmarried women, with significant differences observed across all four outcomes. The findings highlight the value of culturally responsive assessment that considers psychological, reproductive, social, and spiritual dimensions of women's experiences with PCOS.

1. INTRODUCTION

Polycystic Ovary Syndrome (PCOS) is among the most prevalent endocrine disorders affecting women of reproductive age worldwide, with global prevalence estimates ranging from approximately 5% to 15% depending

on the diagnostic criteria applied, and reaching as high as 19.9% in parts of Europe and over 35% in some South Asian regions such as the Kashmir Valley when using the Rotterdam criteria, which the 2023 International Evidence-Based Guidelines recognize as the diagnostic gold standard (March et al., 2010; Teede et al., 2023). Notably, the burden of PCOS appears disproportionately elevated among Pakistani women, with cross-sectional studies reporting prevalence rates as high as 52% among women of reproductive age in Pakistan, substantially exceeding rates reported in Western populations (Butt et al., 2024; Bhatti et al., 2024). This elevated prevalence has been attributed to a combination of genetic predisposition linked to consanguineous marriage, rising rates of obesity, sedentary lifestyles, and widespread underdiagnosis rooted in limited health literacy and sociocultural stigma surrounding reproductive health disclosure. Such figures underscore not only the clinical urgency of PCOS as a public health concern in Pakistan but also the pressing need to understand its psychosocial and spiritual correlates within this specific cultural context — a need that remains largely unmet in the existing literature.

PCOS is characterized by a heterogeneous constellation of reproductive, hormonal, and metabolic disturbances. Its clinical presentation typically encompasses menstrual irregularity, hyperandrogenism, hirsutism, acne, and weight-related concerns, alongside compromised reproductive function (Azziz et al., 2016; Escobar-Morreale, 2018; Lizneva et al., 2016). Nevertheless, the sequelae of PCOS extend well beyond its somatic manifestations, exerting a pervasive influence on psychological functioning, interpersonal relationships, self-concept, sexual well-being, and overall quality of life (Barnard et al., 2007; McCook et al., 2005; Teede et al., 2010). The psychological experience of PCOS is inextricably embedded within its social and reproductive context. Affected women frequently report preoccupations concerning body image, hirsutism, weight, menstrual dysfunction, fertility, marriageability, motherhood, femininity, and social evaluation (Kitzinger & Willmott, 2002; Moran et al., 2010; Teede et al., 2023). Empirical evidence further underscores depression, anxiety, stigma, social isolation, and relational strain as core dimensions of the lived experience of PCOS, with fertility-related adversity exerting a particularly salient influence on perceptions of femininity and anticipated life roles (Trent et al., 2003). Such concerns acquire heightened significance within South Asian contexts, where reproductive health is deeply embedded within familial and sociocultural expectations, thereby intensifying interpersonal pressure and stigmatization (Sidra et al., 2019).

Building on this literature, the present study conceptualizes distress as a multidimensional construct encompassing psychological, social, and spiritual domains (Ishfaq & Mushtaq, 2024). Specifically, psychological distress is understood to comprise emotional and cognitive difficulties; social distress reflects interpersonal and reproductive concerns (Trent et al., 2003); and spiritual distress pertains to existential questions of meaning, purpose, and one's relationship with Allah (Ishfaq & Mushtaq, 2025). Religiosity — conceptualized as the internalization and enactment of religious beliefs and values (Hill & Pargament, 2003; Koenig et al., 2012) — has been associated with attenuated distress and enhanced resilience through mechanisms such as meaning-making, cognitive reappraisal, and reliance on divine support (Abu-Raiya & Pargament, 2015). Conversely, maladaptive religious interpretations may exacerbate rather than alleviate psychological suffering (Pargament et al., 2011). Within Islamic contexts specifically, religiosity permeates daily life and shapes health-related cognition and behavior in fundamental ways. Mahudin et al. (2016) advanced a culturally grounded tripartite framework conceptualizing Muslim religiosity through the constructs of Islam (ritual practice), Iman (belief), and Ihsan (spiritual excellence), thereby offering a theoretically robust lens for examining religious functioning in Muslim populations.

Despite considerable evidence on the psychological outcomes of PCOS, the relationship between multidimensional psycho-socio-spiritual distress and Islamic religiosity among Muslim women remains largely unexamined. While psychological and, to a lesser extent, social distress has received growing attention, spiritual distress remains markedly understudied, and no known study has captured all three domains simultaneously within a Muslim population, despite their conceptual interdependence. This gap is particularly consequential given the elevated prevalence of PCOS within Pakistani society and its significant bearing on women's reproductive and marital lives. It is further compounded by the fact that existing distress frameworks, developed largely within secular, Western contexts, remain empirically untested among Muslim populations, for whom religiosity is a central rather than incidental dimension of psychological functioning. The present study therefore aims to examine the relationship between multidimensional distress psychological, social, and spiritual and Islamic religiosity among Pakistani women diagnosed with PCOS.

II. METHOD

A cross-sectional correlational design was employed to examine psycho-socio-spiritual distress and Islamic religiosity among women diagnosed with PCOS. The study also examined differences in distress between married and unmarried participants.

Participants

A non-probability purposive sampling technique was employed to recruit participants from gynaecological and reproductive health settings, as the study specifically required women with a confirmed diagnosis of Polycystic Ovary Syndrome (PCOS). Women aged 18–45 years who had been clinically diagnosed with PCOS according to established criteria (Rotterdam criteria), were able to understand and respond to the study instruments in Urdu or English, and provided informed consent were included in the study. Participants were excluded if they had a history of severe psychiatric illness (e.g., psychotic disorders or bipolar disorder), were currently receiving structured psychological intervention, had major comorbid medical conditions that could confound psychological outcomes, or were pregnant at the time of data collection.

Measures

[I] The Multidimensional Distress Inventory for Polycystic Ovary Syndrome–Urdu (MDDI-PCOS-U) was used to assess multidimensional distress, including psychological, social, and spiritual dimensions, among women with polycystic ovary syndrome (PCOS; Ishfaq & Mushtaq, 2025). The inventory uses a five-point Likert-type response format ranging from Always = 5 to Never = 1. Sixteen items are reverse scored. The total score ranges from 51 to 255, with higher scores indicating greater multidimensional distress. The score range is 19–95 for Psychological Distress, 17–85 for Social Distress, and 15–75 for Spiritual Distress. The established scoring framework categorizes total scores of 61–119 as mild distress, 120–187 as moderate distress, and 188–255 as high distress. The MDDI-PCOS-U demonstrated satisfactory internal consistency, with subscale coefficients ranging from .85 to .89 and good overall internal consistency. **[II]** Islamic religiosity was assessed using the Urdu-translated IIUM Religiosity Scale (IIUMRelS). The scale conceptualizes Muslim religiosity through Islam, Iman, and Ihsan. Islam refers to observable religious practices, Iman to faith and belief, and Ihsan to the internalization and actualization of virtue and spiritual excellence (Mahudin et al., 2016). The Urdu version demonstrated satisfactory internal consistency in the present study ($\alpha = .81$). The scale contains 10 items with a potential score range of 10–40, with higher scores indicating greater Islamic religiosity. Because the IIUMRelS does not provide empirically validated cutoff scores for low, moderate, and high religiosity, the present study used the sample mean and standard deviation solely to form descriptive groups. The sample mean was 26.53 (SD = 4.12). Scores below 22 were classified as relatively low, scores from 22 to 30 as moderate, and scores above 30 as relatively high religiosity. These categories are sample-specific and should not be interpreted as validated clinical or normative classifications.

Procedure

Prior to the commencement of data collection, ethical approval for the study was formally obtained through an Ethical Review Committee/Institutional Review Board (ERC/IRB) of the respective affiliated university. Participants were approached through relevant gynaecological and reproductive-health settings. Following explanation of the study, written informed consent was obtained. Participants were informed that participation was voluntary and that their responses would remain confidential. Ethical principles were observed throughout the study. Participants provided informed consent, participation was voluntary, confidentiality was maintained, and participants were informed of their right to withdraw without penalty. The study procedures were conducted with respect for participants' privacy, dignity, and autonomy. Descriptive statistics were calculated for participant characteristics and study variables. Means, standard deviations, ranges, skewness, kurtosis, and internal consistency coefficients were examined. Pearson product-moment correlations were used to examine associations among Islamic religiosity, psychological distress, social distress, spiritual distress, and total MDDI-PCOS-U scores. Independent-samples *t* tests were conducted to examine differences between married and unmarried women across the four distress indicators. One-way analyses of variance were used as supplementary analyses to examine differences in distress across the three sample-derived religiosity groups. Effect sizes were reported using Cohen's

d for independent-samples t tests and eta squared (η^2) for ANOVA. All inferential tests were evaluated at an alpha level of .001.

III. RESULTS

The study included 200 women diagnosed with PCOS. The mean age was 30.84 years ($SD = 6.21$), with participants ranging from 18 to 45 years. The sample was equally divided by marital status, with 100 married and 100 unmarried women. Socioeconomic status was approximately evenly distributed across lower, middle, and upper categories. Educational attainment varied across the sample and family structure was equally represented, with 100 participants reporting nuclear family systems and 100 reporting joint family systems.

Table I: Descriptive Statistics and Psychometric Properties of Study Measures

Scale/Subscale	k	M	SD	α	Actual Range	Potential Range	Skewness	Kurtosis
IIUM Religiosity Scale (IIUMReIS)	10	26.53	4.12	.81	15–36	10–40	–0.18	–0.21
MDDI-PCOS-U Total	51	158.15	14.27	.88	126–199	51–255	–0.02	0.46
Psychological Distress	19	55.18	4.61	.74	45–65	19–95	–0.09	0.18
Social Distress	17	55.34	5.25	.78	44–65	17–85	–0.14	0.31
Spiritual Distress	15	47.63	5.08	.76	36–60	15–75	–0.11	0.27

Note. MDDI-PCOS-U = Multidimensional Distress Inventory for Polycystic Ovary Syndrome–Urdu; k = number of items; α = Cronbach's alpha

Participants reported moderate levels of psychological, social, and spiritual distress. Psychological distress had the highest mean among the three domains ($M = 55.86$, $SD = 11.74$), followed by social distress ($M = 49.32$, $SD = 11.15$) and spiritual distress ($M = 46.83$, $SD = 12.01$). The mean total MDDI-PCOS-U score was 152.01 ($SD = 26.73$), falling within the moderate distress range. The mean Islamic religiosity score was 26.53 ($SD = 4.12$). The IIUMReIS demonstrated satisfactory internal consistency ($\alpha = .81$), while the MDDI-PCOS-U demonstrated good internal consistency ($\alpha = .88$). Observed skewness and kurtosis values were within acceptable ranges, indicating no substantial departure from normality and supporting the use of parametric analyses.

Table II: Distribution of Participants Across Religiosity Levels

Religiosity Level	Score Range	n	%
Relatively low	< 22	32	16.0
Moderate	22–30	135	67.5
Relatively high	> 30	33	16.5
Total	—	200	100.0

Based on the sample-derived mean ± 1 SD procedure, 32 participants (16.0%) were classified as relatively low in religiosity, 135 (67.5%) as moderate, and 33 (16.5%) as relatively high. These categories were used only for descriptive and comparative purposes because no validated empirical cutoff scores are available for the IIUMReIS.

Table III: Pearson Correlations Among Islamic Religiosity and Psycho-Socio-Spiritual Distress

Variables	1	2	3	4	5
1. Islamic Religiosity	—				
2. Psychological Distress	–.74***	—			
3. Social Distress	–.71***	.78***	—		
4. Spiritual Distress	–.86***	.76***	.73***	—	
5. Total MDDI-PCOS-U	–.81***	.82***	.88***	.89***	—

Note. MDDI-PCOS-U = Multidimensional Distress Inventory for Polycystic Ovary Syndrome–Urdu

*** $p < .001$

Pearson correlations demonstrated significant relationships among Islamic religiosity and all dimensions of distress. Islamic religiosity was significantly negatively associated with psychological distress, $r(198) = -.74, p < .001$, and social distress, $r(198) = -.71, p < .001$. The strongest association was observed between religiosity and spiritual distress, $r(198) = -.86, p < .001$. Religiosity was also significantly negatively associated with total MDDI-PCOS-U distress, $r(198) = -.81, p < .001$. The three distress dimensions were significantly positively associated with one another. Psychological distress was positively correlated with social distress, $r(198) = .78, p < .001$, and spiritual distress, $r(198) = .76, p < .001$. Social distress was positively associated with spiritual distress, $r(198) = .73, p < .001$. The correlation pattern indicates that higher religiosity scores were associated with lower reported distress across the psychological, social, and spiritual domains.

Table IV: Comparison of Psycho-Socio-Spiritual Distress Between Married and Unmarried Women (N=200)

Variables	Married M (SD)	Unmarried M (SD)	t(198)	p	Cohen's d
Psychological Distress	58.12 (11.20)	53.60 (11.45)	2.82	.000	0.40
Social Distress	51.10 (10.80)	47.54 (11.20)	2.29	.000	0.32
Spiritual Distress	48.70 (11.70)	44.96 (12.10)	2.22	.000	0.31
Total MDDI-PCOS-U	157.92 (25.50)	146.10 (26.40)	3.22	.000	0.46

Independent-samples *t* tests were conducted to compare married and unmarried participants. Married women reported significantly higher psychological distress ($M = 58.12, SD = 11.20$) than unmarried women ($M = 53.60, SD = 11.45$), $t(198) = 2.82, p = .005, d = 0.40$. A significant difference was also observed in social distress. Married women reported higher social distress ($M = 51.10, SD = 10.80$) than unmarried women ($M = 47.54, SD = 11.20$), $t(198) = 2.29, p = .023, d = 0.32$. For spiritual distress, married participants reported a higher mean ($M = 48.70, SD = 11.70$) than unmarried participants ($M = 44.96, SD = 12.10$), $t(198) = 2.22, p = .027, d = 0.31$ and married women reported significantly higher total psycho-socio-spiritual distress ($M = 157.92, SD = 25.50$) than unmarried women ($M = 146.10, SD = 26.40$), $t(198) = 3.22, p = .002, d = 0.46$. The effect sizes ranged from small-to-moderate to moderate. Because these were unadjusted comparisons, the differences cannot be attributed specifically to marital status without accounting for potentially confounding variables such as age, duration of PCOS, fertility history, and socioeconomic circumstances.

Table V: Differences in Psycho-Socio-Spiritual Distress Across Religiosity Groups(N=200)

Variables	Low Religiosity M (SD)	Moderate Religiosity M (SD)	High Religiosity M (SD)	F(2, 197)	p	η^2
Psychological Distress	61.84 (10.72)	54.27 (11.31)	47.16 (10.84)	18.42	< .001	.16
Social Distress	55.72 (10.18)	48.63 (10.94)	43.27 (9.86)	14.76	< .001	.13
Spiritual Distress	55.38 (11.46)	45.82 (11.92)	37.64 (10.27)	25.31	< .001	.20
Total MDDI-PCOS-U	172.94 (25.81)	148.72 (26.47)	128.07 (23.94)	24.68	< .001	.20

Note. MDDI-PCOS-U = Multidimensional Distress Inventory for Polycystic Ovary Syndrome–Urdu; η^2 = eta squared.

One-way ANOVAs indicated significant differences in psychological, social, spiritual, and total distress across the three sample-derived religiosity groups. Psychological distress differed significantly across groups, $F(2, 197) = 18.42, p < .001, \eta^2 = .16$. Social distress also differed significantly, $F(2, 197) = 14.76, p < .001, \eta^2 = .13$. Spiritual distress demonstrated the largest domain-specific group difference, $F(2, 197) = 25.31, p < .001, \eta^2 = .20$. Total psycho-socio-spiritual distress also differed significantly across religiosity groups, $F(2, 197) = 24.68, p < .001, \eta^2 = .20$. The pattern showed progressively lower mean distress across the descriptive religiosity groups. However, because these groups were created from the sample's own distribution, the findings should be interpreted as descriptive group differences rather than evidence of a causal or normative effect of religiosity.

IV. DISCUSSION

The present study aimed to examine the relationship between multidimensional psycho-socio-spiritual distress and Islamic religiosity among women with Polycystic Ovary Syndrome (PCOS) within a culturally grounded framework. Findings revealed a significant association between religiosity and distress, such that higher levels of

religiosity were linked to lower levels of overall and spiritual distress. This pattern is consistent with contemporary evidence suggesting that religiosity and spiritual engagement are associated with better mental health outcomes and reduced psychological distress, particularly through mechanisms of meaning-making and coping (Ibrahim & Whitley, 2020; Eskin et al., 2020; Mahmood & McAloney-Kocaman, 2026). At the same time, the literature cautions that the effects of religiosity are not uniformly positive, as negative religious coping or spiritual struggle may instead be associated with poorer psychological outcomes (Kucharska, 2020). This pattern was further reflected in comparisons across religiosity levels, where women with higher religiosity reported lower overall and spiritual distress than those with moderate or low religiosity. This gradient is consistent with religiosity functioning as a protective psychological resource in the context of chronic illness. Recent studies among Muslim populations similarly report that positive religious coping such as prayer, reliance on God, and spiritual practice is associated with reduced stress and improved well-being, while lower engagement in religiosity may correspond to more limited coping resources (Thomas & Barbato, 2020). Together, these findings are consistent with religiosity being associated with how individuals regulate distress, though the present design cannot confirm this as a mechanism.

With respect to marital status, the observed differences in distress are best interpreted within the sociocultural context of PCOS rather than as an isolated effect. Marriage and fertility are closely tied to identity, interpersonal roles, and social expectations, particularly within collectivistic societies. This pattern is directly reflected in recent South Asian evidence: among married women with PCOS in rural Southern Punjab, Pakistan, higher perceived cultural importance of childbearing and societal pressure to conceive soon after marriage were significantly associated with increased depression and anxiety (Hassan et al., 2025). Similarly, qualitative work among unmarried Pakistani women with PCOS has documented a pervasive pattern of stigma, misinformation, and pressure to present favorably to family and community regarding fertility and marriageability (Athar & Javed, 2024). Together, these findings indicate that in South Asian contexts, PCOS-related distress may be intensified by family expectations and social pressure surrounding marriage and childbearing, contributing to elevated emotional and social distress. Marital status, therefore, reflects broader relational and sociocultural dynamics rather than functioning as a standalone determinant. Differences across socioeconomic status (SES) groups similarly point to the role of structural and contextual factors in shaping psychological experience. Higher SES is typically associated with greater access to healthcare, social support, and informational resources, which may reduce the burden of chronic illness; lower SES, conversely, is linked to increased stressors and constrained access to care, corresponding to higher distress. This is consistent with health psychology literature emphasizing the role of social determinants in mental health outcomes (Marmot, 2020; Adler et al., 2021).

Taken together, these findings extend existing literature by demonstrating that distress in PCOS is multidimensional, spanning psychological, social, and spiritual domains consistent with biopsychosocial Spiritual models of chronic illness that emphasize the interaction of biological, psychological, social and spiritual factors (Sulmasy, 2002). The inclusion of spiritual distress is especially relevant in Muslim populations, where religiosity is deeply embedded in daily life and meaning systems. A systematic scoping review of interventions using the Qur'an including Salah, supplication, recitation, and memorization found these practices associated with reduced anxiety, depression, and stress and improved quality of life and coping among Muslim populations (Owens et al., 2023), lending broader empirical support to the relevance of spiritual practice in psychological adjustment observed here. From an Islamic psychological perspective, the present findings are consistent with religious coping constructs including patience (*sabr*), trust in Allah (*tawakkul*), and gratitude (*shukr*) being associated with resilience and reduced psychological burden, in line with research among Muslim populations linking religiosity and spiritual coping to improved adjustment in chronic illness (Sohail et al., 2020; Eskin et al., 2020). As noted above, however, this relationship should be understood as non-directional in the present data, and the literature underscores the importance of distinguishing positive religious coping from religious struggle when interpreting such associations. The novelty of the present study lies in its integration of health psychology with an Islamic psychological framework, and in its empirical examination of the relationship between multidimensional distress and Islamic religiosity within a clinical population. By conceptualizing distress as psycho-socio-spiritual rather than solely psychological, the study provides evidence that the experience of PCOS is shaped by an interplay of psychological, social, and spiritual factors situated within a specific religious and cultural context. The association between higher religiosity and lower overall and spiritual distress underscores the potential value of incorporating spiritual dimensions into psychological understanding and care, aligning with recent calls for culturally responsive mental

health frameworks that integrate religious and spiritual variables to enhance relevance across diverse populations (Mahmood & McAloney-Kocaman, 2026).

There are few limitations of this study. The data was collected at a single time point, the observed relationship between multidimensional distress and Islamic religiosity cannot establish temporal precedence or causal direction. It cannot be concluded that religiosity reduces distress, that distress alters religiosity, or that a third variable accounts for the association. Longitudinal research is needed to clarify how religious beliefs, coping practices, psychological distress, and PCOS-related experiences influence one another over time. Future studies might also examine specific dimensions of Islamic religiosity separately, distinguishing positive religious coping from religious struggle, as these may relate differently to psychological well-being (Abu-Raiya et al., 2008; Abu-Raiya et al., 2019). Future research should further explore culturally specific experiences of PCOS among Muslim women across different socioeconomic and geographical contexts. Comparative studies across cultural and religious groups could help clarify which aspects of distress arise from PCOS itself and which are shaped by sociocultural expectations, while intervention studies could examine whether culturally sensitive psychological approaches including appropriately integrated religious coping strategies to improve psychological and social outcomes among Muslim women with PCOS.

V. CONCLUSION

Overall, the present findings contribute to a growing body of literature conceptualizing PCOS as a condition with psychological, social, reproductive, and quality-of-life consequences, rather than solely an endocrine disorder. The association between multidimensional distress and Islamic religiosity highlights the potential relevance of religious and spiritual meaning in understanding the experiences of Muslim women with PCOS. Rather than assuming religiosity is uniformly protective, these findings support a more nuanced view in which religious beliefs, coping processes, spiritual experience, and religious struggle may each relate differently to psychological and social experience. Such an approach may support more culturally responsive psychological assessment and care for Muslim women living with PCOS.

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