

Surah Al Fatiha Induced Betterment of Menstrual Cycle and Hormonal Levels of PCOS: Evidence from Clinical Trials

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Abstract: Introduction Polycystic ovarian syndrome is an endocrinal disorder comprising multiple signs and symptoms that are associated with hormonal imbalance. The intervention was administered to subjects who were reluctant to go for pharmacological intervention. **Methodology** The designed study was intended to evaluate the effect of Surah Al Fatiha in combating PCOS pathology. Inclusion of females was from teenage to 45 years of age. Rotterdam criteria were used to diagnose 7 PCOS cases, while 7 healthy controls were recruited from the Mamji Hospital in Karachi's gynecology department. Surah Al Fatiha exposure was given to all the subjects. Exposure commenced on second day of subject's menstrual cycle (three times daily) till the subsequent menstrual cycle started. Surah Al Fatiha, a pre-recorded version by 'Qari Mishary Rashid Alafasy' was used in this study. Biochemical parameters were monitored and evaluated before and after the Surah Al Fatiha therapy. **Results** revealed significantly decreased levels of hormones in PCOS afflicted females after Surah Al Fatiha exposure. Insulin and TSH were restored to their normal levels while rest of the hormones though decreased but were in normal range prior to the exposure of intervention. **Conclusion** Surah Al Fatiha exposure induces serenity and reduces stress, thus inducing normalization of TSH, decreased IR and in turn regularizing the menstrual cycle.

Keywords: PCOS, Surah Al Fatiha, Insulin, Prolactin, Testosterone.

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Introduction

Polycystic ovarian syndrome (PCOS) is the utmost commonly occurring pathology of the endocrinal system among females of reproductive age group. PCOS is 10-20 % prevalent worldwide [1]. It is the highest in South Asian population with a prevalence of 10 %- 22.5% in India and its prevalence is 20 - 40% in Pakistan. Recent studies have shown that in addition to other endocrine abnormalities PCOS have metabolic disorders as well; the most significant is insulin resistance [2]. A research carried out in an infertility clinic in Pakistan in the year 2007 reported the incidence of PCOS was 17.6%, obesity 68.5% and hyperinsulinemia 59% [3].



Insulin resistance (IR), a protruding feature of polycystic ovarian syndrome, being the main causative factor of PCOS leads to development of diabetes mellitus type 2, gestational diabetes and prediabetes symptomology. Insulin resistance has close association with obesity [4].

The two societies for reproduction, 'European Society for Human Reproduction and Embryology' (ESHRE) and 'American Society for Reproductive Medicine' (ASRM) postulated a new Rotterdam criterion that outlines three criterion; anovulation, hyperandrogenism and morphological polycystic appearance in ultrasound [5]. Two of the three present are set for the diagnosis of PCOS.

IR is also reported to be the causative factor of multiple morbidities that are associated with PCOS which include anovulation, obesity, infertility, impaired glucose tolerance (IGT) or impaired fasting glucose (IFG) which can result in type II diabetes [6-8].

The pathogenesis of polycystic ovarian syndrome is complicated, it is commonly linked with increased levels of androgens and insulin and an increased LH to FSH ratio [9]. Multiple other elements impact menstrual inconsistency which includes lack of physical activity, alcohol consumption and smoking along with pathologic illnesses like polycystic ovarian syndrome [10].

Increased levels of TSH in hypothyroidism may have an association with cyst formation in ovaries [11]. Hypothyroidism also results in irregular heavy menstrual bleeding, ovulatory dysfunction and decrease the thickness of endometrium [12]. Hypothyroidism increases the sensitivity of ovaries towards gonadotropin action and is directed towards hypertrophied ovaries and multiple follicle formation [13].

Muslims have firm belief in every single word and quote that exists in QURAN [14]. The Holy Prophet (PBUH) directed his followers to recite verses of QURAN in times of need, stress and anxiety and set an example by practicing Dua in need by himself. The Holy Quran has also an impact on emotional and spiritual state of listener [15]. The Holy Quran gives human reinforcement, relief, and keeps the believer far away from the fears, anxieties and depression. Studies have reported that listening and recitation of Holy Quran verses is a modest, operational, economical, reachable and best importantly medicine free practice to lessen burden and apprehension in players earlier to their performance [16].

Surah Al Fatiha is very frequently recited by Muslims when somebody becomes ill [17]. However, very fewer and diminutive scientific reports are available regarding the psychological and emotional benefits of Holy Quran [16]. Likewise, listening to the different variety of music has diverse effects on moods and thoughts of the auditor [18-22]. Multiple Pharmacologic intercessions comprises of anti-androgens (spironolactone, flutamide), hypoglycemic agents (metformin and thiazolidinediones), and estrogen - progestogen combination (oral contraceptives) are utilized in the treatment of PCOS. However, very few researches have focused on non-pharmacologic intervention based changes in PCOS females. Thus, the study was executed to explore the effects of listening to Surah Al Fatiha on biochemical markers and ultrasonography findings of PCOS afflicted and control females.

METHODOLOGY

Fig. 1 represents schematic diagram of protocol from enrollment to pre and post assessment of exposed subjects. The IBR number 21/MAMJI/HR/1334 was allocated by the authorities of Mamji Hospital, Karachi. Study was conducted in the year 2021. An informed consent was acquired from all subjects who were inducted in the protocol. Sample technique was non-probability convenient sampling. Altogether 14 participants were inducted out of which 7 were PCOS afflicted and 7 were controls. Females were divided into two groups and fasting samples were collected to evaluate the serum levels of fasting insulin, estradiol, FSH,



testosterone, TSH, LH and prolactin. Both groups were made to listen to Surah Al Fatiha. Surah Al Fatiha, a pre-recorded version by 'Qari Mishary Rashid Alafasy' was used for this interventional study. The Pre- and Post-intervention evaluation of biochemical markers were done along with ultrasonography findings. Biochemical analysis was done by Cobas e601 'an automated analyser'. ELISA technique was executed.

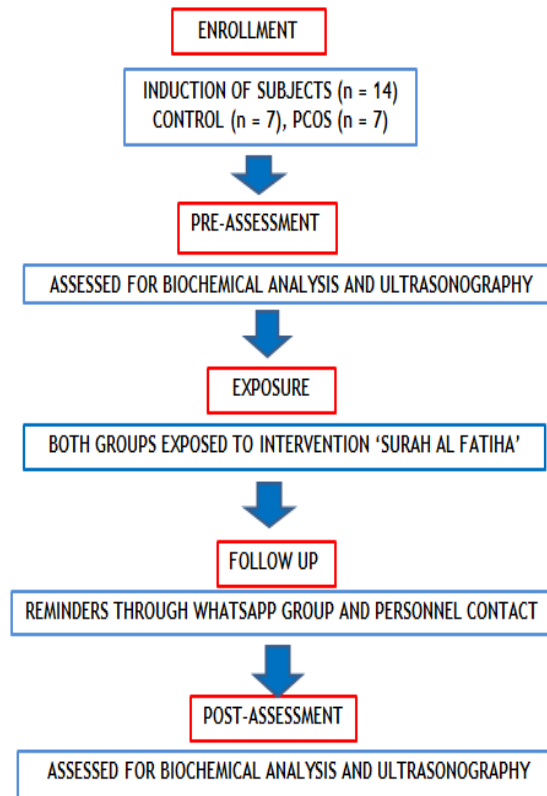


Figure 1: Schematic diagram for subjects (enrolment, pre assessment, follow up, post assessment)

Administration

Exposure was executed on day two of subject's menstrual cycle and administered Surah Al Fatiha verses three times each day; 10 am in morning, 3 pm in afternoon and 10 pm at night by means of ear phones. Each session took 6 minutes which makes altogether 18 minutes a day. Daily reminders were sent three times a day through whatsapp group till the commencement of next menstrual cycle.

Inclusion and Exclusion criteria

Female participants who were PCOS afflicted and non-PCOS (controls) from puberty to 45 years were included. However, females of age less than 14 years and greater than 45 years, pregnant or lactating mother and malignancies were excluded.

STATISTICAL ANALYSIS

Two group comparisons were analysed by means of 'paired t-test' of SPSS-23 version to identify the effects of intervention.



RESULTS

Biochemical Parameters

Table 1 illustrates the individual biomarkers of all participants after pre and post exposure of Surah Al Fatiha intervention for PCOS afflicted and controls. Menstrual cycle recommencement findings are also displayed. Pre and Post comparisons were evaluated by means of 'paired t-test'.

Results depicted that all biomarkers in controls were within the normal range. Significant decreases in levels of Estrogen ($t = 2.733$, $df = 6$, $p < 0.05$); Prolactin ($t = 2.850$, $df = 6$, $p < 0.05$) and Testosterone ($t = 5.532$, $df = 6$, $p < 0.05$) were obtained after exposure to Surah Al Fatiha whereas decrease in other biomarkers were not significant.

Listening to Surah Al Fatiha significantly decreased the level of hormones in PCOS afflicted females which include Insulin ($t = 3.910$, $df = 6$, $p < 0.01$); FSH ($t = 3.795$, $df = 6$, $p < 0.01$); Prolactin ($t = 6.001$, $df = 6$, $p < 0.01$); Testosterone ($t = 4.575$, $df = 6$, $p < 0.01$) and TSH ($t = 3.080$, $df = 6$, $p < 0.05$). Listening to Surah Al Fatiha restored Insulin and TSH to normal levels whereas FSH, Prolactin and Testosterone were normal even prior to the exposure.

Ultrasonography

Ultrasonography findings of one of the participants have been displayed before and after the exposure of Surah Al Fatiha in Figure 2.

Table 1: Illustrates Pre and Post parameters of Biochemical analysis in PCOS afflicted and Controls after Surah Al Fatiha exposure.

	Estrogen	Insulin	FSH	LH	LH/FSH Ratio	Prolactin	Testosterone	TSH	Remarks
	24-114 (pg/ml)	2.6-24.9 (μUnit/ml)	3.5-12.5 (mIU/ml)	2.4-12.6 (mIU/ml)	(<2:1)	1.3-29.9 (ng/ml)	0.26-1.3 (ng/ml)	0.27-4.94 (μU/ml)	
Pre	57.4	31.2	5.64	6.07	0.91	15.11	0.51	6.26	Cycle resumed after 45 days
Post	65.66	22.29	5.51	4.38	1.164	11.52	0.25	3.4	
Pre	47.15	23.09	7.49	6.94	1.006	21.79	0.51	3.01	Cycle resumed after 35 days
Post	55.76	9.45	5.68	8.73	0.644	11.52	0.34	2.99	
Pre	42.89	17.09	5.69	5.37	0.944	26.63	0.23	8.8	Cycle resumed after 70 days
Post	34.78	15.9	3.4	5.21	1.532	16.89	0.25	2.5	
Pre	63.24	32.78	9.43	8.92	1.286	21.79	0.636	6.26	Cycle resumed after 40 days
Post	54.82	21.35	7.38	11.93	0.864	7.95	0.25	1.38	
Pre	29.7	19.59	9.7	3.97	0.782	18.76	0.45	6.26	Cycle resumed after 100 days
Post	34.76	12.56	8.41	7.63	0.841	12.67	0.21	1.98	
Pre	53.52	34.89	5.7	6.04	0.91	24.57	0.57	3.31	Cycle resumed after 45 days
Post	53.87	17.12	5.67	7.63	1.125	8.15	0.26	3.98	
Pre	39.47	18.27	6.68	6.04	0.521	25.63	0.64	6.26	Cycle resumed after 40 days
Post	53.68	16.13	5.29	6.72	1.27	10.69	0.25	3.31	
CASE MEAN±SD									
PRE	47.62±11.4	25.27±7.5	7.19±1.7	6.19±1.5	0.90±0.23	22.04±4.06	0.50±0.14	5.7±1.9	
POST	50.47±11.5	16.4±4.5**	5.9±1.6**	7.46±2.5	1.06±0.30	11.34±3.0**	0.26±0.04**	2.79±0.9**	
CONTROL MEAN±SD									
PRE	61.45±9.62	12.27±3.7	5.31±0.9	6.36±1.9	1.22±0.42	17.49±4.67	0.36±0.10	2.33±0.48	
POST	53.3±7.5**	11.29±2.5	5.18±1.6	5.12±1.3	1.13±0.18	12.56±2.9**	0.170±0.03**	2.02±0.50	

Values are case specific and means±SD. Significant differences by paired t-test (** $p < 0.01$).



PRE INTERVENTION

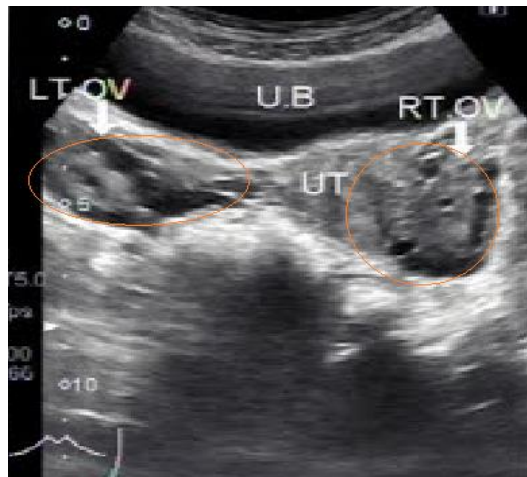


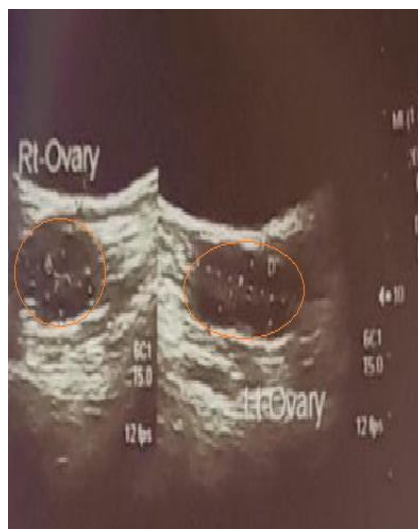
Figure 2: Ultrasonography findings of pre and post exposure of Surah Al Fatiha.

Dist A 2.83cm
Dist B 2.97mm
Dist C 1.03 cm
Dist D 1.09 cm
Dist E 0.94cm
Dist F 0.95cm

Pre Intervention FINDINGS

Right ovary measuring 3.8×2.1×2.6 cm, left ovary measuring 4.5×2.6×3.5 cm; Largest follicle are measuring 0.8×0.5 cm in right and 0.8×0.8 cm in left ovaries. Both ovaries appear enlarged in peripheral arranged multiple small follicles and a center echogenic stroma, finding suggestive of polycystic ovarian disease.

POST INTERVENTION



Dist A 44.5mm
Dist B 30.1mm
Dist C 31.2mm
Dist D 7.2mm
Dist E 5.9mm
Dist F 6.4mm

Post Intervention findings

Right ovary measuring 3.6×2.3 cm, left ovary measuring 3.6×2.5 cm; both ovaries are showing few tiny follicles at the periphery; Large ones are measuring 5.4 mm in right and 5.5 mm in left ovaries. Both ovaries are normal.

5. DISCUSSION

A scarcity of evidence exists in the therapeutic treatment by means of Holy Quran. The present study was designed to explore the influence of exposure of Surah Al Fatiha (listening three times a day with a replication of 6 times that makes in total 18times a day) on their biochemical markers in the PCOS affected and controls. Elevated insulin and TSH levels in PCOS affected females (reported in the current study) attained their normal biological level after exposure to Surah Al Fatiha. Various researches have pointed out that working females listened to Holy Quran that induces serenity, calmness and reduces stress at workplace [23-25]. Consequently it is probable that in the present study daily exposure to Surah al Fatiha accounted to normalize the hormonal levels and regularize the menstrual cycle (Figure 3).

The Holy Quran is the beautiful sound that leaves its impression and resonance on one's life for a lengthier time period. A study conducted on Malaysian females has revealed that listening to Surah Al Fatiha has been known to relieve stress, reduce anxiety and imparted calmness more in Surah Al Fatiha group as compared to the group who were listening to other sounds of nature. Stress and anxiety are associated with a range of numerous pathological consequences [26, 27], [28-30]. Thus a probability exist that Surah Al Fatiha induced normalization of insulin and TSH levels could have been due to of serenity, calmness and tension reduction [31-35] would have also normalized and regularized. Another study has revealed a positive impact of listening to Holy Quran narration in reducing anxiety scores in various conditions [36]. However, we did not measure the anxiety scores in our experiment. A study conducted in US individuals displayed that listening to divine music in mature persons was associated with decreased nervousness, increase in life contentment, serenity and self-confidence [37].

Thus the current study can be summarized as listening/reciting the Holy Quran with a comfortable, calm and symphonic rhythm will decrease levels of stress hormones, might activate endorphins, thus inducing the relaxation in the body and having a positive impact on the limbic system to manage feelings, sentiments and apprehensions [38]. Thus, this could have accounted to the normalization of hormones.

As it was a first phase clinical trial and conducted in a single tertiary care hospital, it can be enlarged with a greater sample size and conducting in many tertiary care hospitals Thus we propose a larger sample size in second phase clinical trial to explore the mechanism. Anxiety scale was not monitored in this experiment.

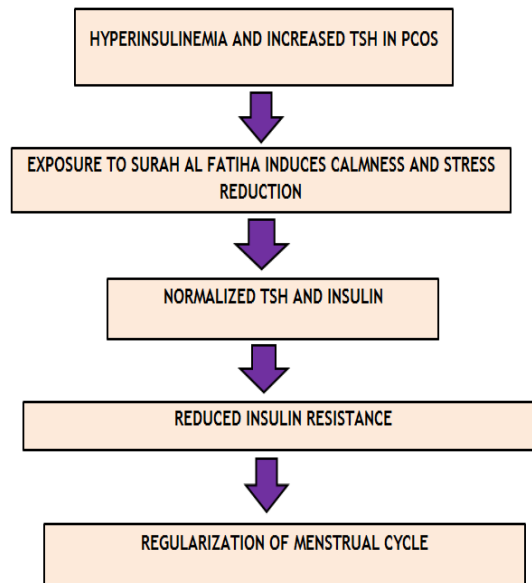


Figure 3: Possible Mechanism of Surah Al Fatiha's Induced Beneficial Effect on PCOS

6. CONCLUSION

Post exposure of Surah Al Fatiha in PCOS afflicted induced calmness and reduced stress that probably has normalized the deranged biochemical parameters that ultimately lead to regularization of menstrual cycle. Ultrasonography revealed decrease in polycystic morphology that leads to normal menstrual cycle. We suggested prolong exposure of Quranic intervention to alter biochemical levels in PCOS afflicted females. Surah Al Fatiha is considered as a non-invasive, non-pharmacological and cost-effective intervention for the benefit of polycystic ovarian syndrome females.

7. ACKNOWLEDGEMENT

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

Approval and consent taken.

HUMAN AND ANIMAL RIGHTS

No animals were used in this study. The study on humans was conducted in accordance with the ethical rules of the Helsinki Declaration and Good Clinical Practice.

CONSENT FOR PUBLICATION

Not applicable.

AVAILABILITY OF DATA AND MATERIALS

None.

FUNDING

Dean's Grant.

CONFLICT OF INTEREST

No conflict of interest, financial or otherwise.

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