

Supplementary Information 3 – Supplementary table 2

Article title: A cross-sectional questionnaire-based landscaping of female infertility reveals genital Infections as major contributor to reproductive tract anomalies, menstrual disorders and infertility

Authors: Naresh Patnaik¹, Uttam Sarkar², Malathi Jojula³, Hema Vaddiraju⁴, Ruchi Jain Dey^{1, *}

¹Department of Biological Sciences, BITS Pilani, Hyderabad Campus, Telangana State- 500 078, India

²West Bengal University of Animal and Fishery Sciences, Department of Animal Genetics and Breeding, West Bengal – 700037, India

³Department of Microbiology, Sri Shivani College of Pharmacy, Mulugu Road, Warangal, Telangana State – 506002, India

⁴Cure well Hospital, Srinivasa Colony, Warangal, Telangana State – 506007, India

***Corresponding author**

Email for correspondence: ruchij80@hyderabad.bits-pilani.ac.in

Table 2. Frequency distribution analysis of parameters in infertile and healthy groups. The table represents frequency distribution of individuals in each population group (healthy and infertile) with respect to parameters. a. Pathological sequelae-menstrual disorders (P1, P3-6) and reproductive tract anomalies (P2, P7, P10-14 and P16), genital infection associated symptoms or confirmed diagnosis of infections (P8, P9, P15, P17-21), female treatment (P22-26), exercise (P35), male reproductive semen/sperm abnormalities (P36-44) and male treatment (P45); b. Details of menstrual flow (P33); c. Body Mass Index (BMI - P34); and d. Female reproductive hormones (P27-30)- FSH, LH, Prolactin and AMH. The percentage frequencies for each parameter (or variable) are calculated with respect to the total frequencies in the respective group (infertility group: 62 and healthy control group: 38). Frequency distribution in all these parameters are analysed on the basis of multinomial response “Yes” (represented as 1) and “No” (represented as 0) and absence of response by the subjects for any parameter is recorded as “No data”. P31 and P32 are excluded from the frequency analysis as the responses for these parameters are continuous in nature.

a.

Category of parameter	ID	Parameter	Total frequency of infertility group, N1 = 62		Total frequency of healthy control group, N2 = 38		Remarks about the parameters (if any)
			Frequency of patients (F1)	Infertile [%] (F1*100/N1)	Frequency of healthy subjects (F2)	Healthy [%] (F2*100/N2)	
Pathological sequelae (Menstrual disorders)	P1	Oligomenorrhoeae / Irregular Periods or inconsistent blood flow	9	14.5	0	0	
	P3	Metrorrhagia/ Spot Bleeding	5	8.1	0	0	
	P4	Amenorrhoea/Absence of periods	8	12.9	0	0	
	P5	Dysmenorrhoea/ Painful periods with cramps	40	64.5	11	28.9	
	P6	Menorrhagia (Heavy Bleeding)	21	33.9	9	23.7	Derived from P32
Pathological sequelae (reproductive anomalies)	P2	PCOS/PCOD	19	30.6	0	0	
	P7	Anovulation	1	1.6	0	0	
	P10	Tubal Blockage	1	1.6	0	0	Same as P16
	P11	Secretory/Proliferative/thickened Endometrium/Endometrial hyperplasia/Endometrial Cysts	4	6.5	0	0	
	P12	Teratoma (Ovarian Cyst)	1	1.6	0	0	
	P13	Abortions/Medical termination of pregnancy	16	25.8	0	0	
	P14	Endometriosis	2	3.2	0	0	
	P16	Fallopian tubes or uterine blockage suggested by Hysterosalpingogram (X-ray of uterus/tubes)	5	8.1	0	0	
Genital infection associated symptoms/confirmed diagnosis of infections	P8	Vaginal discharge/leukorrhea	1	1.6	0	0	Same as P21
	P9	Thrombocytopenia	1	1.6	0	0	
	P15	Dyspareunia (pain during intercourse)	7	11.3	0	0	

	P17	Cervicitis (Cervical inflammation)	2	3.2	0	0	
	P18	TB Positivity PPD/Quantiferon TB test/TB PCR test/TB culture test done or not ?	2	3.2	0	0	
	P19	Confirmed/Symptoms of UTI (painful micturition)	2	3.2	0	0	
	P20	Pelvic Inflammatory Disorder	16	25.8	0	0	
	P21	Vaginitis/symptoms of infections (Itching, burning, discharge)	11	17.7	0	0	
Female Treatment	P22	Treatment with Clomid and/or Letrozole alone	24	38.7	0	0	
	P23	Treatment with Estrogen Priming followed by Letrozole and/or Clomid	25	40.3	0	0	
	P24	Treatment with Letrozole/Clomid priming followed by Progesterone	1	1.6	0	0	
	P25	Treatment with Estrogen Alone	1	1.6	0	0	
	P26	Treatment with Progesterone Alone	1	1.6	0	0	
Physical parameters	P35	Do you exercise or workout?	22	35.5	15	39.5	
Male reproductive/ semen/sperm anomalies	P36	Was the semen abnormal?	23	37.1	0	0	
	P37	Oligospermia (Low Sperm Count)	13	21	0	0	
	P38	Low Sperm DNA Integrity	2	3.2	0	0	
	P39	Asthenozoospermia (AS) or Low motility Sperm	14	22.6	0	0	
	P40	High TZI (Teratozoospermia index) levels	9	14.5	0	0	
	P41	Normospermia	8	12.9	0	0	
	P42	Pyospermia [Presence of pus cells]	5	8.1	0	0	
	P43	Hypoospermia [Low volume of semen]	2	3.2	0	0	
	P44	Hyperviscosity	3	4.8	0	0	
Male Treatment	P45	Treated for TB with Macoz (Rifampicin and Isoniazid)	1	1.6	0	0	

b.

		P33: Details of menstrual flow^a
Total frequency of infertility group, N1 = 62	Frequency of patients with heavy menstrual bleeding (F1)	21
	Infertile % with heavy menstrual bleeding (F1*100/N1)	33.9
	Frequency of patients with light menstrual bleeding (F2)	3
	Infertile % with light menstrual bleeding (F2*100/N1)	4.8
	Frequency of patients with moderate menstrual bleeding (F3)	38
	Infertile % with moderate menstrual bleeding (F3*100/N1)	61.3
Total frequency of healthy control group, N2 = 38	Frequency of healthy subjects with heavy menstrual bleeding (F4)	9
	Healthy % with heavy menstrual bleeding (F4*100/N2)	23.7
	Frequency of healthy subjects with light menstrual bleeding (F5)	0
	Healthy % with light menstrual bleeding (F5*100/N2)	0
	Frequency of healthy subjects with moderate menstrual bleeding (F6)	29
	Healthy % with moderate menstrual bleeding (F6*100/N2)	76.3
a: Menstrual flow data is sub-categorized into three categories- Light, moderate and heavy		

c.

		P34: Physical parameter (BMI)^b
Total frequency of infertility group, N1 = 62	Frequency of patients with Normal BMI (F1)	19
	Infertile % with normal BMI (F1*100/N1)	30.6
	Frequency of patients with high BMI (F2)	10
	Infertile % with high BMI (F2*100/N1)	16.1
	Frequency of patients with low BMI (F3)	7
	Infertile % with low BMI (F3*100/N1)	11.3
	Frequency of patients with no BMI data (F4)	26
	Infertile % with no BMI data (F4*100/N1)	41.9
Total frequency of healthy control group, N2 = 38	Frequency of healthy with Normal BMI (F5)	16
	Healthy % with normal BMI (F5*100/N2)	42.1
	Frequency of healthy with high BMI (F6)	6
	Healthy % with high BMI (F6*100/N2)	15.8
	Frequency of healthy with low BMI (F7)	0
	Healthy % with low BMI (F7*100/N2)	0
	Frequency of healthy with no BMI data (F8)	16
	Healthy % with no BMI data (F8*100/N2)	42.1
b: BMI data is sub-categorized into three categories- Low, normal and high		

d.

		Physiological parameters (female reproductive hormone profiles)			
		P27	P28	P29	P30
		Follicle stimulating hormone (FSH) ^c	Luteinising hormone (LH) ^c	Prolactin hormone ^d	Anti-Mullerian Hormone (AMH) ^d
Total frequency of infertility group, N1 = 62	Frequency of patients with high hormone levels (F1)	3	1	2	6
	Infertile % with high hormone levels (F1*100/N1)	4.8	1.6	3.2	9.7
	Frequency of patients with low hormone levels (F2)	2	2	0	0
	Infertile % with low hormone levels (F2*100/N1)	3.2	3.2	0	0
	Frequency of patients with normal hormone levels (F3)	31	5	9	8
	Infertile % with normal hormone levels (F3*100/N1)	50	8.1	14.5	12.9
	Frequency of patients with no hormone data (F4)	26	54	51	48
	Infertile % with no hormone data (F4*100/N1)	41.9	87.1	82.3	77.4
Healthy (N2 = 38)		No data	No data	No data	No data
c: FSH and LH levels are sub-categorized into three categories- Low, high and normal					
d: Prolactin and AMH are sub-categorized only into two categories- High and normal (hence, low frequency is listed as 0)					