

Supplement Table 1: Baseline characteristics of participants: AMCHS

Variable	Female (n = 2042) N (%)	Male (n = 2042) N (%)
Age (years)		
<30, n(%)	923(45.2)	724 (35.5)
30-40, n (%)	1029(50.4)	1139(55.8)
>40, n(%)	85(4.2)	174(8.5)
Missing data	5(0.2)	5(0.2)
District		
City (urban)	1559(76.5)	
County (suburban)	288(14.1)	
Countryside (rural)	191(9.4)	
Educational level		
Postgraduate	135(6.6)	183(9.0)
College/university	1108(54.2)	1145(56.1)
Secondary	401(19.6)	327(16.0)
Under secondary	25(1.2)	16(0.8)
Family annual income (RMB)		
<50 thousands	328(16.1)	
50 ~ 100 thousands	760(37.2)	
100 ~ 200 thousands	675(33.1)	
200 ~ 300 thousands	167(8.2)	
>300 thousands	104(5.1)	
Missing data	1(0.0)	
Occupation		
Officers	541(26.5)	520(25.5)
Technician	227(11.1)	461(22.6)
Clerk	163(8.0)	71(3.5)

Business and service personnel	589(28.9)	535(26.2)
Agriculture, forestry, animal husbandry, fishery and water conservation personnel	15(0.7)	41(2.0)
Production and shipping equipment operators and related personnel	76(3.7)	191(9.4)
Solider	0(0.0)	11(0.5)
Other practitioners that are inconvenient to be classified	67(3.3)	3(0.1)
unemployed	361(17.7)	148(7.2)
Missing data	2(0.1)	2(0.1)
Smoking and drinking before pregnancy		
Active smoking (ever or current)	104(5.1)	1091(54.3)
Passive smoking	1249(61.5)	1669(83.0)
Alcohol drinking	687(33.8)	1265(63.0)
Body mass index (BMI) before pregnancy (kg/m²)		
Mean (SD)	22.45(3.13)	24.5(3.3)
Low (<18.5)	130(6.4)	41(2.0)
Normal (18.5 -<23.9)	1173(57.4)	792(38.8)
High (≥23.9)	548(26.8)	728(35.7)
Missing data	191(9.4)	279(13.7)
Anxiety	124(6.1)	92(4.6)
Depression	747(36.7)	561(27.9)
Sleeping quality		
Bad	0(0.0)	2(0.1)
Not bad	25(1.2)	12(0.6)
Normal	547(26.9)	462(23.0)
Good	1461(71.9)	1532(76.3)

Missing data	1(0.0)	1(0.0)
Primary infertility diagnosis, n (%) (n=1866)		
Male factor	631(33.8)	
Female factor	1568(84.0)	
Ovulation disorders	267(17.3)	
Uterine disorders	165(10.5)	
Endometriosis	8(0.5)	
Tubal factor	1059(67.5)	
Unexplained	33(2.1)	
Missing data	36(2.3)	
Gravidity (n=2033)		
0	1029(50.6)	
≥1	1004(49.4)	
Parity (n=2033)		
0	1742(85.7)	
≥1	291(14.3)	
History of previous pregnancy (n=291)		
Gestational Diabetes Mellitus	17(5.8)	
Hypertension	6(2.1)	
Caesarean section	137(47.1)	
Adverse pregnancy history(n=1004)	446(44.4)	
Artificial abortion(n=1004)	639(63.6)	
Sexual abstinence (n=1815)		
Mean (SD)	4.8(2.6)	
Normal (2-7)	1740(95.9)	
Abnormal (< 2 or > 7)	75(4.1)	
Sperm Volume (ml) (n=1822)		
Mean (SD)	3.7(1.9)	
Normal (1.5-6)	1600(87.8)	

Abnormal (< 1.5 or > 6)	222(12.2)
Sperm Concentration(ml×106) (N=1789)	
Mean (SD)	72.5(73.2)
Normal (≥15)	1485 (83)
Oligozoospermic (< 15 and > 0)	226(12.6)
Azoospermia (=0)	78(4.3)
Sperm Progressive motility (rapid + slow progression) (%) (n=1754)	
Mean (SD)	37.8(19.8)
Normal (≥32)	1093(62.3)
Abnormal (< 32)	661(37.7)
Sperm Morphology (%) (n=1453)	
Mean (SD)	5.0(6.0)
normal (≥4)	1037(71.4)
abnormal (<4)	416(28.6)