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Research Article

A CROSS-SECTIONAL RESEARCH TO CLARIFY FEMALE'S CHARACTERISTICS INTERESTED IN REGENERATIVE INTERVENTIONS

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Abstract:

Background: Infertility creates a mental, social and physical impact on couples.

Objective: To clarify the attributes of ladies visiting a private centre for helped regenerative innovation.

Subjects & Methods: Couples (with infertility) who came to Jinnah Hospital, Lahore from February to December 2018 for barrenness drug, were consolidated in the examination. The inspecting strategy utilized in this examination was not likelihood, advantageous, and time-based, as the investigation configuration was cross-sectional. Test measure was 534 patients of helped regenerative innovation. A survey was utilized for information accumulation. This poll included data on lady's socioeconomics, obstetric and infertility history, radiology and hormone examination. SPSS adaptation 20 was utilized for the information investigation.

Results: Patients with age under 35 years were 398 (74%), 36-39 were 103 (19%) and over 40 years were 33(6%). Follicle animating hormone (FSH) was under 9 l U/ml in 418 (78%) between 9-11 l U/ml in 83(15%) and more noteworthy than 11 l U/ml in 33(6%). Patients having customary menstrual cycle were 498 (93%). Patients having equality were 118 (22%) who had conveyed a tyke? Weight list (BMI) was under 25 in 163(30%), 25-30 in 219(41%), more prominent than 30 of every 152 (28%). As with the female factors, no causes were found in 254 (47%), tubal reason in 120 (22%), PCO in 68 (12%), endometriosis in 13(2%), un-clarified causes were found in 79(5%). Tally of antral follicles was 6-8 for every ovary in 369 (69%), 3-5 for each ovary was 129 (24%), 0-2 for each ovary was 36(7%). Essential barrenness was seen in 350 (65%) patients, auxiliary infertility in 178 (33%), unexplained infertilities in 6(1%). With respect to of infertilities, in 113(21%) patients it was 2 or under 2 years, 118 (22%) was 4 years, in 49 (9%) was 5 years, in 87 (16%) was 7 years, in 82 (15%) was 10 years, in 85 (16%) was more noteworthy than 10 years.

Conclusion: Significance of acknowledgement of infertility as a medical problem won't just expel treatment hindrances yet additionally improve the wellbeing looking for practices of the infertility couple. Wellbeing instruction about fruitfulness will facilitate social taboos and improve the conveyance of wellbeing administrations to barren couples. Age, FSH, menstrual consistency, equality, BMI, female factor, antral follicles, kind of barrenness, the term of infertilities may have prescient esteem estimating the accomplishment of the result of IVF. Further research is required on these lines.

Keywords: ART, Female factors Fertility Clinic, Infertility.

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INTRODUCTION:

Infertility is a condition described by the powerlessness to imagine and end up pregnant in spite of ordinary unprotected sexual movement for the entire one year [1]. It is essential when there is no history of origination and optional when there is a past filled with pregnancy, trailed by infertilities [2]. over the entire world, 10-15% of couples might be barren: optional barrenness is more typical than essential infertility.

There is a gauge of between 60 million and 168 million influenced by infertilities in the entire world. This discloses to us that one in every four ladies who are in their conceptive age and are hitched might be infertility. In Pakistan, auxiliary barrenness is increasingly normal (18%) than essential (4%), the general commonness being 22 %. People experience the ill effects of barrenness similarly [3].

Obliviousness and fantasies win in the general public about infertility and absence of learning about medications lead to deferring in the treatment of barrenness [3 – 5]. Self-fault, uneasiness, discouragement, social brokenness and self-destructive thoughts now and again happen in barren ladies in higher extents [4, 6, 7, 8].

Improvement of an all-out mental confusion happens in a level of infertility ladies before counselling an infertility warning focus [9].

A barren couple turns into the focal point of consideration and joke and individual disappointment, particularly for the lady, who bears the vast majority of the fault and disgrace [1, 4, 8]. They turn into the casualties of verbal and physical maltreatment and at some point need to confront a separation or the spouse may bring a second wife or send the main wife to her parent's home [7, 10].

The reasons for barrenness contrast in the created and creating the world. Late marriage, self-assertively deferred pregnancy, and essential barrenness are regular in nations of the created world. Sexually transmitted diseases and insufficient medicinal services may prompt auxiliary barrenness in creating nations alongside essential infertility [11].

PC Steptoe, a gynaecologist recovered an oocyte laparoscopically amid a non-animated ovulatory cycle and RG Edwards, a British physiologist, prepared the recovered ovum in his lab by utilizing the spouse's sperm. He put an 8-cell fetus inside the mother's belly. On July 25th 1978, J Webster played out an elective cesarean and brought the main

unnaturally conceived child, cesarean and brought the principal unnaturally conceived child, Louise Brown into this world [12, 13]. This was the start of the IVF period. RG Edwards won the Nobel Prize in 2010 for his spearheading work [14].

The wrong observation has won since the beginning of ART that this treatment is just for prosperous nations and creating nations don't have the trendsetting innovation to rehearse IVF [15, 16].

Notwithstanding, the circumstance has changed when nations like Pakistan, Egypt, Middle East and India have figured out how to rehearse ART and give treatment offices to infertility couples locally with great success [6, 17]. Infertility does not hurt physical wellbeing but rather may influence the enthusiastic, mental and social soundness of the couple [4, 18].

At the point when a specialist looks at a female for barrenness, a nitty-gritty therapeutic history is compulsory. As ART is a costly treatment, the examinations of the female must be detail and precise [18, 19]. Age of the female is the absolute most imperative factor in the result of any treatment [20, 21]. Ovulatory brokenness, history of fundamental issue and treatment alongside the conceivable utilization of any recreational medications like tobacco, weed or cocaine are essential elements [22].

Barrenness might be unexplained when history, examination and examinations can't distinguish a reason i.e. male elements and female factors alongside ovulation brokenness and tubal causes. Examinations need to discover cervical, uterine, ovarian, tubal and peritoneal causes. A high BMI may affect ovulation however does not influence the aftereffects of super-ovulation and IVF [23].

The goal of this investigation was to investigate the female factors in the couples visiting a private ART facility, for evaluation of infertility and decision of treatment. The goal was to investigate the clinical and lab qualities of the Pakistani females introducing themselves for in vitro treatment in a private setting.

SUBJECTS METHODS:

Couples (with infertility) who came to Jinnah Hospital, Lahore from February to December 2018 for barrenness drug, were consolidated in the examination. The testing method utilized in this investigation was non-likelihood, helpful purposive and time-based, as the examination configuration was cross-sectional. Test estimate was 534 patients of ART. The survey was utilized for information accumulation. This poll included data on lady's

socioeconomics, obstetric and barrenness history radiology and hormone examination. SPSS was utilized for information investigation.

The females were gotten some information about age, equality, menstrual cycle, the term of infertility. Past examinations were likewise checked to evaluate tubal patency. At that point, females were analyzed by gynaecologists and examined to determine the state of pelvic adnexa and uterine cervix. The dimension of FSH was checked and ultrasound was performed (TVS) to search for antral follicles. Foundational and neighbourhood physical examinations were done of the two accomplices. It was trailed by semen investigation including both morphological and utilitarian tests. Age, FSH, BMI, menstrual cycle, equality antral follicle, incitement, the term of infertility, past examination, kind of barrenness, pelvic adnexa, uterine cervix were the factors for the females.

RESULTS

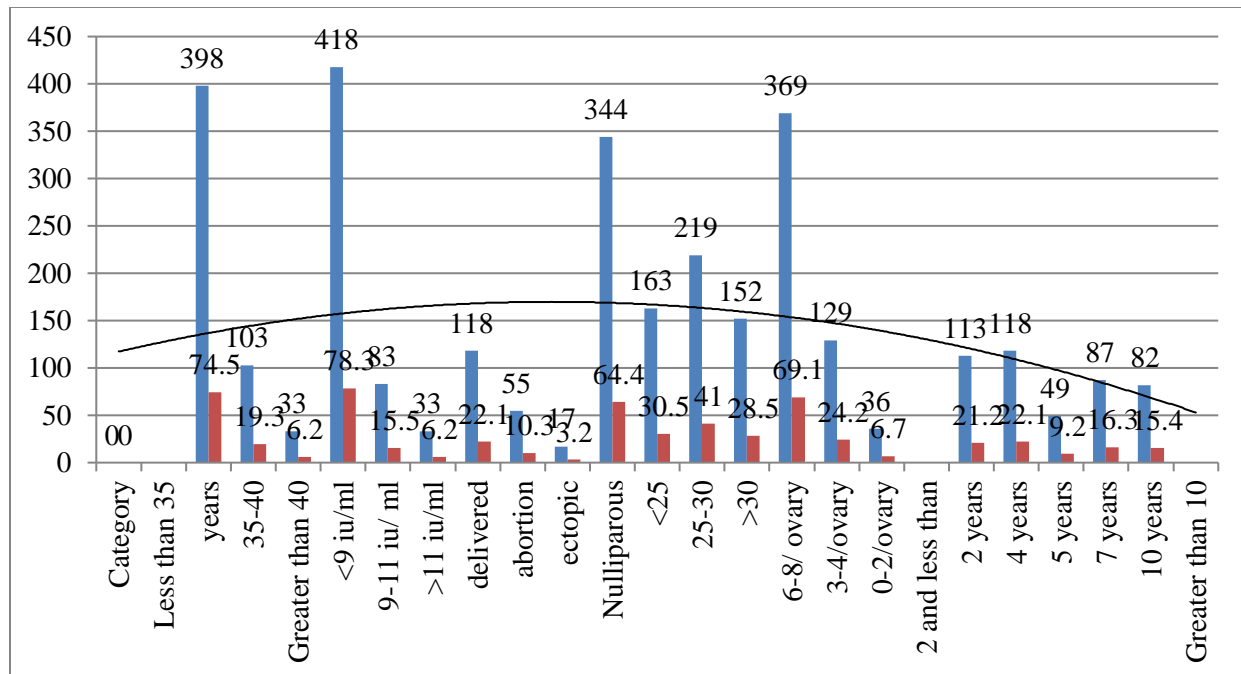
Patients age under 35 were 398 (74.5%) matured somewhere in the range of 36 and 39, 103 (19.3%), matured more than 40 were 33 (6.2%). Those with follicle animating hormone (FSH) under 9 IU/ml were 418 (78.3%), between 9-11 IU/ml were 83

(15.5%), and more noteworthy than 11 IU/ml were 33 (6.2%). Patients with normal menstrual cycle were 498 (93.3%) and those with sporadic menstrual cycle were 36 (6.7 %). Patients having equality were 118 (22.1%) who had conveyed a tyke, 55 (10.3%) had a premature birth, 17 (3.2%) patients had ectopic pregnancies, 344 (64.4%) were nulliparous.

Those with a Body Mass record (BMI) under 25 those more than 30 were 152 (28.5%). Likewise, with the female were 163 (30.5%), 25-30 were 219 (41.0%), factor, no reason was found in 254 (47.6%), tubal reason in 120 (22.5%), PCO in 68 (12.7%), endometriosis was in 13(2.4%), un-clarified was in 79 (4.8%). Check of Antral follicles of 6-8 for each ovary was in 369 (69.1%), 3-5 for every ovary was in 129 (24.2%), 0-2 for every ovary was 36 (6.7%). Essential barrenness was seen in 350 (65.5%) patients, auxiliary infertility in 178 (33.3%), unexplained infertility in 6 (1.1%). As to of barrenness, in 113 (21.2%) patients it was 2 or under 2 years, in 118 (22.2%) was 4 years, in 49 (9.2%) was 5 years, in 87 (16.3%) was 7 years, in 82 (15.4%) was 10 years, and in 85 (15.9%) was more noteworthy than 10 years.

Table: Descriptive analysis of characteristics of women

Variables	Category	Frequency	Percentage
Age	Less than 35 years	398	74.5
	35-40	103	19.3
	Greater than 40	33	6.2
FSH	<9 iu/ml	418	78.3
	9-11 iu/ ml	83	15.5
	>11 iu/ml	33	6.2
Parity	delivered	118	22.1
	abortion	55	10.3
	ectopic	17	3.2
	Nulliparous	344	64.4
BMI	<25	163	30.5
	25-30	219	41.0
	>30	152	28.5
Antral follicles	6-8/ ovary	369	69.1
	3-4/ovary	129	24.2
	0-2/ovary	36	6.7
Duration of infertility	2 and less than 2 years	113	21.2
	4 years	118	22.1
	5 years	110	20.9



DISCUSSION:

The social and natural attributes a lady in the western nations are diverse in a contrast with eastern nations. The examination information accessible is principally about the western lady that is connected toward the eastern lady without offering notice to its suggestions. Our point was to consider ladies from Pakistan who might be organically comparable yet have an alternate sociological, statistic, geographic and ecological foundation.

Females are researched for infertility to discover the reason, pick treatment with best outcomes. Tests for ovulation and tubal patency are done alongside semen examination. Concentrates done in the past demonstrated male factor barrenness is found in 25-35 % of the couples, 14-22 % tubal factor, 10-27 %, ovulation issue 5-6 % endometriosis and 10-17 % unexplained infertility [24].

In an examination done by Maheshwari et al, in 2008 more youthful ladies gave distinctive reasons for barrenness when contrasted with more established ladies. Essential infertility was found in 51 % and 26.9 % ladies had aged over 35 years. Unexplained richness was a typical reason following 35 years old [24].

At the point when the age builds females turn out to be less rich and now and again ART neglects to compensate [25, 26]. Age of the female is a standout amongst the most imperative factor deciding ripeness and as the age increments obstetric just as

perinatal dangers increase [24, 27]. Both ovary and uterus are influenced by maturing. In the event that we comprehend ovarian maturing, we may help our patients in medications with ideal outcomes [28].

Lower fruitfulness is related with high BMI and shows up in all gatherings of ladies. A diminishing in weight may build the opportunity of pregnancy paying little mind to equality, normal monthly cycle, age etc [29, 30]. Polycystic ovary disorder (PCOS) is increasingly obvious in ladies of regenerative age and high BMI. Most of these ladies have ovulatory infertility. Ovulatory brokenness causes barrenness and is on the ascent as corpulence is expanding. Corpulence is one of the reasons for ovulatory brokenness [31, 32]. Women with ovulatory infertility and unpredictable period ought to shed pounds [33].

Being overweight particularly decreases accomplishment in helped regenerative innovation (ART) [34]. Lifestyle changes may help in diminishing weight, and this aide in reestablishing the consistency of menstrual cycle and expanding odds of conception [32, 35, 36].

Ripeness diminishes as age advances and it is normal that ovulation may move toward becoming to an end numerous prior years menopause in view of the reduction in the number of eggs in the ovaries which is age-related [37]. Women's age reflects ovarian maturing. At the point when the quantity of follicles diminishes, menstrual cycle winds up unpredictable, which may come full circle as

discontinuance of menses. Oocyte quality is additionally influenced as age increments [38].

A number of oocytes lessens when folliculogenesis diminishes with the abatement in the ovarian primordial follicles as female age increments with increment in basal FSH [26, 39, 40, 41].

Lenton examined the hormonal changes when the menopause and contrasted them and the hormonal changes in the ladies in control gathering. They demonstrated that dimension of FSH expanded numerous years prior to the menopause. This expansion in FSH was identified with ordered age just as to the beginning of menopause [41].

Syropetal embraced an investigation to investigate the elements which were viewed as essential in the achievement whenever helped generation. They reasoned that oocyte recovery was related with age alongside ovarian volume. Less number of oocytes is recovered with propelling age and little ovarian volume [42].

With the expanding age, folliculogenesis is decreased and FSH levels turn out to be fundamentally higher. So as the age increments there are higher number of oocytes and the basal dimension of follicle animating hormone and this affiliation was not are collected [39]. There was a noteworthy affiliation dimension of FSH and a diminished number of oocytes reliant on the age. Basal FSH was a superior indicator of a number of oocytes recovered [43].

The menstrual cycle has 2 stages, Follicular and Luteal stage. Luteal stage changes less when contrasted with the follicular stage; follicular stage winds up shorter with age [44]. Length of follicular stage demonstrated an obvious abatement with age; ladies matured 18-24 it was 14.2 days long and ladies matured 40-44 it was 10.4 [41]. Host factors, for example, ethnicity which isn't modifiable and modifiable natural factors, for example, smoking, physical exercise and corpulence may have an impact on the menstrual qualities of the ladies [45]. Cycles incitement reactions are anticipated by Antral follicle tally. It additionally fundamentally predicts achievement in clinical pregnancy just as conveyed pregnancy [46].

Fruitfulness diminishes with age; independent of regular or invigorated ovarian acceptance. Age stays to be of tremendous significance in anticipating potential pregnancies in ladies with ordinary menstrual cycles. Yet, inquire about has appeared

just sequential age can't anticipate the reaction of the ovaries [47]. Follicles are continuously drained as the age of the female advances and reaction of the arrangement of follicles to incitement by gonadotropin is additionally lessened [48]. Though ovarian hold tests can foresee the reaction of follicles to the ovarian incitement however may not be of any assistance towards the expectation of IVF achievement as pregnancy or outcome [49].

CONCLUSION:

Significance of acknowledgement of barrenness as a medical problem won't just expel treatment boundaries yet, in addition, improving the wellbeing looking for practices of the infertility couple. Wellbeing instruction about fruitfulness will facilitate social taboos and improve the conveyance of wellbeing administrations to barren couples. Age, FSH, menstrual normality, equality, BMI, female factor, antral follicles, sort of infertility, length of barrenness may have prescient esteem estimating the achievement of the result of IVF. Further research is required on these lines.

REFERENCES:

1. Broekmans FJ, de Ziegler D, Howles CM, Gougeon A, Trew G, Olivennes F. The antral follicle count: practical recommendations for better standardization. *Fertil Steril*. 2010 Aug; 94(3):1044-51.
2. MacNaughton J, Banach M, McCloud P, Hee J, Burger H. Age-related changes in the follicle-stimulating hormone, luteinizing hormone oestradiol and immunoreactive inhibin in women of reproductive age. *Clin Endocrinol* 12.(Oxf) 1992; 36:339-345.
3. van Loendersloot LL, Van Wely M, Limpens J, Bossuyt PM, Repping S, van der Veen F. Predictive factors in vitro fertilization (IVF): a systematic review and meta-analysis. *Hum Reprod Update*. 2010; 16(6):577-89.
4. Lenton EA, Sexton L, Lee S, Cooke ID. Progressive changes in LH and FSH and LH: FSH ratio in women 2004; 21:431- throughout reproductive life. *Maturitas*. 1988 12 May; 10(1):35-43.
5. Syrop CH, Dawson JD, Husman KJ, Sparks AE, Van Voorhis BJ. Ovarian volume may predict assisted reproductive outcomes better than follicle stimulating hormone concentration on day 3. *Hum Reprod*. 1999 Jul;14(7):1752-6.
6. Sharif K, Elgendy M, Lashen H, Afnan M. Age and basal follicle stimulating hormone as predictors of in vitro fertilisation outcome. *Br J Obstet Gynecol*. 1998 11 Jan;105(1):107-12.
7. Harlow SD, Ephross SA. Epidemiology of

- menstruation and its relevance to women's health. *Epidemiol Rev.* 1995;17(2):265-86.
8. Liu Y, Gold EB, Lasley BL, Johnson WO. Factors affecting menstrual cycle characteristics. *Am J Epidemiol.* 2004 Jul 15;160(2):131-40.
 9. Vrontikis A, Chang PL, Kovacs P, Lindheim SR. Antral follicle counts (AFC) predict ovarian response and pregnancy outcomes in oocyte donation cycles. *J Assist Reprod Genet.* 2010 Jul;27(7):383-9.
 10. Jirge PR. Ovarian reserve tests. *J Hum Reprod Sci.* 2011 Sep-Dec; 4(3): 108113.
 11. Scott RT, Hofmann GE. Prognostic assessment of ovarian reserve. *Fertil Steril.* 1995;63:1;570-5
 12. Chuang CC, Chen CD, Chao KH, Chen SU, Ho HN, Yang YS. Age is a better predictor of pregnancy potential than basal follicle-stimulating hormone levels in women undergoing in vitro fertilization. *Fertil Steril.* 2003 Jan;79(1):63-8.
 13. McQuillan J, Greil AL, White L and Jacob MC Frustrated Fertility: Infertility and Psychological Distress Among Women. *J Marriage Family.* 2003; 65(4); 1007-1018
 14. Bhatti LI, Fikree FF, and Khan A, The quest of infertile women in squatter settlements of Karachi, Pakistan: A qualitative study, *SocSci Med.* 1999; 49(5); 637-649.
 15. Sbaragli C1, Morgante G, Goracci A, Hofkens T, De Leo V, Castrogiovanni P. Infertility and psychiatric morbidity *FertilSteril.* 2008 Dec;90(6):2107-11.
 16. Wiersema NJ, Drukker AJ, Mai BT, Giang HN, Nguyen TN, Lambalk CB. Consequences of infertility in developing countries: Results of a questionnaire and interview survey in the South of Vietnam. *J Transl Med* 29. 2006;4(1):54-67.
 17. Nachtigall RD. International disparities in access to infertility services. *Fertil Steril.* 2006 Apr;85(4):871-5 *Biomed Online.* 2011Aug;23(2):245-62.
 18. Edwards RG. Maturation in vitro of human ovarian and oocytes. *Lancet* 1965; 2:926-929 Johnson MH. Robert Edwards. The path to IVF. *Reprod*
 19. Johnson MH. Robert Edwards. The path to IVF. *Reprod Biomed Online.* 2011Aug;23(2):245-62.
 20. Gearhart J, Coutifaris C. In vitro fertilization, the Nobel Prize, and human embryonic stem cells. *Cell Stem Cell.* 2011 Jan 7;8(1):12-5.
 21. Vayena E, Rowe PJ, Peterson HB. Reproductive technology in developing countries: why should we care? *Fertil Steril.* 2002 Jul;78(1):13-5. *Fertil Steril.* 2002 Jul;78(1):13-5.
 22. Vayena E, Peterson HB, Adamson D, Nygren KG. Assisted reproductive technologies in developing countries: Are we caring yet? *Fertil Steril.* 2009 Aug;92 2):413-6.
 23. Abolfotouh MA, Alabdrabalnabi AA, Albacker RB, Al-Jughaiman UA, Hassan SN. Knowledge, attitude, and practices of infertility among Saudi couples. *Int J Gen Med.* 2013; 6: 563-573.
 24. Kamel RM. Management of the infertile couple based protocol. *Reprod Biol Endocrinol* 10.1186/1477-7827-8- 21.
 25. Callahan LT, Caughy AB. Infertility and assisted reproductive technologies. In *Blueprints Obstetrics and Gynecology.* 5th edition. Lippincott Williams & Wilkins; 2008:275-289.
 26. Stovall DW, Toma SK, Hammond MG, Talbert LM. The effect of age on female fecundity. *Obstet Gynecol.* 1991 Jan;77(1):33-6.
 27. Bhattacharya S, Maheshwari A, Mollison J. Factors Associated with Failed Treatment: an Analysis 121,744 Women Embarking on Their First IVF Cycles *PLoS ONE* 2013; 8(12).
 28. Bellver J. Impact of bodyweight and lifestyle on IVF outcome. *Expert Review of Obstetrics & Gynecology.* September 2008: Vol. 3, No. 5; 607-625.
 29. Ferlitsch K, Sator MO, Gruber DM, Rucklinger E, Gruber CJ, Huber JC. Body mass index, follicle-stimulating hormone and their predictive value in vitro fertilization. *J Assist Reprod Genet* changes in 436.
 30. Maheshwari A, Hamilton M, Bhattacharya S. Effect of female age on the diagnostic categories of infertility *Hum Reprod.* 2008 Mar;23(3):538-42
 31. Navot D, Bergh PA, Williams MA, Garrisi GJ, Guzman I, Sandler B, Grunfeld L. Poor oocyte quality rather than implantation failure as a cause of the age-related decline in female fertility. *Lancet.* 1991 Jun 8; 337(8754):1375-7.
 32. Baird DT, Collins J, Egozcue J, Evers LH, Gianaroli L, Leridon H, et al. ESHRE Capri Workshop Group. Fertility and ageing. *Hum Reprod Update.* 2005 May- un;11(3):261-76.
 33. Johnson JA, Tough S, Society of Obstetricians and Gynaecologists of Canada. Delayed child-bearing. *J Obstet Gynecol Can.* 2012 Jan;34(1):80-93.
 34. Nelson SM Telfer EE, Anderson RA. The ageing ovary Johnson JA, Tough S, Society of Obstetricians and Gynaecologists of Canada. Delayed child-bearing. *J Obstet Gynecol Can.*

- 2012 Jan; 34(1):80-93.
35. Law DC, Maclehorse RF, Longnecker MP. Obesity and time to pregnancy. *Hum Reprod* 2007;22:414-20.
 36. Yilmaz N, Kilic S, Kanat-Pektas M, German C, Mollamahmutoglu L. The relationship between obesity and fecundity. *J Womens Health (Larchmt)*. 2009 11 May;18(5):633-6.
 37. Metwally M, Li TC, Ledger WL. The impact of obesity on female reproductive function. *Obes Rev* 2007 12 Nov;8(6):515-23.
 38. Ogbuji QC. Obesity and reproductive performance in women. *Afr J Reprod Health*. 2010 Sep;14(3):143-51.
 39. Devlieger R, Guelinckx I, Vansant G. The impact of obesity on female reproductive function. *Obes Rev*. 2008 13 Mar;9(2):181-2
 40. Wilkes S, Murdoch A. Obesity and female fertility: a primary care perspective. *J FamPlannReprod Health Care*. 14 2009 Jul;35(3):181-5.
 41. Brewer CJ, Balen AH. The adverse effects of obesity on conc epi on and implantation Reproduction. 2010 15 Sep;140(3):347-64.
 42. Norman RJ, Noakes M, Wu R, Davies MJ, Moran L, Wang XJ Improving reproductive performance in an overweight /obese woman with effective weight evidence-Hum Reprod Update. 2004 May - 2010; 8:21-8
 43. Dunson DB, Colombo B, Baird DD. Changes with age in the level and duration of fertility in the menstrual cycle. *Hum Reprod*. 2002 May;17(5):1399-403.
 44. Sami N, Ali TS. Health seeking behaviour of couples with secondary infertility. *J Coll Physicians Surg Pak* 2006 Apr; 16(4):261-4.
 45. Mascarenhas MN, Flaxman SR, Boerma T Vanderpoel S, Stevens GA. National, regional, and global trends in infertility prevalence since 1990: a systematic analysis of 277 health surveys. *PLoS Med* 2012;9(12):e1001356.
 46. Ali S, Sophie R, Imam AM, Khan FI, Ali SF, Shaikh A, Farid-ul-Hasnain S. Knowledge, perceptions and myths regarding infertility among selected adult population in Pakistan a cross-sectional study. *BMC Public Health*. 2011 Oct 4; 11:760-5.
 47. Sami N, Ali TS. Psycho-social consequences of secondary infertility in Karachi. *J Pak Med Assoc*. 2006 Jan; 56(1):19-22.
 48. Sami N, Saeed Ali T. Perceptions and experiences of women in Karachi, Pakistan regarding secondary infertility:Results from a community-based qualitative study. *Obstet Gynecol Int* 2012;10 (8)756-60.
 49. Fido A. Emotional distress in infertile women in Kuwait *Int J Fertil Womens Med* 2004, 49(1):24-28.