

Original article

Prevalence and Preventive Measures of Infertility in Male by Kruger's Criteria, a Randomized Study in Private and Government Health Care Hospitals

Dr. Somia Gul¹, Huda Ashraf¹, Dr. Owais Khawar² and Madiha Moid¹

Abstract:

Background: Every single couple out of 10 is in search of medical care because of infertility. Men older than 40 years and Women older than 30 years are at an increased risk of infertility. On the other hand, the estimation of male infertility is frequently underestimated or delayed. Symptomatic approaches steadily reducing the magnitude of couples classified as having idiopathic infertility. This is than perceived that no simple tests can conclude the probability of pregnancy in congregation in which the man is an infertile partner. **Method:** Current study is design to figure out existence, problems, and causes, associated with infertility and treatment. In the view of the fact that the investigative consequences responsible for infertility in male. For this purpose survey has been conducted at different private and government health care hospital (n=33 patient of infertility) were selected for further studies. **Result:** Results revealed that most of the patients are in the middle of their ages reported infertile. Primary infertility in infertile patients is 73% where as the presence of secondary infertility in the remaining respondent is 27%. Among all, 52% of the patients have co-morbid history of diabetes mellitus, 18% of them have issues about genitourinary trauma and infections, 30 patient have been identified problems related morphological count, 51% of them investigated abnormal volume of man semen. Evaluation of the study on infertility by Kruger's strict morphology test over 75% of the men having insignificant infertility issues whereas 25% of them were observed significant infertility issues. **Conclusion:** It is concluded that male infertility is independent on the age factor according to our survey based study whereas, excessive use of tobacco, alcohol, high fat food consumptions, obesity, heavy weight exercises, sedative life styles, contacts with chemical or toxins, stress or psychological disturbances might provoke issues of infertility.

Keywords: Infertility; diagnosis; male; factors associated; percentage; awareness; semen analysis; Kruger's strict criteria.

*Bangladesh Journal of Medical Science Vol. 18 No. 01 January'19. Page :94-99
DOI: <https://doi.org/10.3329/bjms.v18i1.39557>*

Introduction:

Every single couple out of 10 in search of medical health care guidance due to infertility¹, where in male factor is associated may lead to infertility. Male infertility aspect is typically distinct by atypical

results on semen analysis². When the couples have been unable to conceive even after one year or after six months of unprotected coitus is expressed as primary infertility. According to the research and studies it is estimated that when both partners

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of the couples are 35 or older than Infertility might occur^{2,3}, presence of Infertility can be both in males and females⁴. According to the types of infertility it can be divided in to two, primary and secondary infertility². When the patient is unable to conceive and having no history of miscarriages than it is primary where as when the couples having one or two babies or even having history of conceive or miscarriages but further they are unable to conceive and having any problem regarding infertility than it is called secondary infertility^{1,2}. The Centers for Disease Control and Prevention (CDC) reports that in the United State of America 12 percent of women between the ages of 15 and 44 facing problems in conceiving or staying pregnant due to male or female infertility⁵ after six months or a year of trying with unprotected intercourse. Infertile women might have experienced irregular or absent menstrual periods, painful periods, or multiple miscarriages^{1,3}. But, In Men, they may also experience the history of testicular, prostate, or sexual problems². On the other hand, the estimation of male infertility is frequently underestimated or delayed⁴. Men older than 40 years and Women older than 30 years are at an increased risk of infertility. According to the Centers for Disease Control and Prevention, in men, at primitive screening investigation, the doctor may ask for a précised semen analysis and brief reproductive history. It will be considered for problems with sperm, including low sperm count or motility issues^{1,6,7}. However, WHO guidelines reported that the man with a sperm count of <20 millions/ml is considered as oligospermia and nearly 100 million man around the world are surviving with erectile dysfunction². Multi centre survey based study was done by the World Health Organization found from 1982 to 1985 where they described 20% cases dominantly related to male partner, and 38% were females where as total abnormalities of infertility was found to be 27% in both male and female whereas the last 15% cases of infertility were undiagnosed or unidentified⁸. Symptomatic approaches steadily reducing the magnitude of couples classified as having idiopathic infertility. This is than perceived that no simple tests can conclude the probability of pregnancy in congregation in which the man is an infertile partner². On male infertility the epidemiological studies are in focus and should be narrated range of parameters. The principle of the male estimation is to recognize potentially, accurate conditions, irreversible conditions that are not amenable and assisted reproductive techniques using the sperm

of the male partner, where as reversible conditions are amenable to the above techniques⁹. Reversible condition improving fertility of the male, results conception through coitus, whereas untreatable conditions and irritation to tackle inadequate therapies¹⁰ like an ultrasound to scan the impression of certain conditions and a blood test to observe the levels of hormones, like ejaculatory duct obstruction or retrograde ejaculation could possibly be needed^{3,11}. White fluid semen that contains sperm enters the bladder in spite of ejaculated through the penis this state is known as retrograde ejaculation while in some cases the cysts may be form on the ejaculatory ducts that inhibit semen releasing through the duct where it travels to the penis for ejaculation this condition is called ejaculatory duct obstruction³. Genetic issues of male infertility are the alarming information for the couple of having potential for transmitting abnormalities genetically to the off springs¹⁰.

It has been identified that infertility is the problem associated equally in both male and female partners. Any single partner whether male or female when affected by infertility than there is less chances to get pregnant for the female¹². In male the main risk factors of infertility might be the less count in rapid, slow and progressive movement of the sperms, less count or zero count, less volume, infectious semen, erectile dysfunction, stress, weight variation, age, contact with toxins or chemicals, family history of infertility, weak childhood urological history might cause infertility^{13,14,15}.

The aim of the current research study is lined out the percentage of infertility in male, to find out the facts and figures and expected ratio of existence of infertility in male and to evaluate the possible treatment options and success ratio of curing the existing problem of male infertility. Patient's personal profile, past medical history, dietary habits, occupation of the patient, family history of the patient, infertility score, types of infertility, treatment duration of infertility, complications associated due to infertility, and treatment helping to reduce the factors regarding infertility also has been focused¹².

Methodology:

This randomized survey research study has been conducted during Jan-June 2016 in different private and government health care hospitals and about 33 male patient (n= 33) suffering from infertility were selected with their consents and evaluated faithfully. This study encloses people from different demographical, social, economic and races. Current study is based on briefly defined questionnaire in

which various parameters has been evaluated to ruled out the existence of infertility, grades, family history of patient, risk factors, past history of patients, and the complications associated with infertility and treatment parameters. Statistically concluded data interpretation and evaluation has been done carefully.

Ethical clearance: This study was approved by Ethics Committee of Baqai Institute of Reproduction and Developmental Sciences Karachi, Pakistan.

Result and discussion:

The evaluation of the study of infertile male patient has been found that these patients are in the age among 20-30, 30-40, and 40-50 years old, and the weight of those patients are in the range between 50-75kg, 76-100kg and -above 100 kg. Most of the patients are in their middle of their age reported infertile (fig.1).

On evaluation for the family history for infertility of the respondent's family members, its results

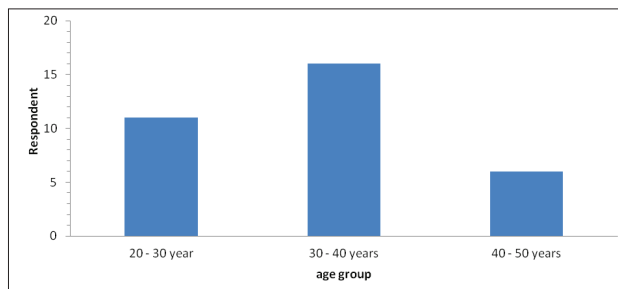


Figure 1: Different Age Groups Suffering with Infertility Problems

Height of these patient is 5-5.5, 5.6-6.1 and above 6.2 (ft./inches) that represents in fig 1 and 2 concluded that most of the patients are obese in the middle of their age and this could be the reason of their infertility.

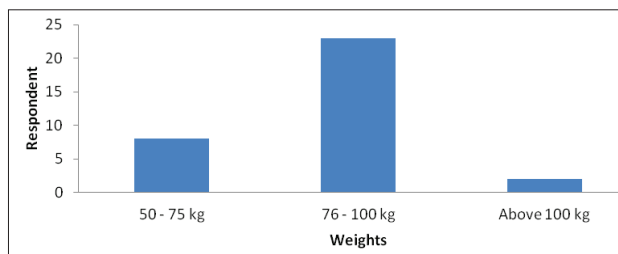


Figure 2: Effects of Weight Variation in Infertility

Results reveal that out of 33 patients, 73% of respondent are related to primary infertility while only 27% are under secondary infertility care (fig.3). So it can be concluded that the number of couples who are at the primitive ages of their marriage or more are in primary infertility and seeking for the treatment of infertility like they have no single baby in history.

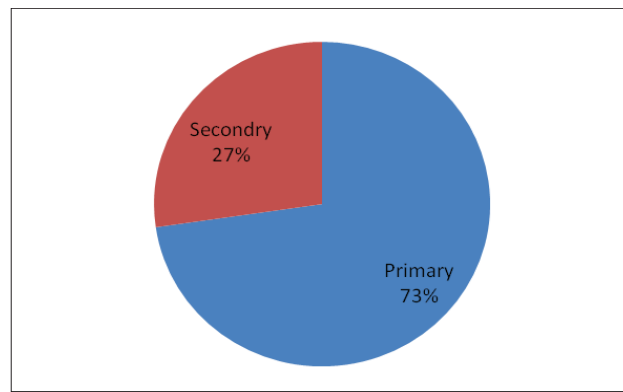


Figure 3: Percentage of Patients Affected by Primary and Secondary Infertility

The duration of treatment of infertile reported respondent having 48% during 1-3 years of treatment, where as 24% of them are under 3-5 years of treatment, and 21% are those lie under 5-10 years of treatment and only 9% are existed in more than 10 years of treatment for infertility issues expressed in fig.4.

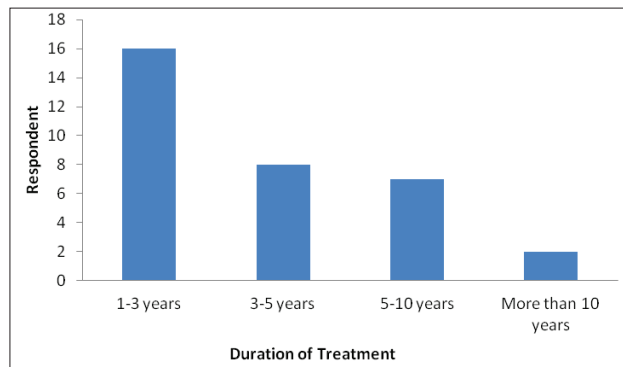


Figure 4: Infertility Treatment Duration in Years of Infertile Couples

that there is impact of family infertility in which approximately 6% of the patient paternal and 6% maternal family members are affected by infertility, 24% of the patients siblings are seeking treatment for the infertility whereas 12% infertility cases have been reported among all paternal and maternal family members of some patients that are at risk on infertility. While 52% cases of the respondent having not any previous or present history of infertility in their family members they have their selves' history of infertility. Although according to current study as well as with reference to the past studies and worldwide researches it has been investigated that there may a strong impact of infertility in couple whose family members (maternal, paternal, or siblings etc) have history of infertility issues in their life.

When investigation is done regarding issues related to infertility in patients own profile then it has been

noted that 24 of them are running towards their infertile issues since many years or some of them treating for few years. Whereas only 9 out of 33 having no infertility issues reported in their past medical treatment history as shown below in pie chart fig.5. It is important to notice that these issues are related to those persons who came to clinic and reported themselves for the treatment of infertility but in our society 40-50% cases are not reported. These people hesitate to consult to any consultant clinic or deliberately hiding themselves for the doctor to find out issues related to infertility or some of them went to the hakim and inexperienced herbalist who are in practice at community related health care setups and even without licenses. Such remedies are really come to the counter to control because these are one the main reasons for the rising issues of infertility. The history of co-morbidities in the patients are 17 out of 33 suffering from diabetes mellitus (DM), 10

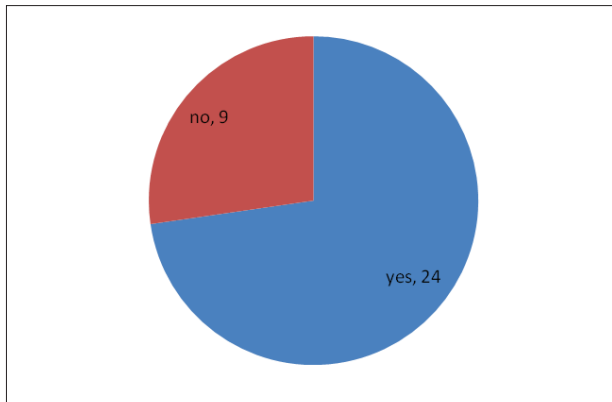


Figure 5: History of Personal Issues Related To Infertility of Male
Childhood urological history of the patients have been reported through the survey that among 87% of the respondent are healthy and only 13% of the patients were weak in their childhood urological history. It has been observed that 24of the respondent's out of 33 having wife from outside of their family while 9 out of 33 patient's wife are from their family/ relatives as in fig. 6.

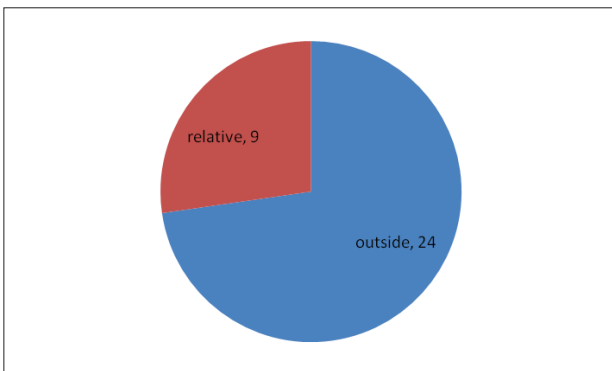


Figure 6: Status of Marriage in Family or Relatives of Infertile Male

of them having not any history of co-morbid, 5 of them related to the hypertension (HTN), while 4 of them having both issues of diabetes mellitus (DM) and hypertension (HTN) whereas only 2 out of 33 are under ischemic heart disease (IHD).drawn in fig. 7 below.

Study of semen parameters of the male infertile patient is one of the basic research studies that

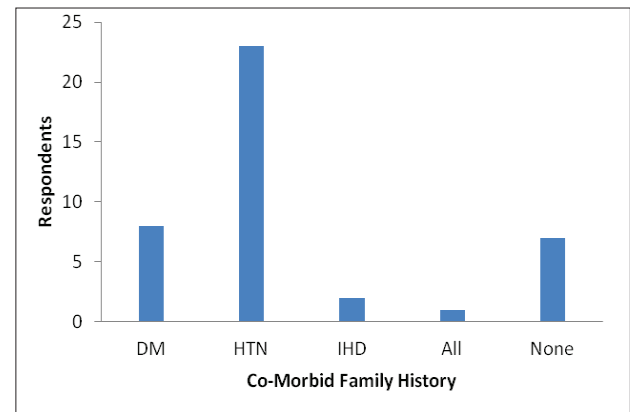


Figure 7: Co-Morbidities in Family History of Respondents

The current investigative study also shows another factor that is important to consider for infertility is genitourinary trauma and infections in patient where in our current research study it is about (28) 82% of the patients having no history of genitourinary trauma and infections but among (5) 18% of them have been reported different genitourinary trauma and infections problem such as history of passing renal calculi 1 year back in some patients or at the age of 10 years manage by open surgery in 1 or 2 patients where as some having history of febrile illness as in fig. 8.

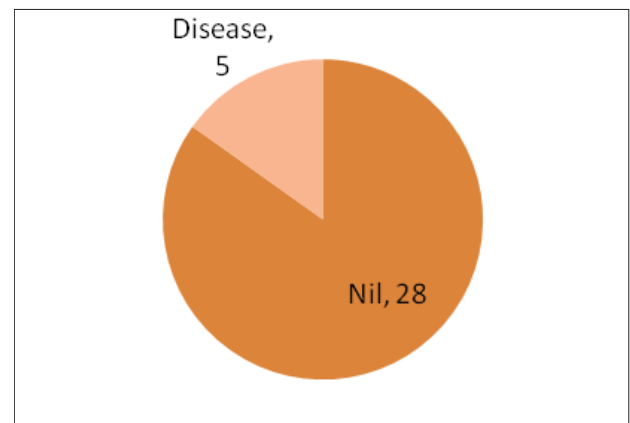


Figure 8: Genitourinary Trauma/ Infections of Infertile Male

investigated all of the semen parameters and describes the whole associated problems with infertility. When we research and investigate about the morphological count of the patient in the survey then approximately 30% of the patients having less count with no erectile dysfunction in their morphology and 70% of the patients reported erectile dysfunction with more count (fig. 9).

Current study also revealed that Sperm Count of semen analysis in respondent ranges between 0-300

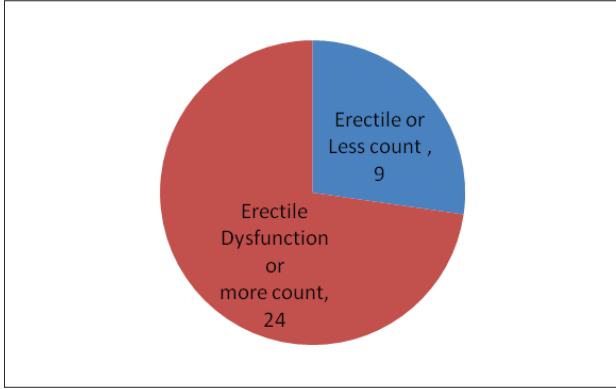


Figure 9: Morphological History of Infertile Male

Volume of semen (ml) of the infertile patients reported that 49% of them having 2-3ml, 33% of them reported 1-2ml, 15% having 4-5ml, and 3% reported more than 5ml of volume as mention in fig. no.10. The standard normal volume of the semen is 2-2.5ml or 1-4 cc and if the volume is low it may suggests an incomplete collection or the large volume may results the dilution of the sperm. According to our study most of them lie in 2-3ml as discuss above that means most of them have normal volume. But 33% having less volume, 18% having large volume that causes dilution.

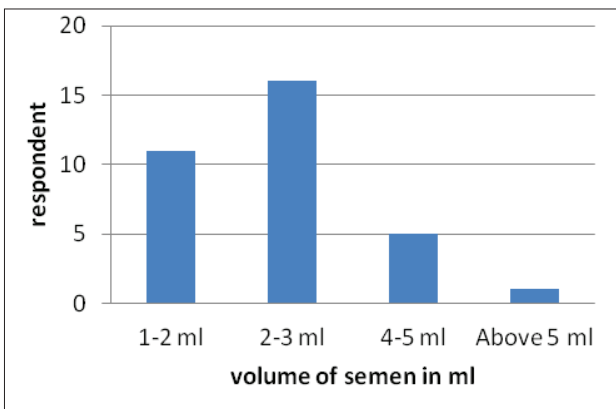


Figure 10: Vol. of Semen Analysis of Infertile Male

whereas the normal range of sperm count is 15 million/ml to greater than 200 million/ml. It has been found that 78% of the patients count lies in ranges between (0-100 million/ml) (see fig. no. 11) whereas 22% of the patients are above 100 million/ml. In our research study we are applying the Kruger's (strict) morphology test¹⁶ to evaluate our results and

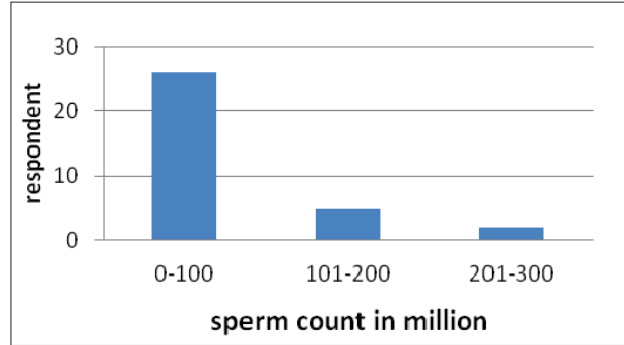


Figure 11: Total Sperm Count of Infertile Male

findings of significant and insignificant infertility in male. According to the study if 14% or more of the sperm are in normal shaped head than it has insignificant infertility problems where as men with less than 4% of normal shaped sperm may have significant infertility problem. So the results in fig.12 represents that 75% of the men have insignificant infertility issues where as 25% of the men having significant infertility issues.

Different therapies are used to treat infertility. It may be single therapy or combination therapy both are

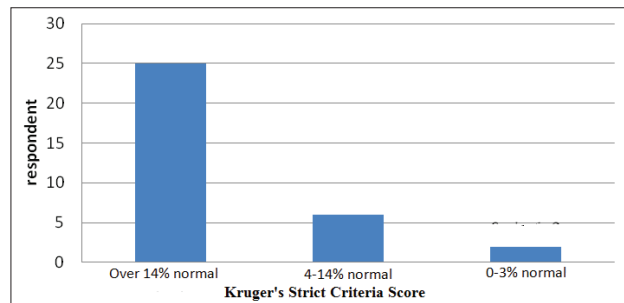


Figure 12: Morphology of Sperms in Respondent by Kruger's criteria

used depending upon the nature of the infertility. Initially treatment is started after diagnosis, laboratory tests, and after physical examination. Some men only require the treatment by medication where as in other cases the surgical treatments may also be required.

Conclusion: Results revealed that most of the patients are in the middle of their ages reported infertile. Presence of Primary infertility is found 73% where as the presence of secondary infertility in the respondent is 27%. The infertile persons/

patients have co-morbid history of diabetes mellitus, genitourinary trauma and infections. Evaluation of the study on infertility by Kruger's strict morphology test revealed that over 75% of the men having insignificant infertility issues whereas 25% of them were observed significant infertility issues. It is concluded that excessive use of tobacco, alcohol, high fat food consumptions, contacts with chemical or toxins, stress or psychological disturbances might provoke issues of infertility.

Conflict of interest: None declared

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Drafting of the article: Huda Ashraf, Somia Gul and Madiha Moid

Final approval of the article: Somia Gul

Collection and assembly of Data: Owais Khawar and Huda Ashraf

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