

Prevalence of Azoospermia in Infertile Males in Thi-Qar Governorate (Iraq)

Sumeya Ghanawy AL-Najjar, PhD*

ABSTRACT

Objective: Guy infertility is the inability of a sexually mature male to become pregnant by a fertile female. It causes 40% of infertility in humans. Semen quality is utilized as a proxy indicator of male fecundity since defects in the semen are frequently the cause of male infertility. This study's goal was to find out how common azoospermia was among men in infertile couples in the southern Iraqi city of Thi-Qar.

Methods: The study was carried out at infertility unit in Thi Qar city, province of Iraq from January 2018 to January 2021. This study involved an infertile couple, SFA was done to evaluate male factors. Males with Azoospermia were involved. Regarding male, SFA was examined according to WHO 2010. Information such as age, job and duration of infertility were taken.

Results: Number of couples is 2000, patients with abnormal SFA are 600 (30%). From those patients, 30 with azoospermia (5%). Largest job group of Azoospermic Patients is self-employer, which is significantly different from other groups ($P<0.01$). Non obstructive type is Significantly different ($P<0.01$) from obstructive type. Half of the couples only undergone IVF program (in vitro fertilization).

Conclusion: The prevalence of azoospermia in our province (5%). Half of the patient only undergone IVF program (in vitro fertilization) because there is no IVF center in our province in addition to high cost of private centers.

Keywords: Azoospermia, SFA (seminal fluid analysis), Infertility

INTRODUCTION

The secretions from the prostate, seminal vesicles, epididymis, urethral glands, Cowper's glands, and vasa deferentia make up the seminal fluid, often known as semen, which is a clear or gray liquid¹. Millions of spermatozoa (sperm) are present in every milliliter of semen, however the majority of the volume is made up of glandular secretions from the male reproductive organs². Azoospermia affects about 1% of males overall, while ten% to fifteen % of infertile men have the condition. The absence of any seminal fluid emission after ejaculation distinguishes aspermia from azoospermia^{3,4}. The three primary kinds of azoospermia causes are pretesticular, testicular, and post testicular. Endocrine disorders that negatively affect spermatogenesis (secondary testicular failure) are one of the more uncommon pretesticular causes of azoospermia. One of the main reasons of azoospermia is testicular abnormalities of spermatogenesis that occur internally to the testes (primary testicular failure). A ductal obstruction or ejaculatory malfunction that prevents sperm from reaching the urethral meatus is one of the causes of azoospermia in about 40 percent of affected men⁵. Azoospermia is characterized by the total lack of sperm in the ejaculate. A semen sample must be centrifuged for 15 minutes at room temperature in order to confirm this diagnosis. The pellet must also be examined under a microscope at a high magnification, and the centrifugation speed must be at least 3,000 g. It is advised to adhere to the 2010 World Health Organization criteria for semen analysis and to analyze at least two samples of semen taken more than two weeks apart⁶.

METHODOLOGY

The study was carried out at infertility unit in Thi Qar city, province of Iraq from January 2018 to January 2021. This study involved an infertile couple, 2000 couples. SFA was done to evaluate male factors. 600 hundred with abnormal parameters only 30 males with

Azoospermia. Regarding male, SFA was examined according to WHO 2010. Information such as age, job and duration of infertility were taken and analysed for Azoospermic patients⁷⁻¹³.

Seminal Fluid Collection and Examination

3-5 days of sexual abstinence were followed by masturbation to acquire seminal fluid. Within an hour of ejaculation, the samples were taken in sterile, wide-mouthed, non-toxic containers and processed in the lab. The seminal fluid was assessed using macroscopical (appearance, volume, liquefaction, pH, and viscosity) and microscopical (spermatozoa concentration, morphology, and motility) criteria in line with the WHO (2010) manual of seminal fluid examination⁵.

RESULTS

Figure 1 study the patients, from it we notice that number of patients is 2000. patients with abnormal SFA are 600 (30%). Figure 2 describe the percentage of Azoospermic patients (5%). Figure 3 shows Comparative of age groups of Azoospermic patients, there is non-significant differences ($P>0.05$) between them, but age 22-30 year is the largest age group. Figure 4 explains the Comparative of job groups of Azoospermic patients, there is Significant differences ($P<0.01$) for self-employer. Figure 5 describes Comparative of Azoospermia family history groups of Azoospermic patients. There are non-significant differences ($P>0.05$) between them. Comparative of IVF training groups of Azoospermic patients shown by Figure 6. There are non-significant differences between them. Figure 7 shows Comparative of get pregnant from IVF groups of Azoospermia patients, from it there is significant differences ($P<0.05$). Comparative of Chromosome test groups of Azoospermic patients explained by Figure 8, Significant differences ($P<0.01$) between 2 groups. Figure 9 describes Comparative of fertility of female abnormality groups of Azoospermic patients.

* Department of Gynecology and Obstetrics
College of Medicine
University of Thi Qar, Iraq.
E-Mail: sumaya-g@utq.edu.iq

non-significant differences ($P>0.05$) is noticed. Infertility periods groups are explained by Figure 10, there is non-significant differences ($P>0.05$). Last figure shows Comparative of obstructive type groups of Azoospermia patients. Significant differences ($P<0.01$) between 2 groups as non-obstructive type is the largest.

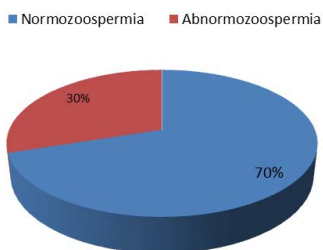


Figure 1: Percentage of patients with abnormal SFA

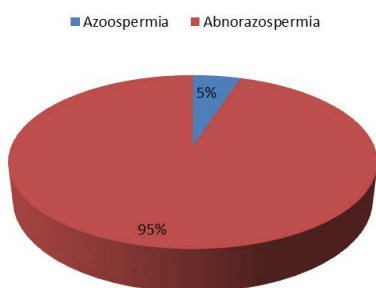


Figure 2: Percentage of patients with Azoospermia

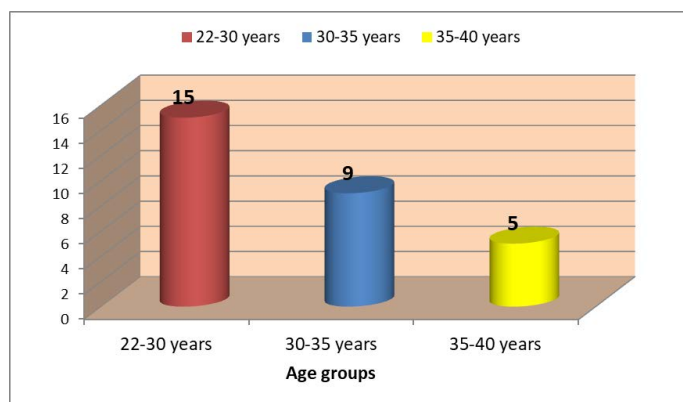


Figure 3: Comparative of age groups of Azoospermic patients
 $\text{Chi}^2=5.241$, $\text{Sig}=0.07$ non-significant differences ($P>0.05$)

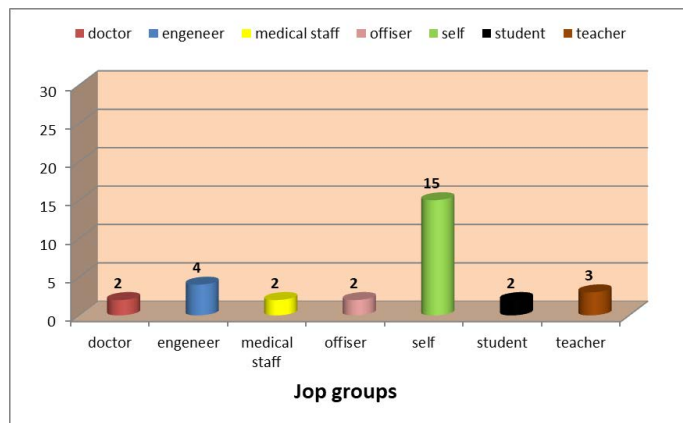


Figure 4: Comparative of job groups of Azoospermic patients
 $\text{Chi}^2= 32.067$, $\text{Sig}=0.002^{**}$ Significant differences ($P<0.01$)

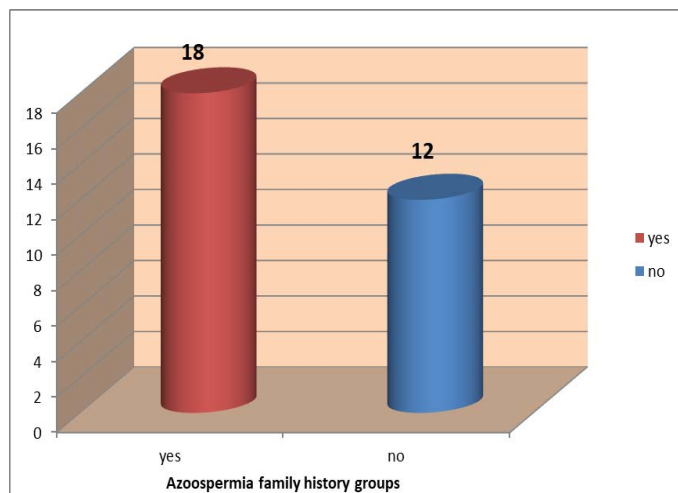


Figure 5: Comparative of family history groups of Azoospermic patients
 $\text{Chi}^2= 1.200$, $\text{Sig}= 0.273$ non-significant differences ($P>0.05$)

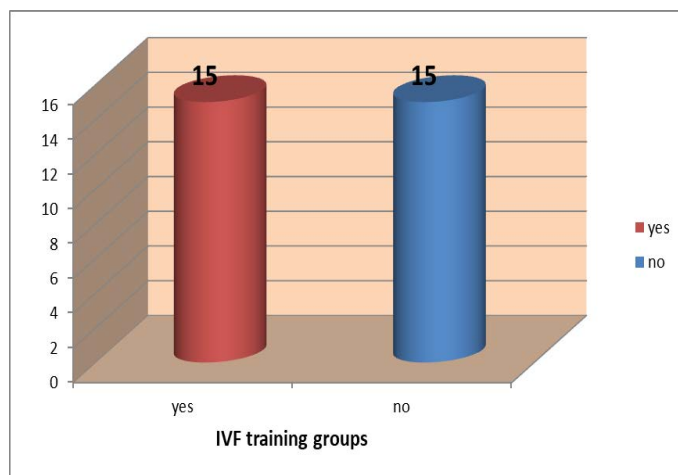


Figure 6: Comparative of IVF training groups of Azoospermic patients
 $\text{Chi}^2= 0.0$, $\text{Sig}= 1.00$ non-significant differences ($P>0.05$)

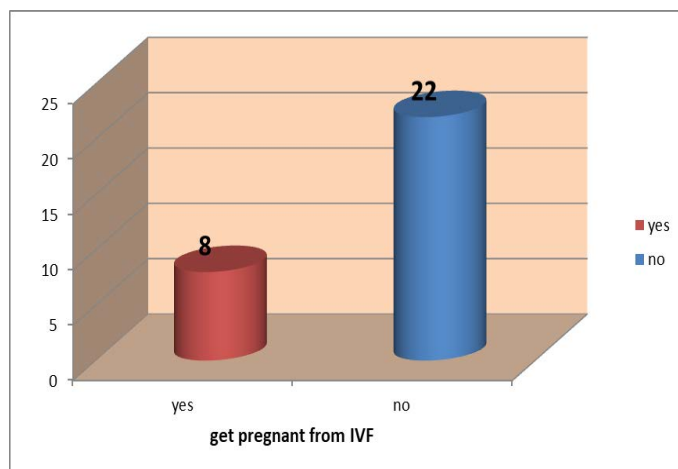


Figure 7: Comparative of get pregnant from IVF groups of Azoospermic patients
 $\text{Chi}^2= 6.533$, $\text{Sig}= 0.011^*$ significant differences ($P<0.05$)

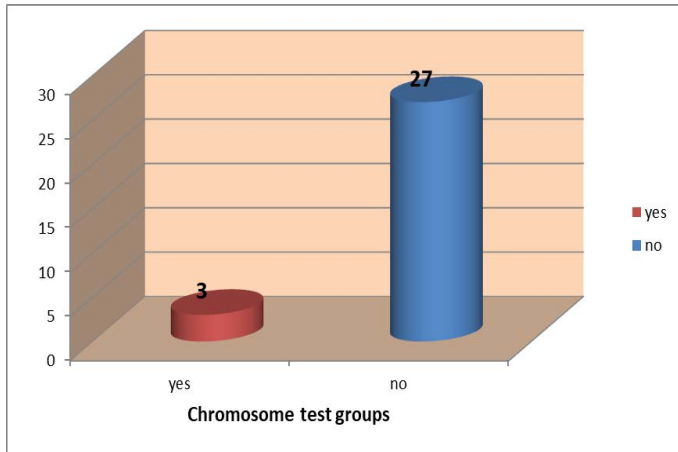


Figure 8: Comparative of chromosome test groups of Azoospermia patients
 $\chi^2= 19.200$, Sig=0.0002** Significant differences (P<0.01)

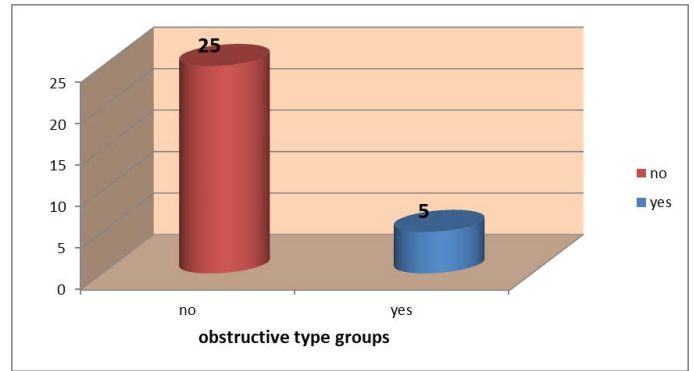


Figure 11: Comparative of obstructive type groups of Azoospermic patients
 $\chi^2= 13.333$, Sig=0.007** Significant differences (P<0.01)

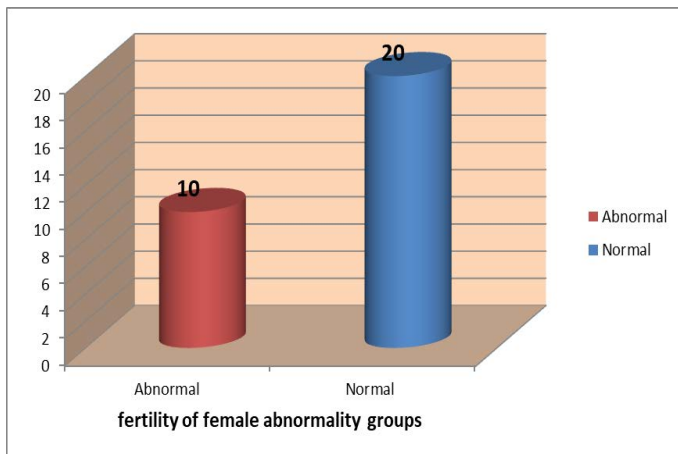


Figure 9: Comparative of fertility of female abnormality groups of Azoospermic patients
 $\chi^2= 3.333$, Sig=0.07 non-significant differences (P>0.05)

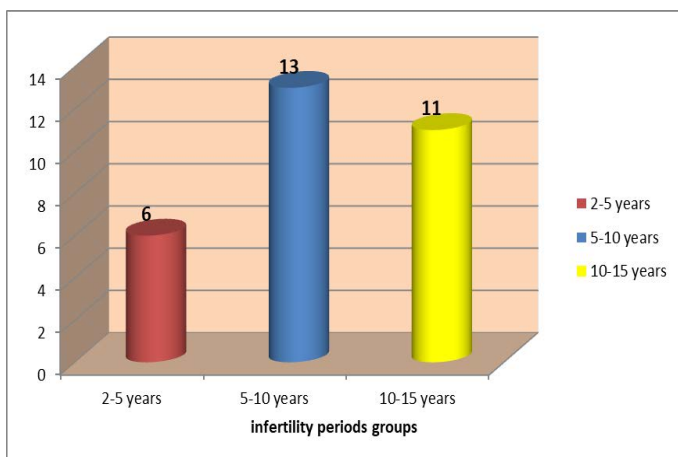


Figure 10: Comparative of infertility periods groups of Azoospermic patients
 $\chi^2= 2.600$, Sig=0.27 non-significant differences (P>0.05)

DISCUSSION

We observed that 600 males with abnormal SFA out of 2000 (30%) and 30 males with azoospermia from those 600 males (5%). In Iraq study done at 2012, total of 116 males with primary infertility/: 32 azoospermic (AZO)¹⁴. In another study conducted in Iraq, 250 infertile couples' male members were assessed, and a 10% prevalence of azoospermia was found¹⁵. In their investigation, Rima D and his colleagues found that 17% of participants had azoospermia. This result is not unexpected given that it has previously been established that around 25% of infertility is attributable to males¹⁶. Previous workers in Pakistan revealed that azoospermia was present in 17.5% and obstructive azoospermia in 8.5% of the population¹⁷. The prevalence of azoospermia varies by area in India, from 38% in Karnool to 37.4% in Jodhpur, while it is 51% in Karnool for oligozoospermia¹⁸. Patients with infertility in Sweden's andrology unit reported oligospermia in 27.6% of cases and azoospermia in 57.4% of cases¹⁹. The American Society for Reproductive Medicine published a study in 2006 that showed 3,017 people had screening semen analysis performed on them. 15% (443) and 3% (95) of those satisfied the criteria for oligozoospermia, respectively. 55 (58%) of the 95 males with azoospermia showed up for additional testing. In 93% (51/55) of individuals, non-obstructive azoospermia was shown to exist. The remaining 7% (4/55) individuals had obstructive azoospermia²⁰, since non-obstructive azoospermia is more common than obstructive azoospermia in our study. According to our research, the majority of self-employed males are from lower socioeconomic backgrounds, and they frequently choose dangerous professions like farming, construction, and industry. Previous research has shown links between each of these professions and reduced male fertility²¹⁻²⁷. Additionally, it has been demonstrated that exposure to chemicals and pesticides, such as those experienced by farm laborers, has a detrimental effect on sperm parameters²⁸⁻³⁰. These elements could all have a role in the rising incidence of non-obstructive azoospermia in our community^{31,32}. Biomarkers for various male reproductive system problems, such as male infertility, may be found in seminal plasma. By identifying and analyzing several molecules expressed in males with normal and defective spermatogenesis' seminal blood, future study may offer insight on the molecular origins of male infertility and possibly azoospermia³³⁻³⁴. Despite a resurgence of interest in genetic research to identify the root causes of idiopathic infertility, the overall pattern has been to disregard advancements in diagnostics in favor of ART, which is more expensive but more successful³⁵⁻³⁶.

CONCLUSION

The prevalence of azoospermia in our province (5%). Half of the patient

only undergone IVF program (in vitro fertilization) because there is no IVF center in our province in addition to high cost of private centers.

Authorship Contribution: All authors share equal effort contribution towards (1) substantial contributions to conception and design, acquisition, analysis and interpretation of data; (2) drafting the article and revising it critically for important intellectual content; and (3) final approval of the manuscript version to be published. Yes.

Potential Conflict of Interest: None

Competing Interest: None

Acceptance Date: 17 October 2022

REFERENCES

1. Paris DB, Taggarat DA, Shaw G, et al. Ultrastructure of the epididymis of the tammar, *Macropus eugenii*, and its relationship to sperm maturation. *Renfree MB Reproduction* 2005;130(3):367-78.
2. Guyton AC. *Physiology of Human body*. Holt Saunders International Edition, Printed in Japan 1982;475-85.
3. Stephen EH, Chandra A. Declining estimates of infertility in the United States: 1982-2002. *Fertil Steril* 2006;86(3):516-23.
4. Najji AB, Ahmed MM, Younis NM. Adherence to the Preventive Measure Against for COVID-19 among Teachers at University of Mosul. In *J Med Tox Leg Med* 2021;24(3-4):273-7.
5. WHO. World Health Organization: WHO Laboratory manual for the examination and processing of human semen - 5th ed. Geneva: WHO Press 2010.
6. Schlegel PN. Causes of azoospermia and their management. *Reprod Fertil Dev* 2004;16(5):561-72.
7. Muwfaq YN, Ahmed MM, Abdulsalam RR. Assessing Quality of Life in Palliative Care. *Bahrain Medical Bull* 2021;43(3):594-6.
8. Ahmed MM, Younis NM, Dhahir NM, et al. Acceptance of Covid-19 vaccine among nursing students of Mosul University, Iraq. *Rawal Med J* 2022;47(2):254-8.
9. Younis NM. Efficacy of Health Beliefs Model-Based Intervention in Changing Substance Use Beliefs among Mosul University Students: A Randomized Controlled Trial. *Revis Bionatura* 2022;7(2):35.
10. Al-Ghurairi SA, Younis NM, Ahmed MM. Prevalence of weight gain among students of Mosul University, Iraq during quarantine 2020. *Rawal Medical Journal*. 2022 Jul;47(3).
11. Abbas AS, Younis NM. Efficacy of Pender's Health Promotion-based Model on Intervention for Enhancing University of Mosul Hypertensive Employees' Eating Behaviors: A randomized Controlled Trial. *Revis Bionatura*. 2022;7(3):35.
12. Ahmed MM, Younis NM, Abdulsalam RR. Assessment of changes in sleep habits in elementary students during covid_19 lockdown. *International Journal of Medical Toxicology & Legal Medicine*. 2022;25(1and2):76-80.
13. Mukhlif HH, Younis NM. Evaluation of the association between internet addiction and fatigue among undergraduate students at universities in Mosul city, Iraq: A cross-sectional study. *Rawal Medical Journal*. 2022 Dec 11;47(4):829-.
14. Kadri ZHM, Al-Assaf AIS, Ad'hiah AH, et al. Seminal Fluid Analysis in Iraqi Fertile and Infertile Males Defined by the World Health Organization Criteria of 2010. *Ibn Al-Haitham J Pure Appl Sci* 2012;25(2):83-90.
15. Razzak AH, Wais SA. The infertile couple: a cohort study in Duhok, Iraq. *East Mediterr Health J* 2002;8(2-3):234-8.
16. Rima D, Guptan P, Kucheria K. Molecular Screening for Yq Microdeletion in men with Idiopathic Oligozoospermia and Azoospermia. *J Biosci* 2003;28(2):163- 68.
17. Burney SIA. Hormonal, serological and metabolic profile in infertile of Karachi. Ph.D thesis, Department of Physiology, University of Karachi. Pakistan Research Repository, Higher Education Commission Pakistan 2007;3.
18. Rajivi H, Makwana S, Ranga GM, et al. Prevalence of Oligozoospermia and Azoospermia in Male Partners of Infertile Count from Different Parts of India. *Asian J Androl* 2006;8(1):89-93.
19. Osterlund C, Segersteen E, Arves S, et al. Low number of Y-chromosomes deletions in infertile azoospermic men at Swedish andrology centre. *Int J Androl* 2000;23(4):225-9.
20. American Society for Reproductive Medicine, Published by Elsevier Inc. Etiology of azoospermia in a large nonreferral inner-city population. *Fertil Steril* 2006;86(1).
21. Wong WY, Zielhuis GA, Thomas CM, et al. New evidence of the influence of exogenous and endogenous factors on sperm count in man. *Eur J Obstet Gynecol Reprod Biol* 2003;110(1):49-54.
22. Younis NM, Ahmed MM, Abdulsalam RR. Assessing quality of life in palliative care. *International Journal of Medical Toxicology & Legal Medicine*. 2021;24(3and4):115-8.
23. Younis NM, Ahmed MM, Dhahir NM. Prevalence of Covoravirus among Healthcare Workers. *Int J Med Toxicol Legal Med* 2021;24(1-2):267-9.
24. McCauley LA, Sticker D, Bryan C, et al. Pesticide knowledge and reisk perception among adolescent Latino farmworkers. *J Agric Saf Health* 2002;8(4):397-409.
25. Sheiner EK, Sheiner E, Hammel RD, et al. Effect of occupational exposures on male fertility: literature review. *Ind Health* 2003;41(2):55-62.
26. Oliva A, Spira A, Multigner L. Contribution of environmental factors to the risk of male infertility. *Hum Reprod* 2001;16(8):1768-76.
27. Swan SH, Kruse RL, Liu F, et al. Semen quality in relation to biomarkers of pesticide exposure. *Environ Health Perspect* 2003;111(12):1478-84.
28. Taher AK, Younis NM. Assessment the Effect of a Trans theoretical Model in Improving Behaviors Health Care workers related Electronic Hookah in Mosul City /Iraq. *Rawal Medical Journal: January 2023*. Vol. 48, No. 1.
29. Ibrahim RM, Idrees NH, Younis NM. Epidemiology of leukemia among children in Nineveh Province, Iraq. *Rawal Medical Journal: January 2023*. Vol. 48, No. 1.
30. Younis NM, Mahmoud M, Ahmed A, et al. University Students' Attitude Towards E-Learning. *Bahrain Medical Bull* 2021;43(2):460-2.
31. Cocuzza M, Alvarenga C, Pagan R. The epidemiology and etiology of azoospermia. *Clinics* 2013;68(S1):15-26.
32. Adea MK, Lefta RM, Younis NM. Impact of psychosocial aspect parameters on psoriasis patients' quality of life at outpatient clinic in Al-Dewania City, Iraq. *Rawal Medical Journal*. 2022 Dec 11;47(4):892-.
33. Ali HA, Al-Waly LAM, Mukhlif HH, et al. Types of Congenital Anomalies among Children at Bint Al-Huda Teaching Hospital in Al-Nasiriyah City, South of Iraq. *Bahrain Medical Bull* 2022;44(1):792-4.
34. Younis NM, Ibrahim RM, Idrees NH. Prevalence of snake bite among children in Nineveh Governorate/Iraq: A retrospective study. *International Journal of Medical Toxicology & Legal Medicine*. 2022;25(3and4):169-172.
35. Mohammad FH, Noori LK, Younis NM. Assessment of Nutritional habits among Mosul University Students regarding breakfast. *Rawal Medical Journal: January 2023*. Vol. 48, No. 1.
36. Kim HH, Schlegel PN. Endocrine manipulation in male infertility. *Urol Clin North Am* 2008;35(2):303-18.