

Impact of Health Supplements on Male Infertile Patients: A Survey-Based Study

Karthik Thiyagarajan¹, Nandhini A¹, Asha C¹, Varshitha Dheep E¹, Vinotha S¹,
Ragesh Gurumoorthi¹

¹Sri Ramachandra Institute of Higher Education and Research, Chennai, India

Corresponding Author: Ragesh Gurumoorthi

DOI: <https://doi.org/10.52403/ijhsr.20250331>

ABSTRACT

Introduction: Male infertility is a significant global health concern, contributing to approximately half of all infertility cases. Many cases remain idiopathic, highlighting the need for effective interventions despite advancements in diagnostic technologies. This study investigates the impact of health supplement use on male infertility, focusing on usage patterns, perceived effectiveness, and changes in semen quality.

Methods: A cross-sectional study was conducted, involving 127 male patients aged 22-45 years. Data collection was performed using a validated questionnaire, assessing supplement use, lifestyle factors, and perceived fertility improvements. Statistical analysis was performed using descriptive and inferential methods.

Results: A high prevalence of supplement use was observed, with 87.68% of participants reporting supplement consumption. Multivitamins were the most commonly used supplement (90.08%), followed by minerals (71.07%). The majority of participants (95.86%) took supplements daily, and a large proportion (87.60%) perceived improvements in their fertility. Many participants (88.42%) attributed these improvements partly to lifestyle changes, such as reduced caffeine intake or adoption of a balanced diet. Furthermore, 81.81% of participants who observed their sexual health reported improvements in semen quality. The study also revealed the prevalence of smoking and alcohol consumption among participants.

Conclusion: The findings suggest that health supplements, in conjunction with lifestyle modifications, may have a positive impact on male fertility. The study emphasizes the importance of individualized, evidence-based recommendations for managing male infertility. Further research is needed to investigate the long-term effects of supplements on male fertility and to refine treatment strategies for improved reproductive health management.

Keywords: Male infertility, Health supplements, Reproductive health, Fertility improvement

INTRODUCTION

Infertility has today become a widespread problem that affects about 15% of couples with almost half of which being male factors, or in other words, when the cause of infertility is the man in 1 out of every 2

couples. Male infertility is when a man cannot make his wife pregnant, while she is still fertile and they have been having regular, unprotected sex for at least one year. In very simple terms, male infertility is of multifactorial nature, it means that it

derives from operations set on a series of physiological, genetic, environmental, and lifestyle causes. The diagnosis of male infertility is more often than not executed with the help of semen analysis, which sometimes, but not always, discloses abnormalities like oligozoospermia, asthenozoospermia, teratozoospermia, or even azoospermia. In spite of the fact that in recent years we have experienced a rapid development of diagnostic tools, a massive number of patients remain affected by the so-called idiopathic form of male infertility, highlighting the need for more focused research on potential healthcare strategies, including dietary and lifestyle interventions.¹⁻³ Men's health vitamins, the health supplements, such as vitamins, minerals, antioxidant agents, and those, which are plant-based have garnered the research attention as possibly having a beneficial role in the male sexual and procreative health maturation. These products are made to combat the lack of certain vitamins and minerals, work as antioxidants and improve the quality of sperms. During the last few years, oxidative stress has been one of the entities counted as a possible culprit of male infertility, through the destruction of sperm DNA, lack of swiftness, and lower viability. Some of the antioxidants like vitamins C and E, selenium, and lycopene are some examples of them which are worthwhile in this process of improvement of semen quality. In addition, amino acids such as L-carnitine and nutrients like zinc and folic acid are factors that contribute to sperm production and function being enhanced.⁴⁻⁶ In the existing scientific literature, the support for the use of health supplements in male infertility is quite strong, conversely, some limitations manifest themselves in the area when it comes to clinical research, the scientific field mainly lacks large-scale studies or surveys at the tertiary care level. The research participation in the form of the survey approaches a research subject that is designed to the central question: To what extent will the health supplements have the

desired effects on male infertility patients. To handle this question, the present research has been designed to examine the utilization of supplements, the patient-reported outcomes, and the alterations in the semen parameters. In light of this research, these results may open the door for doctors to suggest evidence-based nutritional strategies for male infertility as the best way to solve this health problem and bring desired effects.⁶⁻¹⁰

MATERIALS & METHODS

The study was with infertile male patients prospectively investigated and those who met inclusion criteria were included in the study. The participants were administered a validated questionnaire in both English and Tamil once they had understood the study objectives. The patients were required to give written informed consent before they took part in the study.

Study Site

The study took place at Sri Ramachandra Medical Hospital & G Block, Porur, Chennai, a tertiary care hospital with a dedicated infertility clinic. The hospital provides services to a broad base of patients and further offers help on male infertility.

Study Design

A cross-sectional, survey-based instrument was developed to investigate the efficacy of dietary supplements in treating male patients experiencing issues with fertility. In this study, patients responded to questionnaires with data obtained directly from the patients who fulfilled the predefined criteria in terms of including and excluding patients.

Study Duration

The research was done in six months, such an evaluation period guaranteed the equality of a number of participants, collection of data, and its analysis afterwards.

Sample Size Estimation

By utilizing nMaster software Version 2.0 and a single proportion formula, the researchers figured out the sample size. The analysis with an alpha error of 0.05 (two-sided) with a precision of 80% and an expected proportion obtained from the previous publications was carried out. Approximately 127 participants were estimated as the sample size.

Patient Selection Criteria

The study will enroll men, ages 22 to 45 years, with no concomitant diseases, and male infertility history of more than two years duration. Participants will not be included in the study if they do not give their approval or they have other health problems, irregular hormone levels, the infertility treatments have just finished or they have previously had operations affecting the outcome of the study.

Data Collection

The study was accomplished on 127 patients after the approval of the Institutional Ethics Committee, the data was received. The aim of data collection was correlated with the selected demographic questions checked in the medicinally anchored questionnaire completed by the participants online. Self-administered 5-point Likert scale questionnaires on demographic attributes and health behaviors were applied using the possibility to also evaluate the topics of health supplement intake patterns and the effect of these supplements on the infertility of the men, the 5-point Likert scale. Multiple-choice questions were combined with open-ended ones in the questionnaire to guarantee detailed responses. Language proficiency in English and Tamil was checked by linguistic experts to guarantee the precise translation of the questionnaire.

Study Tool Validation

The validation of the questionnaire for item-to-total correlation was carried out by the expert review. As a scoring system, the relevance of each item was evaluated using

a ten-point system, which would be highly relevant (Score = 3), relevant (Score = 2), and irrelevant (Score = 1). The validation of statistical analysis was carried out through Cohen's kappa coefficient to see the reliability of the inter and intra-raters. A kappa coefficient of 0.697 ($p = 0.004$) had substantial agreement, whereas 1 was the max on the scale, which means perfect agreement.

Data Analysis

All data were documented in the spreadsheet structured form and analysed by apt statistical software. Descriptive statistics have been the course of choice for demographic and health-related characteristics, the data of which have been collected. Health supplements' effect on male infertility was the essence that was tried to be found out using the inferential statistical methods such as chi-square tests and regression analysis; otherwise, as they were applicable.

Ethical Considerations

Approval from the Institutional Ethics Commission of the University of America, SRIHER, was obtained by the researchers for this study to be undertaken (Approval No.: CSP/23/MAY/129/498). The participants were asked to give their participation informed verbally and through writing which was followed by the assurance of data confidentiality during the entire study. The study did not see the occurrence of any ethical concerns.

RESULT

The data collected were analyzed by software titled IBM SPSS Statistics for Windows, Version 23.0 (Armonk, NY: IBM Corp) An analysis of frequency and percentage, descriptive statistics has been presented on the data.

Demographic Characteristics

Age Distribution

The study involved 138 participants, who were split into four age categories. The

greatest number of participants, 44.20% to be exact, were between the ages of 31 and 35, like that of 36–40 years old who represented 40.58% of the entire research

group. Participants in the age group of 26–30 and 41–45 had relatively smaller portions, accounting for 10.15% and 5.07%, respectively.

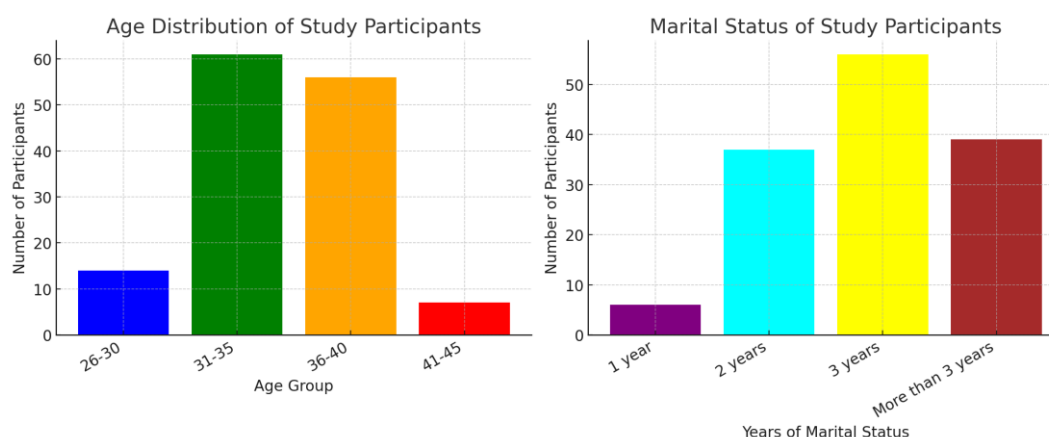


Fig 1: Age distribution and Marital status of study participants

Marital Status

The duration of marriage among participants was analyzed, revealing that 40.58% had been married for 3 years, while 28.26% had been married for more than 3 years. Smaller proportions were married for 2 years (26.81%) and 1 year (4.35%) as shown in Figure 1.

Baseline Characteristics

The baseline characteristics of the participants, summarized in Table 3, reveal several key findings. A majority of participants (84.78%) reported a high perception of their health, while smaller proportions reported moderate (13.77%) and low (1.44%) perceptions. Regarding physical activity, only 15.22% of participants engaged in regular exercise. In terms of dietary habits, a significant proportion (43.48%) rated their daily food consumption as bad/very bad, whereas 44.20% rated it as good/very good. Meal skipping was common, with 37.68% of

participants frequently skipping breakfast, 7.97% skipping lunch, and 6.52% skipping dinner. Regarding water consumption, the majority of participants (62.32%) reported drinking 1–2 liters of water daily, while 23.91% consumed 2–3 liters.

Triggering Factors for Male Infertility

The factors potentially contributing to male infertility among participants were diverse. Lifestyle factors, such as smoking and alcohol consumption, were reported by 52.17% and 60.87% of participants, respectively. Psychological factors were also prevalent, with 42.75% of participants experiencing depression, anxiety, or a lack of interest in activities. Regarding medical history, a small percentage of participants had undergone surgery (12.32%), been diagnosed with diseases (16.67%), or experienced pain/swelling of the testes (13.04%). None of the participants reported previous injuries to the testicles or penis, nor the use of birth control pills (Figure 2).

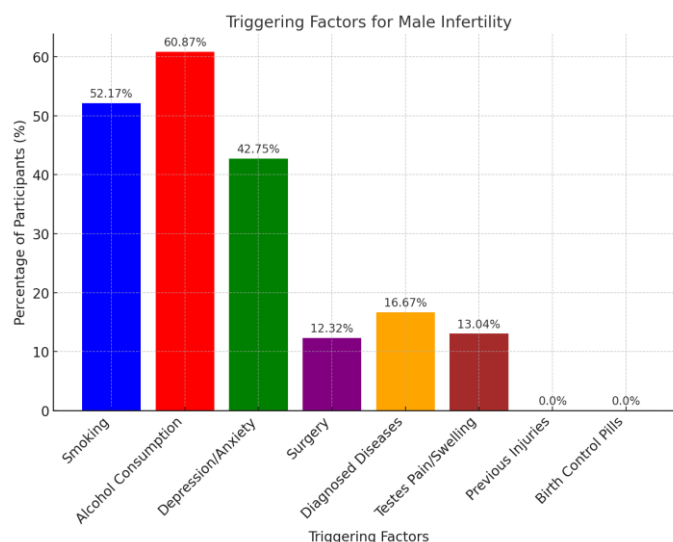


Fig 2: Triggering factors for male infertility

Smoking and Alcohol Consumption Patterns

Among smokers (n=72), 49% smoked 1–5 cigarettes per day, while 39% smoked 6–10

cigarettes per day. Among alcohol consumers (n=84), 67% consumed 250 ml daily, and 13% consumed 500 ml or more (Figure 3).

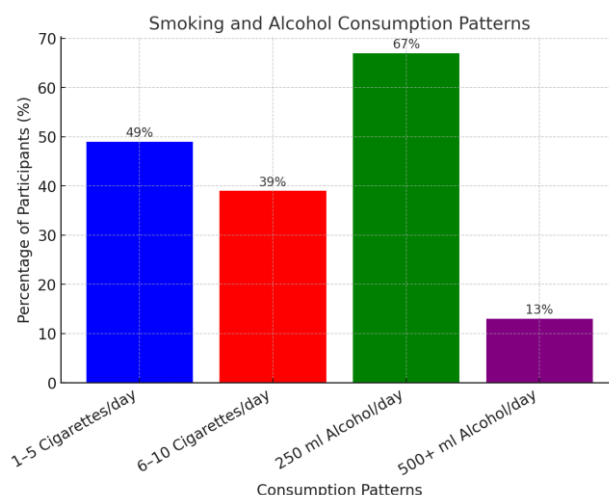


Fig 3: Smoking and Alcohol Consumption Patterns

Health Supplement Usage

A significant proportion of participants (87.68%) reported using health supplements, with most (76.85%) using them based on doctor recommendations. Among the 12.32% of non-users, the primary reasons for not using supplements were cost (52.94%) and skepticism about their effectiveness (17.65%). The majority of participants (95.86%) took supplements daily, with 46.28% using them for 6–12

months. The perceived effectiveness of the supplements was largely positive, with 87.60% of participants believing they were beneficial, while 10.74% found them ineffective. Regarding the types of supplements used, multivitamins (90.08%) and minerals (71.07%) were the most commonly used, followed by iron supplements (52.06%) and probiotics (19.83%) as shown in figure 4.

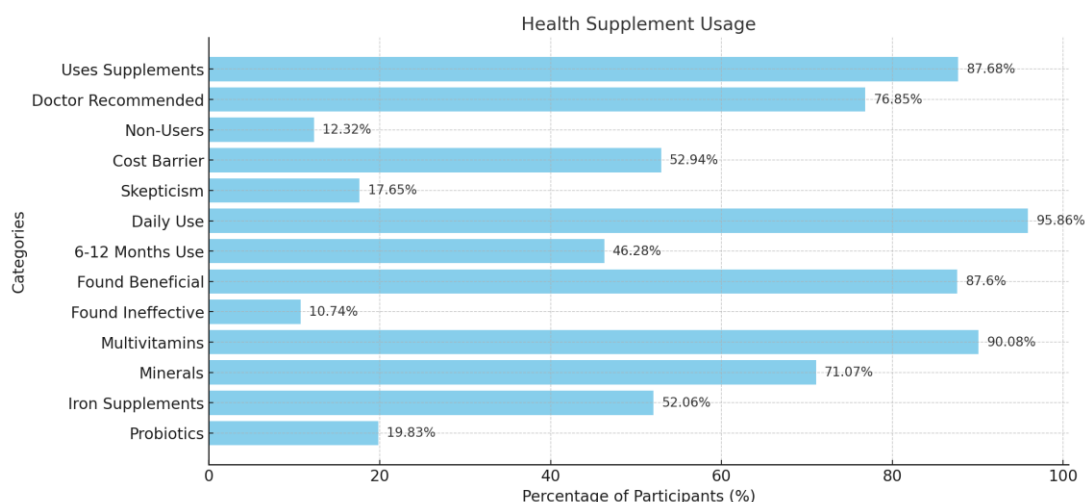


Fig 4: Health Supplement Usage Among Study Participants

Lifestyle Modifications and Fertility Treatments

Regarding lifestyle modifications and fertility treatments, none of the participants reported any side effects from supplement use. A notable portion (38.84%) made lifestyle changes alongside supplement use, including adopting a balanced diet (89.36%) and reducing coffee/tea intake (85.11%).

The majority of participants (88.42%) were also undergoing other fertility treatments concurrently with supplement use. In terms of monitoring fertility, 81.81% of participants tracked regular semen analysis, with 51.23% reporting improvements in their semen quality since starting supplements (Figure 5).

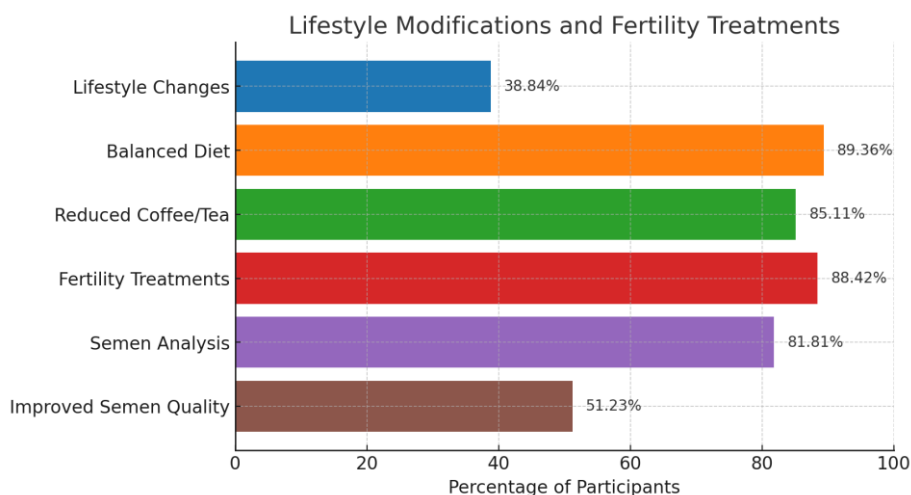


Fig 5: Lifestyle Modification and Fertility Treatments of Study Participants

DISCUSSION

The demographic characteristics of the study participants fit nicely with the outcomes of previous research done on male infertility. Just like our results, a good number of scholars have been consistently reporting a high prevalence of male infertility among people of the 31-40 age group.¹¹ That is a sign that the sample

group we took is truly sex-disclosed and age-distributed. As for the marital status, it was disclosed in our research that a considerable percentage of the subjects have had been married for 3 years or more. We found this piece of information corroborating with the previous studies, which reported that many a times couples most often go to a physician for infertility

after they have tried for a very long period.¹²

The presence of subjects who have been married longer than one year helped to make our research more pertinent, as they could be more inclined to experiment with unconventional remedies like health supplements in order to increase fertility. The initial attributes of the participants, such as health perception, physical activity, and dietary habits, have resemblances with those of the latest studies. In line with our findings, a study was also conducted which reported a really high incidence of sedentary behavior and non-optimal dietary practices among male infertility patients.¹³ The evidence shows that lifestyle factors should be included in the male infertility management, where physical activity and diet quality have been related to high fertility outcomes.¹⁴ The male infertility pointing reasons we have documented along with the already known causes share similar grounds. Our study uncovered many cases where smoking and alcohol consumption were the main culprits for male infertility, which is in concord with numerous reports where such practices were identified to be linked to a decrease in overall quality and quantity of the sperm.^{15,16}

The issue of substance abuse amid the subjects under study is prevalent; hence the importance of purposeful efforts geared towards smoking and alcohol abatement as intervention plans is underscored. Looking at the rated prevalence of psychological factors like depression, anxiety, as well as the loss of interest among our participants, we notice that they are like those seen before in other studies about the psychological aspects of infertility.¹⁷ These results call attention to the necessity of psychologists' involvement in male infertility treatment so as to work on this issue as good psychological well-being contributes to successful fertility rates too.¹⁸ Scholarly methods of assisting the infertile with the mental aspects of the problem might not only improve patient well-being but also enhance fertility rates.

The use of health supplements among those who participated in our study was with consistency to the trends identified in other studies. According to our outcomes, we noticed a similar trend where the use of health supplements was more popular among the couples who want to become parents. The professionals in the health sector played a significant role in choosing the right supplement for the patients, since most participants - who received a professional's advice - claimed that they were referred to natural healthcare products through doctors, dieticians, and pharmacists. This is a major motivating factor for health practitioners on patients to use supplements and it indicates the urgency of the need for scientific advice in the use of health supplements. The coming studies should focus on generating a set of standards and protocols for healthcare professionals to use that could help make informed decisions and thus achieve the best patient care.¹⁹

In case it is quite clear that some cultural and local aspects may significantly affect the reasons behind taking supplements. The suggestion of the healthcare professionals dominated in our research. Nonetheless, other studies have demonstrated that issues like the perceived need for them, their personal experiences, and the advice of family or friends are the core causes. The diversity of these differences clear the fact that the reflection on the multiple views and cultural impacts on the supplement use in different populations needs to be enhanced.²⁰

The duration of supplement usage by the participants was also not uniform. The majority of them used supplements for 6 to 12 months. The result is consistent with a previous study that links the patient's hope for improvement in fertility to the willingness to be involved in the long-lasting intervention.²¹

CONCLUSION

The Study provides valuable insights into the usage of health supplements among male infertile patients, emphasizing the

prevalence of supplement use, the significant influence of healthcare professionals, and the association between lifestyle factors and male infertility. The findings indicate that multivitamins, minerals, iron, and omega-3 fatty acids were commonly prescribed and were found to be effective without any adverse effects. Additionally, lifestyle changes such as adopting a balanced diet, engaging in regular physical activity, reducing coffee/tea intake, quitting smoking and alcohol, and ensuring proper sleep may enhance fertility potential in male patients. The study underscores the need for tailored interventions and evidence-based guidance in supplement use, while also calling for further research into the long-term effects of supplements on male fertility outcomes. Continued research in this area is essential to inform clinical practices and improve the overall care provided to male infertile patients.

Declaration by Authors

Ethical Approval: Approved

Acknowledgement: We acknowledge all participants who actively contributed to this study.

Source of Funding: None

Conflict of Interest: The authors declare no conflict of interest.

REFERENCES

1. Jaiswal A, Sharma R, Pandey A, Tiwari M, Ali A. Yq AZF microdeletions in male infertility. *Asian Pac J Reprod.* 2021;10(5):203-214.
2. Salas-Huetos A, Salas-Salvadó J, Bulló M. Dietary patterns, foods and nutrients in male fertility parameters and fecundability: a systematic review of observational studies. *Hum Reprod Update.* 2017;23(4):371-389.
3. Hackstein JHP, Hochstenbach R, Pearson PL. Towards an understanding of the genetics of human male infertility: lessons from flies. *Trends Genet.* 2000;16(12):565-572.
4. Leaver RB. Male infertility: an overview of causes and treatment options. *Br J Nurs.* 2016;25(18):S35-S40.
5. Penzias A, Azziz R, Bendikson K, Cedars M, Falcone T, Hansen K, et al. Fertility evaluation of infertile women: a committee opinion. *Fertil Steril.* 2021;116(5):1255-1265.
6. Raheem AA, Ralph D. Male infertility: treatment options. *Trends Urol Mens Health.* 2011;2(6):27-30.
7. Wolfsdorf JJ. Pediatric Endocrinology Update. *Endocrinol Metab Clin North Am.* 2005;34(3):xv-xvi.
8. Pediatric Clinics of North America. Symposium on Genetics. *Med J Aust.* 1963;2(18):751.
9. Deebel NA, Bradshaw AW, Sadri-Ardekani H. Infertility considerations in Klinefelter syndrome: from origin to management. *Best Pract Res Clin Endocrinol Metab.* 2020;34(6):101480.
10. Butler G, Srirangalingam U, Faithfull J, Sangster P, Senniappan S, Mitchell R. Klinefelter syndrome: going beyond the diagnosis. *Arch Dis Child.* 2023;108(3):166-171.
11. Kumar N, Singh AK. Trends of male factor infertility, an important cause of infertility: A review of literature. *J Hum Reprod Sci.* 2015;8(4):191-196.
12. Mosalanejad L, Parandavar N, Abdollahifard S. Barriers to infertility treatment: an integrated study. *Glob J Health Sci.* 2013;6(1):181-191.
13. Foucaut AM, Faure C, Julia C, Czernichow S, Levy R, Dupont C, et al. Sedentary behavior, physical inactivity and body composition in relation to idiopathic infertility among men and women. *PLoS One.* 2019;14(4):e0210770.
14. Salas-Huetos A, James ER, Aston KI, Jenkins TG, Carrell DT. Diet and sperm quality: Nutrients, foods and dietary patterns. *Reprod Biol.* 2019;19(3):219-224.
15. Bräuner EV, Nordkap L, Priskorn L, Hansen ÅM, Bang AK, Holmboe SA, et al. Psychological stress, stressful life events, male factor infertility, and testicular function: a cross-sectional study. *Fertil Steril.* 2020;113(4):865-875.
16. Sharma A, Minhas S, Dhillon WS, Jayasena CN. Male infertility due to testicular disorders. *J Clin Endocrinol Metab.* 2021;106(2):e442-e459.
17. Donarelli Z, Salerno L, Lo Coco G, Allegra A, Marino A, Kivlighan DM. From telescope to binoculars. Dyadic outcome

- resulting from psychological counselling for infertile couples undergoing ART. *J Reprod Infant Psychol.* 2019;37(1):13-25.
18. Sharma A, Mahajan C, Saraswathy KN, Puri M, Babu N. Struggling with Primary Infertility: Psychological Well-Being and Associated Factors in North Indian Women. *J Anthropol Surv India.* 2022;71(1):68-83.
19. Skoracka K, Eder P, Łykowska-Szuber L, Dobrowolska A, Krela-Kaźmierczak I. Diet and nutritional factors in male (in)fertility-underestimated factors. *J Clin Med.* 2020;9(5):1400.
20. Garolla A, Petre GC, Francini-Pesenti F, De Toni L, Vitagliano A, Di Nisio A, et al. Dietary supplements for male infertility: a critical evaluation of their composition. *Nutrients.* 2020;12(5):1472.
21. Pecora G, Sciarra F, Gangitano E, et al. How food choices impact on male fertility. *Curr Nutr Rep.* 2023; 12:864-876.
- How to cite this article: Karthik Thiyagarajan, Nandhini A, Asha C, Varshitha Dheep E, Vinotha S, Ragesh Gurumoorthi. Impact of Health Supplements on Male Infertile Patients: A Survey-Based Study. *Int J Health Sci Res.* 2025; 15(3):218-226. DOI: <https://doi.org/10.52403/ijhsr.20250331>
