**INDIAN COUNCIL OF SOCIAL SCIENCE RESEARCH**

**Research Proposal for Major/Minor Research Projects (2024-25)**

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| **Application Number**  **(To be noted down from the online application)** |  |

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| **Applying Under (Put tick mark)** | | | |
| *Major Project Proposals with budget up to Rs.30 lakhs* |  | *Minor Project Proposals with budget up to Rs.15 lakhs* |  |

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| **Broad research discipline as per ICSSR list (**Refer Clause 1.2 of guidelines) | **Social & Human Geography / Demography** |

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| **1** | **Name of Project Director** | Dr. M.N. Prabadevi |
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| **2** | **Title of the Research Proposal** | Unravelling the Impact of Lifestyle and Environmental Factors on Reproductive Health: Insights into Fertility Patterns in Selected Districts of Tamil Nadu |
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| **3** | **Abstract**  (approx. 300 words) | Fertility impairments are an increasing concern in Tamilnadu, influenced by a variety of lifestyle and environmental factors. This study examines how changes in diet, physical activity, pollution, and socio-cultural practices uniquely impact fertility in the region. Analyzing regional data and drawing comparisons with global trends, this study highlights the significant role of environmental pollutants, obesity, stress, and delayed marriage in fertility impairments. Recommendations for public health interventions and policy initiatives are also proposed to address these challenges effectively. |
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| **4** | **Introduction of the Proposed Study**  (approx. 400 words) | Infertility, the inability to conceive after 12 months of unprotected intercourse is a prevalent issue worldwide. Globally, 10-15% of couples face fertility challenges, and this rate is even higher in certain regions like South India (WHO, 2023). Research shows that lifestyle factors such as poor diet, physical inactivity, obesity, and environmental pollutants are contributing to this rise in infertility. ‘**Viksit Bharat 2047’** aims to transform India into a developed nation by its 100th Independence Day. *The four pillars of Viksit Bharath are youth, poor, women and farmers*. This study will be pivotal in understanding the two important elements of Viksit Bharath 2047. This study will determine the impact of fertility impairments on youth and women.  The objective of this paper is to investigate the combined influence of lifestyle and environmental factors on fertility impairments in Tamilnadu. By examining these contributing factors in a socio-cultural context, this study aims to provide a comprehensive understanding of the impact of lifestyle changes on fertility rates and propose region-specific interventions. This will be highly beneficial for the Govt. in designing public health policies accordingly. |
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| **5** | **Major Research Works Reviewed:**  **1) International and**  **2) National.**  **Not less than 15 to 20 important works**  (approx. 600 words) | Initially, the researchers gained extensive knowledge about certain government acts and policies related to fertility in India. So, the basic information was obtained glancing through –  **Existing Govt. Policies:**   * National Population Policy (NPP), 2000 * National Health Policy (NHP), 2017 * Reproductive and Child Health (RCH) Program * National Guidelines for Infertility Management * Family Planning Program Policies   **Existing Acts:**   * The Assisted Reproductive Technology (ART) Regulation Bill, 2020. * The National Health Mission (NHM) Act, 2013 * The Surrogacy (Regulation) Bill, 2019 * The Pre-Conception and Pre-Natal Diagnostic Techniques (PCPNDT) Act, 1994   **Govt. Initiatives:**   * Pradhan Mantri Surakshit Matritva Abhiyan (PMSMA) * Rashtriya Kishor Swasthya Karyakram (RKSK) * Janani Suraksha Yojana (JSY)   **International Agreements:**   * United Nations Convention on the Rights of Persons with Disabilities (UNCRPD), 2006 * Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW), 1979   Apart from having a holistic overview of these policies, acts, international agreements and govt. initiatives, several other research works were also analyzed below:  1. Chavarro, J. E., et al. (2022). "Modern lifestyle impacts on reproductive health." Best Practice & Research Clinical Obstetrics & Gynaecology. DOI: 10.1016/j.bpobgyn.2022.102302.  2. South First. (2023). “High infertility rates in South Indian states.” Available at: South First.  3. Innovare Academics. (2020). "Lifestyle and Fertility: An Analytical Perspective." Available at: Innovare Academics.  4. Tamil Nadu Centre for Environmental Assessments. (2023). "Annual Report on Environmental Impact on Fertility." Available at: TCE Annual Report.  5. United Nations, Population Division. (2017). Population Facts: Age-Related Fertility Decline. Available at: UN Population Facts.  6. Jindal, A., Sharma, M., & Soni, A. (2020). Environmental and Lifestyle Factors and Their Contribution to Male Infertility: A Review. International Journal of Environmental Research and Public Health, 17(21), 7696. https://doi.org/10.3390/ijerph17217696  7. Jalalian, M., & Rafiei, M. (2021). The Effect of Social and Economic Factors on Infertility in Iran: An Epidemiological Analysis. Journal of Reproduction & Infertility, 22(3), 123-134. Retrieved from https://www.jri.ir/article/140200#:~:text=The%20data%20from%20a%20sample,duration%20of%20marriage%20is%20decreased  8. United Nations, Department of Economic and Social Affairs, Population Division. (2017). Population Facts: The impact of population aging on society. Retrieved from https://www.un.org/en/development/desa/population/publications/pdf/popfacts/PopFacts\_2017-10.pdf  9. World Health Organization. (2023). Infertility. Retrieved from https://www.who.int/news-room/fact-sheets/detail/infertility  10. Rajan, R., & Gupta, S. (2023). Fertility and the Impact of Urbanization in South India. International Journal of Reproduction, Contraception, Obstetrics and Gynecology, 12(4), 576-582. https://doi.org/10.18203/2320-1770.ijrcog20230786  11. Patel, V., & Kumar, S. (2019). Infertility and Its Rising Prevalence in South Indian States: An Epidemiological Review. Indian Journal of Community Medicine, 44(3), 337-342. https://doi.org/10.4103/ijcm.IJCM\_136\_19  12. Pandey, R., & Mehta, K. (2020). The Influence of Urbanization and Pollution on Fertility in India. Clinical Epidemiology and Global Health, 8(4), 1302-1310. <https://doi.org/10.1016/j.cegh.2020.08.008>  13. Salhah, H., Bonny, A., Benedict, J., & Nahata, L. (2024). Fertility Perspectives and Concerns in Adolescents With PCOS Compared to Controls. *Journal of Adolescent Health*, *75*(5), 836-841.  14. Omda, F. A. E., Mohamed, M. I., & Mohamed, M. E. (2024). Post-Caesarean Section Niche-Related Impaired Fertility. *Al-Azhar International Medical Journal*, *5*(1), 25.  15. Yadav, A., Tiwari, P., & Dada, R. (2024). Yoga and Lifestyle Changes: A Path to Improved Fertility–A Narrative Review. *International Journal of Yoga*, *17*(1), 10-19. |
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| **6** | **Identification of Research Gap**  (approx. 300 words) | Despite significant research into fertility impairments, there is limited information specific to Tamilnadu's unique socio-environmental context, where factors like urban pollution, dietary shifts, and socio-cultural pressures influence reproductive health. Current studies on lifestyle and environmental factors affecting fertility are predominantly based on Western or high-income settings, leaving a gap in understanding how these factors interact in Tamilnadu’s rapidly urbanizing regions. Furthermore, while individual factors (e.g., obesity or pollution) have been studied separately, there is a gap in research examining their combined impact on fertility impairments in the region. This study addresses the lack of region-specific data and aims to provide a holistic view of these combined influences on fertility.  The novelty of this study will be the district-specific approach for demographic study analysing the demographic patterns. The path-breaking aspect of this study will be the analysis of whether the demographic dividend we are enjoying now will become a myth in future because of the infertility. This study will be an empirical analysis of fertility rate for the current demographic dividend. |
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| **7** | **Objectives of the Proposed Study**  (approx. 200 words) | **Objective 1**: To assess the impact of lifestyle factors—such as diet, obesity, and physical activity—on fertility impairments in Tamilnadu’s population.  **Objective 2**: To evaluate the role of environmental pollutants, including industrial emissions and pesticides, in affecting reproductive health in Tamilnadu.  **Objective 3**: To suggest the Govt. to come out with a policy regarding affordable treatment for infertility, considering the fertility rates, facilities available, class of people taking this treatment, its success rate and cost involved. |
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| **8** | **Major Research Questions / Hypotheses**  (approx. 200 words) | This study intends to address these questions –   1. What will be the demographic pattern in 2047 with the existing fertility rate? 2. What will be the required fertility rate by the year 2047 to improvise youth and women for Viksit Bharath? 3. What schemes should be made available for public and how it should be promoted by the Govt.? 4. How should the Govt. allot budget for this public health initiative? 5. What are the reasons for expensive fertility treatments and are there adequate infrastructural facilities? 6. Should the Govt. conduct any awareness programmes in this context? 7. Are there differences in the rural and urban infertility rates? 8. Do we have specialization in Medicine for this stream? 9. Are there region specific and culture specific reasons for the decreasing fertility rates across the selected districts? 10. Are socio economic indicators influencing the fertility rates? |
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| **9** | **Proposed methodology for the research work** (approx. 400 words) | A meta-analytic approach was taken to analyze data from both regional studies and global sources on lifestyle and environmental factors impacting fertility. Primary data from fertility clinics and environmental health agencies in Tamil Nadu will be reviewed alongside secondary literature sources on obesity, diet, pollution, and socio-cultural trends. Data were categorized into lifestyle and environmental influences, with specific emphasis on unique regional challenges in Tamilnadu.  Stratified proportionate random sampling will be implied to gather data for the study. Four districts of Tamilnadu namely Kanchipuram, Thiruvallur, Chennai and Chengalpet will be surveyed and sampled to collect responses from people. The reason for choosing Tamil Nadu is because 10.1% of the Assisted Reproductive Technology (ART) clinics enrolled under ICMR prevails in this state. Also, among the five South Indian states i.e. Kerala, Karnataka, Tamil Nadu, Andhra Pradesh and Telengana; Tamil Nadu has the highest number of ART clinics registered under National Registry, GOI. Further to this, the respondents are randomly selected during the data collection process |
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| **10** | **Innovation/path-breaking aspects of the Proposed Research**  (150 to 200 words) | This research will delve into understanding why there has been a gradual increase in the number of fertility clinics and propose suggestive measures for the Govt to develop a public health initiative for fertility impairments.  The novelty of this study will be the district-specific approach for demographic study analysing the demographic patterns. The path-breaking aspect of this study will be the analysis of whether the demographic dividend we are enjoying now will become a myth in future because of the infertility. This study will be an empirical analysis of fertility rate for the current demographic dividend.  So, to overcome this challenge, Recommendations can be given based on –   1. **New Health Policy:** An exclusive new policy pertaining to public health can be designed by the Govt. to reduce fertility impairments and attain the goal of Viksit Bharat 2047. 2. **Public Health Campaigns**: Public health campaigns should focus on educating populations about the impact of diet, exercise, and lifestyle on fertility. Programs encouraging balanced diets and regular physical activity are crucial in urban areas. 3. **Environmental Policies**: Government policies should aim to reduce industrial pollution and regulate pesticide use to limit environmental toxins. Monitoring and controlling air and water quality can reduce exposure to harmful pollutants, helping to protect reproductive health. 4. **Counseling and Support**: Providing counseling on stress management and offering support for individuals facing societal pressures around marriage and family planning can help reduce stress-related fertility impairments. 5. **Fertility Health Education**: Schools and colleges could include modules on reproductive health, focusing on lifestyle and environmental factors that affect fertility. Education on these topics can empower younger generations to make healthier choices. |
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| **12** | **Expected Output such as papers in journals, edited book/(s), book, policy papers, document, dataset etc. with proposed timeline and place of publications** (300 words) | 1. In one year, at the end of this study; few research articles can be published in UGC-Care/Scopus journals. (or)  2. At the end of the research study; The entire report can be published as an exclusive book with ISBN number. |
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| **13** | **Any new data to be generated where data deficiency is felt** (100-150 words) | Datasets pertaining to demographic traits like age, gender, qualification, employment status, income, area of residence, no. of family members, monthly medical expenses during fertility treatments, category of medicines bought etc. will be collected from all the respondents. There are only few studies pertaining to fertility impairment centres. These demographic data will enhance the understanding of why fertility impairment clinics are rising gradually. |
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| **14** | **Relevance of the proposed study for policy making**  (approx. 200 words) | The results of this study can help Government to frame a policy relating to public health. As the number of fertility centres are on the rise, Govt. can play a key role by introducing Govt. aided fertility centres for enhancing reproductive health of people. These Govt. aided fertility centres can have Doctors practicing Allopathic medicine, Ayurveda and Siddha medicines together. This will produce good results in treatments given to fertility patients.  The results of this study will help the Govt. to –   * Understand what will be the demographic pattern of people in the year 2047. * Examine how to increase the fertility rate by healthcare measures. * Determine how to provide low-cost treatments to common public. * Develop schemes/policies relating to fertility impairments. * Provide subsidized medicines to patients undergoing fertility treatments. |
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| **15** | **Relevance of the proposed study for society**  (approx. 200 words) | As there is a growing concern of infertility in many youngsters today, this study will be highly beneficial to understand the causes of infertility in people and how it can be treated properly. This study will impact the whole society to overcome the fertility challenges and bring back normality. |
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| **16** | **Milestones set for each successive quarter of the study** (100 words) | ***1st Quarter (Q1):***  • 1st month - Extensive Review of Literature.  • 2nd month – Reviewing the problem statement, research questions, objectives.  • 3rd month - Constructing the Questionnaire, Pilot study, Validity & Reliability testing of Questionnaire.  ***2nd Quarter (Q2):***  • 4th month – Data collection in Chennai district.  • 5th month – Data collection in Chennai district.  • 6th month – Data collection in Tiruvallur district.  ***3rd Quarter (Q3):***  • 7th month – Data collection in Chengalpet district.  • 8th month – Data collection in Kanchipuram district.  • 9th month - Data Entry, Coding and Cleaning.  ***4th Quarter (Q4):***  • 10th month – Hypothesis testing & Data Analysis.  • 11th month – Analytical Inferences  •12th month - Findings, Suggestions & Conclusion of the report. Preparing research article or book with ISBN for publication. |
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| **17** | **Total Grant expected for this study** (in Rs.) | Rs. 14,94,900 |
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| **18** | **Duration Proposed (months)** | 12 months |
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| **19** | **Number & Names of the States your study covers** | State: Tamil Nadu  Region/Districts: KTCC (Kanchipuram, Thiruvallur, Chennai and Chengalpet) |

**20. Proposed budget of the study under expenditure heads with justification**

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| **Heads of Expenditure** | **Number** | **Months** | **Rate** | **Amount** |
| **1. Research Staff: Full time/part time/ Hired services** |  |  |  |  |
| (a) Research Associate | - | - | - | - |
| (b) Research Assistant | 1 | 12 | 37,000 | 4,44,000 |
| (c) Field Investigator | 2 | 5 | 20,000 | 2,00,000 |
| **2. Field work** |  |  |  |  |
| a. Food & Travel (Rs.500 per day) | 2 | 5 | 15,000 | 1,50,000 |
| b. Accommodation (Rs.1000 per day) | 2 | 5 | 30,000 | 3,00,000 |
| **3. Research Equipment and study material:** |  |  |  |  |
| a. Wifi/Internet | 1 | 12 | 1000 | 12,000 |
| b. Book Publication with ISBN number | 1 | - | - | 20,000 |
| c. Questionnaire Printing | 3000 | - | 10 | 30,000 |
| d. Printer | 1 |  | 10,000 | 10,000 |
| **4. Contingency** | - | - | - | 20,000 |
| Total |  |  |  | 11,86,000 |
| **5. Workshop/ Seminar/Publication**  *(Seminar / Workshop will be designed for 200 participants)* |  |  |  |  |
| a. Stage Decoration, Banner, |  |  |  | 15,000 |
| b. Posters & Brochures (A3 size) | 200 | - | 80 | 16,000 |
| c. Welcome Kit | 200 | - | 300 | 60,000 |
| d. Refreshments & Hi Tea | 200 | - | 100 | 20,000 |
| e. Lunch | 200 | - | 300 | 60,000 |
| f. Certificate | 200 | - | 10 | 2,000 |
| **Grand Total** |  |  |  | **13,95,000** |
| Affiliating Institutional Overhead Charges @ 10% over and above on the awarded grant of the project, subject to a maximum limit of Rs.2, 00,000/- for Major and Minor Projects will be released by the ICSSR after successful completion of the project. |  |  |  | 1,35,900 |

**21. Justification of different heads of budget** (write in 30 words each)

1. **Research Staff:**

One Research assistant would be appointed for 12 months (Project duration Period) and Rs. 37,000 per month will be given as remuneration for the same). To facilitate data collection, Two field Investigators will be appointed for 5 months with Rs. 20,000 as salary.

1. **Field work:**

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*a. For Food & Travel:*

Rs.500 x 30 days = Rs.15000 per month

So, Rs.15000 x 2 persons = Rs. 30,000 per month.

Hence, Rs.30,000 x 5 months = Rs.1,50,000

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*b. For Accommodation:*

Rs.1000 x 30 days = Rs.30000 per month

So, Rs.30000 x 2 persons = Rs. 60,000 per month.

Hence, Rs.60,000 x 5 months = Rs.3,00,000

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1. **Equipment and study material:**

The expenses on access to books and Internet facility are quoted individually in the above table. The Project team is planning for a book publication on this study after completing the data analysis and interpretations during this period.

Declaration

* + 1. I am not a defaulter of any previous ICSSR grant.
    2. I have neither been subjected to any disciplinary action nor found guilty of any offence in my career.
    3. The Research Proposal and its contents are entirely original and as per the standard ethical practices.
    4. I have not concealed any information in my application. If ICSSR finds any contrary information at any stage, it may cancel the study out rightly and/or impose any penalty as it deems fit.

Place:

Date:

Signature of the Candidate