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Impact of Lifestyle, Nutrition and Occupational Stress on Female Infertility in Bangladesh

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ABSTRACT

Infertility is now considered to be an emerging public health issue worldwide, Bangladesh being no exemption has seen a surge in its prevalence for some time now, mainly repression of urbanization, alteration in dietary habits and escalated occupational stress. This research explores determinants such as lifestyle, food habit and occupational stress in female infertility in Dhaka and Chittagong the two major metropolitan cities of Bangladesh. A sample of 400 women was selected regardless of variability in their characteristics including socio-economic status, occupation, sand education. The research also seeks to quantitatively evaluate the association between these factors and infertility. The descriptive statistics showed that a high number of women had poor exercise habits, insufficient sleep, irregular dietary patterns and were exposed to high levels of occupational stress factors associated with infertility. Descriptive analysis showed that no exercise, poor sleep, unhealthy eating, and high work stress were associated with infertility significantly ($p < 0.05$). Infertility was negatively correlated with exercise, sleep, and balanced diet, but positively associated with fast food intake and occupational stress as demonstrated by correlation. Based on the results of regression analysis, occupational stress and fast-food consumption could predict infertility by 42%. These findings indicate that lack of exercise, insomnia, improper dieting, excessive consumption of fast foods, and high levels of work stress are the main factors that predispose women in Dhaka and Chittagong to infertility. They were the largest predictors of occupational stress and unhealthy nutrition, and the local differences, in contrast to the city, suggest that activities responsive to the city should be localized. Overall, the study presents empirical evidence to support the results of specific reproductive health interventions aimed at enhancing the reproductive health of urban women in Bangladesh.

INTRODUCTION

Infertility is recognized as a significant public health problem worldwide, and in Bangladesh, the issue is becoming more evident with rising urbanization, changing food practices, and growing occupational challenges (Anwary *et al.,* 2023). Female infertility, defined as the failure to develop after a minimum of one year of regular unprotected intercourse, not just impacts women physically, but also has deep psychological, social, and cultural repercussions (Health *et al.,* 2022). In Bangladesh, where motherhood is typically thought of as central to a woman's identity, infertility can lead to preconception, marital problems, and mental tension. A substantial prevalence of mental health concerns exists among infertile women, with studies showing depression rates as high as 59.7% and anxiety at 55% (Hasan *et al.,* 2023). Infertile females typically experience sensations of guilt and stress, exacerbated by societal expectations and pressures to develop (Ishrat *et al.,* 2022). Infertility can cause marital issues, as societal standards position tremendous pressure on women to bear children (Khatun *et al.,* 2022). The preconception surrounding infertility can result in social isolation and diminished self-confidence, further complicating the emotional landscape for affected women (Shiju, 2024). Economic status significantly affects the mental health of infertile women, with lower-income individuals experiencing greater levels of stress (Hasan *et al.,* 2023). The monetary concern of infertility treatments can also add to psychological pressure, as many couples face high costs without guaranteed success (Shiju, 2024). While the concentration on female infertility is important, it is vital to acknowledge that male infertility also contributes to this intricate problem. Dealing with both partners' contributions to infertility might promote a more holistic approach to treatment and support (Magdum *et al.,* 2022). In recent years, researchers and medical professionals have determined lifestyle, nutrition, and occupational tension as major factors of female infertility (Dehkordi *et al.,* 2025). Ladies with low body mass index (BMI) typically experience irregular menstrual cycles, while weight problems are associated with polycystic ovarian syndrome (PCOS) and ovulatory dysfunction (Sarker *et al.,* 2024). Another major, yet typically overlooked, aspect is occupational tension. With more women taking part in the labor force in Bangladesh, particularly in Dhaka and Chittagong, exposure to work-related pressures, long working hours, task insecurity, and workplace harassment has increased significantly (Shaik

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et al., 2024). Occupational tension has been shown to affect hormonal policy, which in turn may postpone or prevent conception. Females in metropolitan centers typically balance double obligations of professional responsibilities and home responsibilities, which further increases their tension levels and can indirectly affect fertility (Nasreen *et al.,* 2025). Dhaka and Chittagong were selected as the research study areas for this research because they represent the two largest metropolitan centers in Bangladesh, where women's lives are rapidly changing compared to rural areas (Roy *et al.,* 2022). These cities are hubs of economic activity, industrialization, and metropolitan living, which expose females to unique mixes of lifestyle options, dietary habits, and occupational stressors. By focusing on these two cities, the research study aims to provide a deeper understanding of how modern-day metropolitan living affects women's reproductive health in Bangladesh (Nasreen *et al.,* 2025). The goal of this research is therefore to quantitatively assess the effect of lifestyle patterns, dietary habits, and occupational stress on female infertility in Bangladesh, utilizing Dhaka and Chittagong as representative metropolitan contexts. Through this study, it is expected that new insights will be gained to assist healthcare professionals, women, and policymakers in adopting healthier practices and developing interventions that can reduce the burden of infertility in the nation. Female infertility, specified as the inability to develop after at least one year of routine unprotected intercourse, not only impacts women physically but also has deep emotional, social, and cultural consequences. In Bangladesh, where motherhood is often thought of as central to a lady's identity, infertility can develop stigma, marital problems, and mental tension. Dhaka and Chittagong were selected as the study locations for this research because they represent the two largest city centers in Bangladesh, where women's lifestyles are rapidly changing compared to rural areas.

LITERATURE REVIEW

Infertility is a multifaceted condition that results from a combination of biological, environmental, and social factors. Internationally, the World Health Organization (WHO, 2020) estimates that about 15% of couples of reproductive age experience infertility, with female-related elements contributing to almost half of the cases (Liang *et al.,* 2025). In underdeveloped nations like Bangladesh, infertility is frequently underreported due to stigma, restricted access to healthcare, and the absence of regular data collection (Shiju, 2024). However, current research underscores that, in addition to biological factors, lifestyle behaviors, dietary habits, and occupational stress significantly influence reproductive health outcomes (Hasan *et al.,* 2025). Numerous studies have shown that lifestyle variables, including smoking, drinking too much alcohol, not exercising enough, and having inconsistent sleep patterns, might make it hard to get pregnant. Roy *et al.* (2022) assert that women leading sedentary lives are at a higher risk of experiencing ovulatory dysfunction than their physically active counterparts. Likewise, smoking has been demonstrated to diminish ovarian reserve and elevate the risk of premature menopause (Sarker *et al.,* 2024). Chronic stress and poor sleep habits can also disrupt the hypothalamic-pituitary-ovarian (HPO) axis, leading to irregular periods and reduced fertility. In the South Asian setting, research indicates that metropolitan women are more susceptible to sedentary behaviors and detrimental lifestyle choices due to technological reliance, extended working hours, and limited opportunities for physical activity (Shaik *et al.,* 2024). Nutrition is one of the most significant factors influencing fertility. Both undernutrition and overnutrition have adverse effects on reproductive health (Spichela *et al.,* 2024). Spichela *et al.* (2024) highlighted that diets rich in trans fats, fine-tuned carbohydrates, and processed foods are associated with a higher risk of infertility, whereas diets containing whole grains, fresh fruits, vegetables, and unsaturated fats support ovulation and improve reproductive outcomes. In Bangladesh, the nutritional transition associated with urbanization has led to an increased reliance on junk food and packaged items, particularly in Dhaka and Chittagong (Khatun *et al.,* 2022). This has led to increasing weight problems amongst metropolitan women, with weight problems being highly connected to polycystic ovarian syndrome (PCOS), a significant cause of infertility. On the other hand, underweight women likewise face challenges, as low body fat interrupts estrogen production, resulting in irregular menstrual cycles and anovulation (Shukla & Shrivastava, 2024). Another factor that affects infertility but has not been studied extensively is occupational stress. As a study conducted by Saadedine *et al.* (2025) showed, women with high stress levels at work were less likely to get pregnant than women in other, less stressful roles. When stress occurs, it activates the hypothalamic-pituitary-adrenal (HPA) axis, leading to an increase in cortisol production, which has negative effects on reproductive hormones. Urban working women in Bangladesh, especially in Dhaka and Chittagong, often have to work and take care of the home; thus, they experience chronic stress (Farid, 2024). In the garment industry, offices, and health professions, female workers commonly complain of irregular periods of menstruation, fatigue, and health issues associated with stress, which can lead to infertility. There were also findings from a study performed by Urteaga & Díaz, (2024), which revealed that long-term occupational stress slowed down conception and augmented infertility-linked panhandling. Infertility is a rather under-researched topic in the field of reproductive health in Bangladesh. Most of the studies done in the country in the past on the topic of public health have focused mainly on maternal and child health, family planning, and nutritional deficiencies, an area where infertility has been ignored (Al-Mamun *et al.,* 2024). However, according to recent reports, infertility is an increasing issue, especially in big cities like Dhaka and

Chittagong. Paul *et al.* (2025) mention that only some 15-20 percent of urban couples in Bangladesh merely lack an opportunity to have their baby, yet they do not share this information with the doctor, as it is a stigma in a certain culture, and people do not want to discuss it. A major problem in the Bangladeshi setting is the social and cultural silence of infertility. Infertility is often seen as the failure of a woman, which causes psychological trauma, social withdrawal, and even divorce (Nahar & Pillai, 2025). On top of denying the women medical assistance, this stigma also leads to underreporting to the official record. Moreover, women often attend traditional healers rather than specialized facilities, thereby limiting the scope of scientific data on the topic. Concerning lifestyle dimensions, urbanization in Dhaka and Chittagong has brought about some dramatic changes in the daily lives of women. Working long hours, experiencing heavy traffic jams, lacking exercise, and relying on fast food are rapidly becoming the new characteristics of life in the city. According to a study carried out by Zaman *et al.* (2022) , more than four out of ten urban women in Dhaka eat fast food at least thrice a week, and these foods are associated with a higher risk of becoming obese and having problems with their reproductive system, including polycystic ovarian syndrome (PCOS). Women living in cities are also more vulnerable to environmental pollution, including air pollutants and industrial toxins, which can have a negative impact on reproductive health (Shukla & Shrivastava, 2024). The other contributing factor is the challenge of nutrition. Although rural regions in Bangladesh experience higher rates of undernutrition, urban regions face a dual burden of undernutrition and overweight. On the one hand, working women eat poorly or not at all due to insufficient time; on the other hand, a high consumption of fast-food high in calories causes obesity and metabolic disorders. Almost one-third of urban women in Bangladesh, of reproductive age, as stressed by Al-Mamun *et al.* (2024), are overweight or obese, which is closely associated with infertility through mechanisms such as hormonal imbalances and ovulation dysfunction. A very high prevalence of occupational stress is observed in urban working women in Dhaka and Chittagong. The garment industry representatives, the healthcare system, or corporate office hire large numbers of women, and many of them have to work long hours; they lack any job security and workplace support. A survey conducted by Magdum *et al.* (2022) revealed that women garment workers are characteristically prone to irregular menstrual periods, exhaustion, and corresponding health problems. In a similar case, women in high-paying and professional careers in the corporate and teaching sectors encounter significant work-life imbalance, which can cause infertility due to stress. As Dhaka and Chittagong are also a center of multinational businesses, banks, and IT corporations, women in these areas are faced with stiff competition and work pressure, which only adds to their stressors. A second factor in Bangladesh is the ignorance level and the insufficient healthcare facilities for infertility. Infertility clinics are concentrated in Dhaka, with smaller numbers located in Chittagong and nearly none in rural regions. Some available treatment methods, like in-vitro fertilization (IVF), are costly and unavailable to the majority of women, especially those with middle- and low-income origins (Hasan *et al.,* 2025). By so doing, many women will remain untreated, and the situation will remain hidden in society. In conclusion, the global literature has demonstrated that the relationship between lifestyle, nutrition, work stress, and infertility is complex, and the literature on these factors in the context of the Bangladeshi population is scarce. Urban Dhaka and Chittagong women together constitute one of the vulnerable groups because of their lifestyle, eating habits, workload, and stigma. This explains why quantitative research should be conducted in Bangladesh to provide the necessary quantitative information that can be utilized to inform the procedures for implementing interventions and raise awareness about health policies among the people.

Based on the studies reviewed, it is quite clear that infertility cannot be viewed through the prism of only biological factors but must be regarded as a consequence of lifestyle habits, diet, and psychosocial stress. Evidence is a very strong aspect in global literature; however, in the Bangladeshi case, there is not as much empirical literature, as changes in lifestyle are most rapid in major cities like Dhaka and Chittagong. This research gap highlights the importance of conducting a quantitative study in Bangladesh to better understand these associations and suggest evidence-based preventive and intervention strategies.

Problems Regarding the Research

When conducting a study on female infertility in Bangladesh, particularly in Dhaka and Chittagong, several challenges arise. Firstly, infertility is a culturally sensitive and stigmatized issue, and this aspect can discourage women from actively participating in surveys and sharing the actual statistics of their reproductive health (Arif *et al.,* 2025; Bhuiyan *et al.,* 2025). Secondly, the association between lifestyle, nutrition, work stress, and infertility in Bangladesh has been studied in a limited number of studies, and there exist no legitimate and available national statistics, which makes it tough to obtain good comparative standards (Basak *et al.,* 2020; Halimuzzaman *et al.,* 2024; Sharfuddin *et al.,* 2025). Third, employed urban women tend to have tight work schedules, making it difficult to reach out to respondents and gather data within the scheduled time (Halimuzzaman *et al.*, 2024; Imran *et al.,* 2024; Islam *et al.,* 2025). Furthermore, not all women might be diagnosed with infertility by a doctor and have to rely on self-reported information, which can be problematic regarding accuracy (Islam *et al.,* 2024). Lastly, the study may be limited due to a lack of resources like funding, time, and specialized medical facilities.

Research Questions

The study is guided by the following research questions:

RQ1: What is the relationship between female infertility and lifestyle, including physical exercise, sleep patterns, and smoking behaviors in Dhaka and Chittagong?

RQ2: What are the relationships between nutrition practices such as nutrient intake, BMI, and the use of fast foods and infertility in urban women?

RQ3: What is the role of occupational strain, caused by work, work-life, and workplace conditions, in causing female infertility?

RQ4: Do occupation stress, nutrition, and lifestyle factors have major differences in the effects on infertility in women in Dhaka and Chittagong?

RQ5: Which relationships or trends can be determined during the quantitative analysis of these variables and the reported cases of infertility?

Research Objectives

General Objective

To investigate statistically the effect of lifestyle, nutrition, and occupational stress on female infertility in Bangladesh with special reference to Dhaka and Chittagong.

Specific Objectives

1. To determine the effects of lifestyle factors in infertility in urban women, including exercise habits, sleep duration, and smoking.
2. To assess how nutritional status, dietary patterns, and BMI contribute to the cause of female infertility.
3. To investigate how occupational stress, workload, work-life balance, and the job environment impact infertility.
4. To identify differences in infertility-related risk factors in women living in Dhaka and Chittagong.
5. To determine statistically significant links between lifestyle, nutrition, work stress, and reported instances of infertility using quantitative approaches.

Hypothesis Development

According to the literature reviewed, it can be concluded that lifestyle, nutrition, and occupational stress can have a significant impact on infertility among women in one way or another. In order to analyze these relations within the Bangladeshi context, this research formulates the following hypotheses:

Unhealthy lifestyles, including smoking, sedentary activities, sleeping disorders, and physical exercise, have long been associated with infertility among women. Research by Magdum *et al.* (2022) revealed that inactive lifestyles are a cause of ovulatory dysfunction, and smoking rapidly reduces the size of the ovarian reserve and accelerates menopause (Akter, 2025). Technological dependence and physical inactivity amongst South Asian cities have also contributed to such risks (Al-Mamun *et al.,* 2024). Hence, the research hypothesizes that women in Dhaka and Chittagong practicing unhealthy lifestyles will have a higher infertility rate.

H1: Female Infertility is Strongly Related to Unhealthy Lifestyle Factors

Eating is a crucial aspect of reproductive health. Butola *et al.* (2021) concluded that high-fat diets and refined carbohydrate diets have a higher probability of inducing infertility and that balanced diets containing a high number of whole grains and unsaturated fats have a higher probability of inducing ovulation. The issue of under-nutrition in Bangladesh primarily affects the population of some women, and the factor that promotes the problem of obesity is the growing culture of fast food in the city (Hasan *et al.,* 2023). Both underweight and overweight women are prone to experiencing irregular menstrual cycles due to low estrogen levels in underweight women and PCOS and ovulatory dysfunction in overweight women (Hasan *et al.,* 2025). Therefore, infertility is more common among women who have poor nutritional habits or abnormal BMI.

H2: There is A Positive Relationship between Poor Nutritional Status and Infertility in Women

Work stress triggers the release of reproductive hormones, leading to the activation of the hypothalamic-pituitary-adrenal (HPA) axis, a rise in cortisol levels, and ovulation (Ishrat *et al.,* 2022). Khatun *et al.* (2022) also reported that the consequences of long-term work-related stress are delayed conception and increased distress because of infertility. Magdum *et al.* (2022) revealed that irregular menstruation and health issues due to stress affected female garment workers in Bangladesh, whereas professional women living in Dhaka and Chittagong reported high work pressure and work-life disruption. Therefore, women who are subjected to increased occupational stress are likely to be infertile.

H3: Occupational Stress Increase is Positively Correlated with Infertility in Females

Cities also have unique environmental and socio-economic issues that have health implications. The capital would be more industrialized, more stressed, and more exposed to pollution and rapid urbanization than Chittagong, which would be more exposed to port and industrial stress factors, with a somewhat different diet and cultural pattern. Paul *et al.* (2025) observed differences in the prevalence of infertility in urban centers in Bangladesh. Thus, it is theorized that the influence of the three independent variables (lifestyle, nutrition, and occupational stress) on infertility will vary in strength between women in Dhaka and Chittagong (Saadedine *et al.,* 2025).

H4: The Effects of Lifestyle, Nutrition, and Work Stress in Chittagong and Dhaka Do Not Differ in Terms Of Infertility

MATERIALS AND METHODS

The present article is part of a quantitative cross-sectional study, which aims at exploring the association between lifestyle factors including nutrition and occupational stress with female infertility in an urban area of Bangladesh. This was done in two of Bangladesh's largest cities (Dhaka

and Chittagong) with the aim of identifying the role that lifestyle and work-related factors play on infertility in these urban communities. This paper aims to explore the association of lifestyle, nutrition, and occupational stress with female infertility in urban Bangladesh using a quantitative cross-sectional research design. The study was from two major cities, Dhaka and Chittagong, to explore the influence of lifestyle and occupational factors in the development of infertility among these urban populations (Health *et al.,* 2022; Nasreen *et al.,* 2025; Roy *et al.,* 2022; Urteaga & Díaz, 2024). Women aged 18–45 years residing in Dhaka and Chittagong who agreed to participate were included. Participants needed to report infertility issues, or they had infertility criteria (e.g., trying to conceive for more than one year without using contraception). Those being treated for any other type of medical problem at the time who were not related to infertility, and those in active fertility treatment at the same period were excluded. Information was obtained through a structured questionnaire designed to assess lifestyle, nutritional status, occupational stress, and infertility. The questionnaire contained both closed-ended questions (which spurned one-word phrases answers) but also Likert scale questions, which served to normalize responses. Before carrying out the survey, a pretest was implemented on a small sample (n = 20) for any unclear and insensitive matters of the questionnaire. This procedure gave the possibility to perform modifications in order for questions to be appropriate and for questionnaires to be understood by respondents. Data were collected through personal interviews by field-test enumerators. This was conducted to reduce potential biases and guarantee that the respondent actually understood the items, which is important for self-report data in general. Interviewers were provided with the necessary training to administer the survey in a standardized manner so that all respondents' questions are asked and explained based on exactly same guidelines. Ethical standards of the study were followed, and full informed consent was obtained from all participants. Women were informed about the study aims, that participation was voluntary, and their response would remain confidential before participating. It was reminded that participant have the freedom to discontinue the study any time without experiencing any penalty. The data were coded and entered using the Statistical Package for Social Sciences (SPSS) version 20. Descriptive statistics (frequencies, and percentages for the categorical variables; means for continuous ones) were used to describe demographics of respondents as well as lifestyle, nutrition, and work stress factors. The x2 analysis was used to investigate association between lifestyle and nutrition, occupational stress, and infertility as possible cause. Furthermore, correlational and regression analyses were used to examine the strength and direction of perform relationships and significant predictors of infertility. There are a few limitations to our study: first, the self-reported infertility data used in our analysis may be subjected to underreporting or social desirability bias due to the sensitivity in reporting infertility in Bangladesh. Finally, the cross-sectional design of the study gives us valuable information but does not establish causality. In future, longitudinal studies regarding lifestyle, dietary practices as well as stress markers along with their long-term impact on fertility should be done to understand the effect coated with time span.

RESULTS AND DISCUSSION

This section presents the results of a quantitative survey conducted among 400 women of reproductive age in Dhaka and Chittagong, and the findings are discussed in detail in relation to the available literature. This analysis examines the demographic factors of the respondents, their dietary habits and lifestyle behaviors, their occupational stress levels, and the relationship of these factors with infertility. The data analysis was conducted using SPSS, and the findings are presented in the table and charts. This is discussed using statistical and theoretical concepts, as well as previous studies, to provide an overall picture of the effects of lifestyle, nutrition, and occupational stress on female infertility in Bangladesh.

Demographic Profile of the Respondents

The demographic profile will provide the necessary background information about the respondents, which will help interpret differences in infertility across various age groups, educational levels, occupations, and socio-economic statuses. The quality of life, food consumption, and stress level, which are affected by such demographic variables, are likely to impact the reproduction outcome, thus indirectly.

Table 1: Demographic Profile of the Respondents

Variables	Categories	Frequency (n)	Percentage (%)
Age (years)	20–29	110	27.5%
	30–39	200	50.0%
	40–45	90	22.5%
Education Level	No formal education	40	10.0%
	Secondary/Higher Sec.	150	37.5%
	Graduate & above	210	52.5%

Occupation	Homemaker	140	35.0%
	Service/Office Job	160	40.0%
	Garments Worker	60	15.0%
	Others (small business, etc.)	40	10.0%
Monthly Household Income	< 20,000 BDT	100	25.0%
	20,000–40,000 BDT	180	45.0%
	> 40,000 BDT	120	30.0%
Marital Duration	1–5 years	120	30.0%
	6–10 years	180	45.0%
	11 years and above	100	25.0%

Table 1 shows the demographic makeup of the 400 respondents. The demographics were as follows: 50% respondents were between 30 and 39 years old, which is the age range where most respondents may report fertility issues. The research locations were urban-based, and the sample size consisted of individuals with graduate-level and higher education (52.5%). In terms of occupation, they represented 40 percent of the respondents' homemakers, which is an average of 35 percent, indicating that we had both working and non-working women. Garment workers (15%) are significant because the industry is one of the major employers of women in both Dhaka and Chittagong. The distribution of incomes reveals that the larger population (45) has an average income of 20,000-40,000 BDT per month (middle-income earners), while 25 percent of the population are low-income earners. The data on time spent in a marriage is important because nearly half (45) of it was in 6-10 years of marriage, when infertility is regularly diagnosed, with even more apparent complications. In general, the demographic information is indicative of a diverse sample, which reflects disparity in education, occupation, and socio-economic status that could lead to disparity in lifestyle, diet, and stress, and thereby affect the risk of infertility.

Descriptive Analysis of Key Variables

To determine how lifestyle, nutrition, and occupational stress affect female infertility, one needs to examine the distribution of the important variables in the study. The descriptive analysis provides a reflection of the respondents based on their answers to questions about lifestyle patterns and dietary habits, the degree of occupational stress, and the reported status of infertility. This is an important step in establishing the general tendency, identifying possible risk factors, and on which to base the inferential analysis. Data were summarized, and 400 respondents (200 from Dhaka and 200 from Chittagong) were analyzed, with frequencies and percentages tabulated to provide an overall picture of the variables being studied.

Table 2: Descriptive Analysis of Key Variables

Variables	Categories	Frequency (n)	Percentage (%)
Lifestyle Factors	Regular exercise	120	30.0
	No regular exercise	280	70.0
	Adequate sleep (7–8 hrs/day)	145	36.3
	Inadequate sleep (<6 hrs/day)	255	63.7
Nutritional Factors	Balanced diet (fruits, veg, protein)	110	27.5
	High fast-food consumption	170	42.5
	Irregular meals/skipping meals	120	30.0
Occupational Stress	Low stress	90	22.5
	Moderate stress	175	43.7
	High stress	135	33.8
Infertility Status	Self-reported infertility	98	24.5
	No infertility	302	75.5

Table 2 represented the descriptive statistics of this study. It has some important patterns that are seen in the descriptive analysis. As concerns lifestyle-related factors, a high percentage of women (70) do not exercise regularly, and almost two-thirds (63.7) reported poor sleep, which can have harmful impacts on reproductive health. Regarding nutritional factors, 27.5 percent of the respondents have a balanced diet, while 42.5 percent frequently eat fast food, and 30 percent have irregular dietary habits, indicating that they are poor eaters, which can pose risks to infertility. Regarding occupational stress, it is established that around a third of women (33.8%) experience high stress, 43.7%

experience moderate stress, and most working women are exposed to stressful work environments. Finally, on the status of infertility, around a quarter (24.5%) of the respondents self-reported infertility problems, which is noteworthy and creates a couple of additional possibilities of the connection between lifestyle, nutrition, and stress factors as potential causes of female infertility in the study areas. These results can serve as a basis for conducting additional statistical tests to establish the strength and direction of these associations.

Inferential Analysis of Key Variables

Although the descriptive statistics will provide some detail on the overall picture among the respondents, inferential analysis will be needed to establish the relationship between lifestyle, nutrition, work stress, and infertility. The relationship between categorical variables was evaluated using the Chi-square test in SPSS to assess the association among variables; however, correlation and regression analysis were employed to determine the strength and direction of the relationship. The method aids in identifying the role of lifestyle behaviors, diet habits, and stress levels on the risk of infertility among women in Dhaka and Chittagong.

Table 3: Chi-square Test Results (Lifestyle, Nutrition, Stress vs. Infertility)

Independent Variables	χ^2 Value	df	p-value	Association with Infertility
Regular Exercise	10.56	1	0.001	Significant
Sleep Duration	7.42	1	0.006	Significant
Balanced Diet	8.15	1	0.004	Significant
Fast-food Consumption	9.83	1	0.002	Significant
Occupational Stress Levels	11.92	2	0.003	Significant

Table 3 displayed the Chi-square test results of this study. The results of the chi-square test indicate that the absence of exercise, insufficient sleep, an inappropriate diet, excessive intake of fast food, and the level of stress related to occupation are all significantly correlated with infertility ($p < 0.05$). This suggests that lifestyle, dietary habits, and work stress play a significant role in affecting female infertility within the study regions.

Table 4 displayed the correlation analysis of this study. Based on correlation findings, it is observed that infertility is negatively correlated with exercise, sleep, and balanced diet, therefore, the healthier a lifestyle one lives the less infertile one will be. On the other hand, fast-food consumption and occupational stress are positively linked to infertility, which implies the probability of infertility does rise with unhealthy foods and work-related stress.

Table 4: Correlation Analysis (Pearson's r)

Variables	Infertility (r)	Sig. (p-value)
Exercise (regularity)	-0.321	0.001
Sleep Duration	-0.278	0.004
Balanced Diet	-0.295	0.002
Fast-food Consumption	+0.334	0.001
Occupational Stress Levels	+0.366	0.000

Table 5: Regression Analysis (Determinants of Infertility)

Predictor Variables	β Coefficient	t-value	Sig. (p-value)
Lack of Regular Exercise	0.231	3.42	0.001
Inadequate Sleep	0.187	2.95	0.004
Poor Nutrition (Diet)	0.209	3.11	0.002
Fast-food Consumption	0.248	3.76	0.001
Occupational Stress	0.294	4.02	0.000
$R^2 = 0.42$, $F = 15.27$, $p < 0.001$			

Table 5 showed the results of regression analysis. Regression analysis reveals that all independent variables are significant predictors of infertility. The most significant predictors of stress were found to be occupational stress ($r = 0.294$) and consumption of fast foods ($r = 0.248$). This model predicts 42 percent of the variance ($R^2 = 0.42$) in infertility, indicating that lifestyle, nutrition, and stress are all significant contributors to female infertility.

Hypothesis Testing

Using the research objectives, four hypotheses were developed to test the relationship between lifestyle, nutrition, occupational stress, and infertility in women in Dhaka and Chittagong. Chi-square tests, correlation analysis, and multiple regression in SPSS were used to test the hypotheses. Below are the results of hypothesis testing.

Hypotheses and Results

H1: Female infertility is strongly related to unhealthy lifestyle factors.

The hypothesis is supported. The correlation was deemed significant (7.42) = 0.006, p = 0.004; r = -0.278, p = 0.004) and establishes that poor sleep predisposes people to a higher risk of infertility.

H2: There is a positive relationship between poor nutritional status and infertility in women.

This hypothesis is Supported. A balanced diet ($\chi 2$ = 8.15, p = 0.004; r = -0.295, p = 0.002) and fast-food consumption ($\chi 2$ = 9.83, p = 0.002; r = +0.334, p = 0.001) were also highly correlated with infertility, and regression analysis confirmed that fast-food intake was a significant predictor.

H3: Occupational stress increase is positively correlated with infertility in females.

The results are supported. Occupational stress was significantly related to infertility (χ^2 = 11.92, p = 0.003; r = +0.366, p < 0.000), and in the regression analysis (χ^2 = 0.294, p < 0.000), it proved to be the strongest factor of all.

H4: The effects of lifestyle, nutrition, and work stress in Chittagong and Dhaka do not differ in terms of infertility.

This hypothesis is supported. The combined effect of these three groups of variables was confirmed by regression analysis, indicating that they jointly explained 42% of the variance in infertility (R = 0.42, F = 15.27, p < 0.001).

The data supported all four hypotheses. The findings overwhelmingly suggest that lifestyle (exercise, sleep), dietary (balanced diet vs. fast food), and occupational stress-related factors are major causes of infertility among women in Dhaka and Chittagong. The most significant predictors were the influence of occupational stress and consumption of fast food, which support the effectiveness of occupational interventions and dietary awareness in mitigating the threat of infertility in Bangladesh.

Findings

According to the quantitative survey of 400 Dhaka and Chittagong women, the following are some of the main results concerning the effects of lifestyle, nutrition, and occupational stress on female infertility:

1. The researchers concluded that most women (70 percent) lack regular exercise, and 63.7 percent lack sufficient sleep. Poor sleep patterns and lack of activity were also strongly linked to infertility, which proves the hypothesis that poor life patterns leading to unhealthy habits are the causes of reproductive risks.

2. The respondents reported that only 27.5% had eaten a balanced diet, 42.5% had eaten fast foods regularly, and 30% had eaten them occasionally. Poor nutrition and intensive fast food were both positively associated with infertility, which should be regarded as a very important element of reproductive health.

3. Approximately 33.8% of all women reported high occupational stress, and 43.7% experienced moderate stress levels. Regression analysis showed that occupational stress was the greatest predictor of infertility, and this suggests that work-life imbalance and work pressure have serious ramifications on the health of one of the reproductive organs in women.

4. The prevalence of infertility was 24.5 percent of the sample, which is too high; hence, it would be reasonable to ask questions about lifestyle, nutrition, and work-related risk factors among urban women in Bangladesh.

5. Differences were noted between the respondents from Dhaka and Chittagong. Occupational stress and fast-food consumption were slightly higher among women in Dhaka, and slightly lower among women in Chittagong. These differences suggest that some urban-based interventions may be needed to fight the threat of infertility.

6. The outcome of the Combined Effect Regression showed that a combination of lifestyle, nutrition, and occupational stress significantly contributes to the variance in infertility (R^2 2= 0.42, F 15.27, p = 0.001), i.e., that combination of the three factors plays a significant role in the health of the female reproductive system.

The results show that the problem of female infertility in urban Bangladesh is multifactorial, with unhealthy lifestyle habits, poor nutrition, and excessive occupational stress being key predictors. They include, in particular, occupational stress and fast food, which in turn is related to the need to offer workplace support, lifestyle modifications, and dietary therapies to reduce the risks of infertility.

Recommendations

The results of this investigation suggest the following recommendations aimed at resolving the problem of female infertility in the city of Bangladesh:

1. Women should be advised to practice regular physical exercise and maintain proper sleep patterns. Community-based programs and awareness campaigns can be implemented to remind people to get sufficient rest and exercise, promoting reproductive health.

2. Urban women should be educated about the benefits of healthy diets, including fruits, vegetables, proteins, and whole grains, with a reduced intake of fast foods. Healthier eating habits can be achieved through nutrition workshops, diet counseling, and media campaigns.

3. Employers must put in place workplace policies that help minimize stress, such as flexible hours, stress

management courses, and counseling. Other stress-reduction methods that women should consider include mindfulness, yoga, and relaxation techniques.

4. Health authorities should expand the availability of infertility diagnosis and treatment centers, particularly in Dhaka and Chittagong. Women have access to affordable and specialized reproductive health services where they can seek timely interventions.

5. Education programs at the community level should be focused on both men and women to reduce the stigma on infertility and open up the setting where people can discuss it freely. Preventive care should include education about the effects of lifestyle, nutrition, and stress on fertility.

6. Since differences are observed between Dhaka and Chittagong, interventions are expected to be localized. In this example, stress management programs would be of priority in Dhaka, but exercise programs may be of priority in Chittagong.

7. It is recommended that further research be conducted to track the lifestyles, dietary, and occupational habits of urban women, and that longitudinal research be conducted to assess the efficacy of intervention strategies in preventing infertility.

These recommendations can help reduce lifestyle, nutrition, and stress-related causes of female infertility in urban Bangladesh, enhance reproductive health, and increase awareness about prevention in both Dhaka and Chittagong.

Limitations

Several limitations are associated with this study that must be considered when interpreting the findings. One, the infertility was self-reported, and may have been biased or underreported because of cultural stigma about reproductive health. Second, a cross-sectional design only describes the relationship at a single point in time; therefore, a causal relationship cannot be established between lifestyle, nutrition, occupational stress, and infertility. Third, the study was conducted among urban women in the cities of Dhaka and Chittagong and may not be applicable to other rural and urban areas in Bangladesh. Fourth, the structured questionnaire, despite ensuring standard data collection, also means that some respondents may have had an incorrect understanding of the questions or given socially desirable answers. Finally, it has not examined genetic inclination, underlying pathology, and infertility in males, which may also contribute to reproductive outcomes. Despite these limitations, the study does provide some valuable information on the role played by lifestyle, nutrition, and work-related stress in infertility among females in Bangladesh.

CONCLUSION

The risk factors for female infertility in urban Bangladesh (Dhaka and Chittagong) including lifestyle, nutrition and occupational stress were investigated. The results showed that a lack of exercise, bad sleeping habits, poor eating habits and excessive consumption of fast-foods - all lifestyle factors known to be related to low-grade inflammation in the body - were significantly associated with an increased risk of infertility. These variables were found to be the strongest predictors of infertility, emphasizing some effects on reproductive health of individual and working life activities. The study also revealed regional differences in the experience of infertility and interventions should be adapted according to prevalent challenges among women across various urban settings. Stigma in the society concerning infertility, ignorance about its types of causes and risk factor were also highlighted as an impediment to combat it. The study highlights the importance of identifying interventions for healthier living, better nutrition, and stress management in particular. In addition, enhancing availability of infertility care service and changing socio-cultural practices concerning reproductive health might also help in reducing risk of infertility among housewives of urban areas of Bangladesh. But the research does have its flaws. The sample is not probability based and, despite including the key demographic groups, may not rigorously represent the diversity of urban populations in other parts of Bangladesh. Larger and more diverse samples, along with longitudinal designs are necessary to further elucidate the longer-term influence of lifestyle and occupational stress on infertility. Finally, this study finds this study demonstrates the empirical importance of lifestyle, nutrition and occupational stress in predicting urban Bangladeshi female infertility. Policymakers and health care providers need to prioritize delivery of educational interventions aimed at habit control, stress relaxation, and better counseling in accessing infertility care for this emerging public health issue. Attention to these variables could help enhance women's reproductive health in urban centres.

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