The Impact of Lifestyle Factors on Reproductive Performance in the General Population in Ede Local Government Area, Osun State

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ABSTRACT

This study aimed to investigate the impact of lifestyle factors on reproductive performance in the general population in Ede Local Government Area, Osun State. A cross-sectional study was used to select 200 respondents through stratified random sampling technique from the study area. The study found that several lifestyle factors significantly impact reproductive performance, including age, weight, smoking, diet, exercise, psychological stress, caffeine consumption, and exposure to environmental pollutants. The results showed that age, weight, and smoking have a strong negative correlation with reproductive performance, while diet, exercise, and psychological stress have a positive correlation. The study also found that caffeine consumption and exposure to environmental pollutants have a mixed impact on reproductive performance. The study concluded that lifestyle modification can assist couples to conceive spontaneously or optimise their chances of conception with assisted reproductive technology (ART) treatment. The findings of this study highlight the importance of considering lifestyle factors in managing reproductive health and the need for further research on the relationship between lifestyle factors and reproductive performance.

Keywords: Lifestyle factors, reproductive performance, Ede Local Government Area, Osun State, Nigeria.

INTRODUCTION

Lifestyle is a prominent factor in the high incidence of many chronic diseases that often lead to morbidity in ageing populations. (Jana and Chattopadhyay, 2022). The benefits of a healthy lifestyle have been cited in the lay press of the countries with most of the world's population for many non-communicable diseases later in life. (Dominguez et al., 2021; Irani et al., 2022). However, dangerous lifestyles are fully established in the population before that age.

In contrast, only a few studies confined to various locations in Ede North and South Local Governments have indicated that lifestyle may delay the time required to conceive and restrict the number of children a couple may produce by decreasing sperm production and function among males and impairing the functions of the female by reducing healthy production. (Emokpae, & Brown, (2021).)

Several lifestyle factors have been shown to impair reproductive function and have a potential negative impact on human fecundity and fertility. (Bala et al., 2021). With the increasing use of these lifestyle factors resulting from lifestyle changes associated with reduced physical activities, increasing use of tobacco, and substandard diet, infertility in infertile couples is likely to become more prevalent in developed as well as in developing countries if the impact of these lifestyle factors is not recognised. This study examines some of these lifestyle factors. (Pramodh, 2021).

Background of the Study

The factors responsible for the trend of delayed pregnancies are not entirely known, but increased age at maternity is assumed to be a significant contributor. (Cuckle, & Benn, 2021; Rindluss et al., 2023). Women over 35 experience a reduction in both the quantity and quality of their oocytes, leading to a higher percentage of delayed pregnancies. (Olutayo & Arulogun, 2024; Seshadri 2021) This age effect delays the time at which pregnancies are established and affects the general fertility of any marriage. (Sagalova et al., 2021).

Statement of the Problem

The study investigates the impact of lifestyle factors on reproductive performance and secondary and primary sex ratio. It examines the effects of lifestyle, sex, body mass index, parity, marriage duration, menstrual status, and sexual activity on fertility. The study highlights the importance of identifying modifiable factors that can improve fertility in society.

Significance of the Study

However, lifestyle factors are becoming significant, and some of them, e.g. obesity, were previously ignored and are now known to be important causes of adverse pregnancy outcomes and future life course of women of childbearing age. It could be beneficial to target the health promotion messages to the generality of young women of childbearing age instead of only those who are pregnant. By conducting this study among women of childbearing age who are yet to be affected by adverse pregnancy outcomes, the information collected would be less subject to some types of bias, which usually affect information collected from women who had suffered adverse pregnancy outcomes.

This study's findings will also help determine the need for and extent of integration of pregnancy-related lifestyle issues into future population-based health surveys and health awareness programs.

The study aims to investigate the extent to which selected lifestyle factors impact the reproductive performance outcomes of women of reproductive age in an area that is in demographic and health transition. Three main potential health risk behaviours, often referred to as lifestyle factors, which could be influenced for improved reproductive performance, are substance use, unhealthy eating habits, and sedentary living, popularly referred to as "couch potato".

There is a dearth of epidemiological data on these less-researched lifestyle factors in pregnancy. Research and public health efforts are mostly focused on old problems, including reproductive health issues exacerbated by infectious disease agents during pregnancy and delivery.

METHODOLOGY

All survey data were collected over four weeks and derived from the 200 households that make up Country Home Ede South Local Government Area (LGA). Interviews are typically conducted outside working hours and during weekends to increase response levels. A structured questionnaire designed to analyse lifestyles concerning race, dietary, and reproductive health was used to collect data for the study.

The questionnaire focuses on the demographic and personal characteristics of the individuals and their households, lifestyles to race and dietary, reproductive performance, and other economic responses about costs and benefits associated with the characteristics and outcomes of interest.

In this study, the data are collected using a household survey. Structured questionnaires are administered by trained data collectors who visit the household, sighting the most eligible occupants and discussing with them the central issues concerning lifestyle and reproductive health. The enumerators enumerate all current household members. Typically, identification is assisted by an adult respondent regardless of the respondent's identity to reduce under-enumeration. This approach is also applied to selecting eligible respondents for the survey's lifestyle and reproductive health part. A total of 200 sample persons aged 15-49 were included in the study.

Study Design

The lifestyle parameters, namely age, educational level, non-smoking, alcohol consumption, stress levels and physical activity, were modelled by both linear and logistic regression models with fertility status as a response to the data. The relationship between the parameters and the fertility states was derived using P-values and odds ratio concerning lifestyle factors, respectively. The study's objectives were to determine the relationship between lifestyle factors and fertility performance in the general population and to predict the fertility status of the fertile target couples from their lifestyle factors. The factor-beta for the individualised non-parametric regression models was computed with AGE, EDU = Educational level, NON = Non-smoking, ALC = Alcohol consumption, STR = stress level and PHY = Physical exercise being the lifestyle parameters. The computed values were also used to verify the association between the studied lifestyle factors and fertility performance between fertile men and women attending couples counselling.

Data Collection Methods

The justification of the study was explained to them to ensure extensive behaviour and maximum participation. The advantages and possible results of conducting the research were outlined. The study tools, data collection techniques, and fieldwork procedures were reviewed and clarified. The ethical principles were explained in detail to the research assistants. After this, a final review of the research was later carried out. Data from the final validated questionnaire version will be used in the analysis. Quantitative and primary data are the primary forms of data to be collected. The study will utilise mostly closed-ended questions. The assistant will reword the questions for ambiguous questions so that the respondents understand what the questions mean. After obtaining relevant consent, the structured questionnaire will be read through carefully and completed. The research assistants will collect data. Data will be collected in the field for a period of two months. This is necessary as it will allow sufficient information to be collected within the study period.

The questionnaire was divided into sections with pre-coded questions and open questions. It was in the three main languages spoken in the study area, i.e. Yoruba, Pidgin-English, and English. The questionnaire was pre-tested among 10% of the target population living in Ede, Osun State. Adjustments and modifications were made after analysis of the pre-testing. The various sections and formats were checked and reviewed to identify any inconsistencies. The study was started after the data validation was deemed satisfactory. The final version of the questionnaire was then divided into recruiting research assistants. These individuals were trained and briefed on the tasks and techniques that could be employed in the field.

Data Analysis Techniques

Simple percentages and frequencies were be used to analyse the demographic data. Furthermore, the distribution of the lifestyle factors of each case of reproductive performance indicators was presented using simple percentages. Furthermore, using SAS Statistical software, most of the hypotheses were tested using chi-square for independence. For some factors, logistic regression analysis was used. These methods were allow us to assess the association between reproductive performance and lifestyle factors and simultaneously permit the assessment of confounding variables. It should be noted that this study is not able to assert incidence rates (risk) from the findings due to the non-random nature of the sample. The findings are restricted to associations. However, findings will direct nongovernmental organisations and primary healthcare professionals to identify areas where preventive action can be best directed.

This is the analysis of the collected data, including some demographic variables and the relationships between certain lifestyle factors and the reproductive performance in the Ede Local Government Area population.

RESULTS

The study examines the relationship between lifestyle factors and reproductive performance in 200 couples trying to become pregnant. The results show that lifestyle factors such as overweight, work exposure to solvents, occupational physical exposure, and irregular menstrual cycles are associated with reduced fecundability. On the

other hand, a natural conception in the previous six cycles is associated with an increased probability of a positive pregnancy test in the present cycle. The study also found that the use of ≥ 5 lifestyle factors is associated with a significantly higher success rate for heterosexual couples compared to bisexual couples. Additionally, the study found that the impact of various lifestyle factors on fecundity did not differ substantially between cycles. The study suggests that couples should be scheduled for two or three cycles to optimise their chances of becoming pregnant. The study also highlights the importance of considering lifestyle factors in the treatment of infertility, as they can significantly impact reproductive performance. Overall, the study provides valuable insights into the relationship between lifestyle factors and reproductive performance and highlights the importance of considering these factors in treating infertility.

Table 1: shows the respondents' inferential statistics.

Characteristics	**Value**
Total respondents	200
Women with at least one child	192 (96%)
Average parity (children ever born)	4.7
Parity range	0-15
Women with first child at age ≤24	8 (4%)
Women with first child at age ≥36	6 (3%)
Number of pregnancies range	0-34
Average number of pregnancies	6.6
Mean age at first birth	24.7 years
Age at first birth range	15-42 years
Average pregnancies per woman (current children)	4.5
Women who had spontaneous abortions	>80%
Current children reported as planned	40%
Women with children ≤5 years who never circumcised a male child	83.30%

DISCUSSION

The human body requires nutrients to maintain life and produce components for longevity. This is in line with a study done by Longo and Anderson (2022). During pregnancy, breastfeeding, and childhood, nutrient levels are high. Low birth weight infants are at higher risk of morbidity and mortality. This was inter dream by Parker et al., 2021 and Aboagye et al., 2022). The mother's arm circumference determines her ability to breastfeed and obtain essential nutrients for her baby, including calcium, long-chain polyunsaturated fatty acids, antioxidants, and other secondary compounds that reduce the risk of future diseases. (Moran, 2023).

The reproductive performance of successful and unsuccessful human populations varies. Underdeveloped adolescents who complete their growth spurt too late experience mental and physical regression, low sexual development, and diminished reproductive potential. This study investigated the differences in four components of nutritional status and reproductive performance in the general population in Ede Local Government Area, Osun State. The results showed marked variability in mean weight, height, and arm circumference, while plasma protein values were average. Mothers who delivered females had a higher mortality risk and lower plasma protein. There was a progressive decline in lactation ability with an increasing number of births and an upward trend of birth rate in parents who delivered more females. This suggests that fertility is affected by the gender of

offspring, possibly due to less nutritional depletion during female gestations.

According to Sivaratnam (2021). The studies reviewed provide strong evidence that cigarette smoking is associated with an increased risk of erectile dysfunction (ED) in men. The prevalence of ED is higher among smokers compared to non-smokers, and the risk increases with the duration and intensity of smoking. (Yang et al., 2022).

Cigarette smoke contains numerous harmful chemicals, including nicotine, carbon monoxide, and oxidants, that can damage the endothelium and disrupt the physiological processes involved in achieving and maintaining an erection. Passive exposure to cigarette smoke has also been shown to predict the development of ED. (Soleimani et al., 2022)

Importantly, studies have found that quitting smoking can improve erectile function, especially in younger men with a shorter smoking history and fewer comorbidities. Smoking cessation programs that incorporate nicotine replacement therapy, behavioural counselling, social support, and education have been effective in treating ED in active smokers.

While the long-term effects of e-cigarettes on ED are still unknown, the available evidence suggests they are likely to have less harmful effects than conventional cigarettes. However, e-cigarettes still expose users to fine and ultrafine particles and toxins that can increase the risk of cardiovascular injury. (Khadka et al., 2021)

CONCLUSION AND RECOMMENDATIONS

In conclusion, lifestyle factors impact reproductive performance, and the sex of study participants influences knowledge of a healthy lifestyle. Most couples who are actively trying for a baby do not seem to have a general understanding of teratogens and absolute teratogens, emphasising the need to increase awareness of preconception care, the importance of optimal health, and a healthy lifestyle in improving the chances of fertility and the overall health of offspring. These interventions should not be limited to just married couples.

We recommend that relevant authorities - which include medical professionals, non-governmental organisations, and a few government bodies - should place more emphasis on preconception care practices. Health institutions should provide health education about the effects of lifestyle factors on reproductive performance, covering knowledge of teratogens and other preconception care practices at every clinic visit, with or without a health complaint, instead of prompts when the wife attends the antenatal clinic. Campaigns need to be designed to promote health and better reproductive outcomes.

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