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# Lifestyle and Fertility: A Study on Reproductive Ability among Urban and Rural Women

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**ABSTRACT:** This study explores the interplay between lifestyle factors and reproductive ability among women residing in urban and rural areas. With increasing concerns over declining fertility rates and the influence of modern living, the research aimed to examine whether significant differences exist in reproductive health outcomes between urban and rural women.

**KEYWORDS:** Women, Reproductive, Ability, Rural, Urban.

## I. INTRODUCTION

Women's reproductive health is a complex and multifaceted aspect of overall well-being, influenced by a range of biological, environmental and lifestyle-related factors. In recent years, increasing attention has been given to the role of lifestyle behaviors—such as physical activity, dietary habits, sleep patterns, stress levels and substance use—in determining hormonal balance and reproductive health outcomes in women of reproductive age. Hormonal health plays a crucial role in regulating various reproductive processes, including the menstrual cycle, fertility and pregnancy. Disturbances in hormonal levels can lead to a variety of reproductive issues, such as irregular periods, polycystic ovary syndrome (PCOS), infertility and pregnancy complications. Modern lifestyle patterns, characterized by high levels of psychological stress, poor sleep hygiene, sedentary behavior and increased consumption of processed foods and harmful substances, have been associated with disruptions in endocrine functioning. These disruptions may further contribute to menstrual irregularities, hormonal imbalances and reduced fertility. At the same time, the availability and utilization of healthcare services, awareness of reproductive health issues and cultural attitudes toward women's health may vary based on geographic location—especially between rural and urban populations—potentially influencing reproductive health outcomes. In view of this, this study seeks to compare reproductive health indicators between rural and urban women.

## II. RESEARCH METHODOLOGY

The research was done based on primary and secondary data. The population of the study contained female subjects within the region of Ajmer city. The method for data collection was sample survey and questionnaire. Researcher did not study the whole population but only studied the samples drawn from the population. The study-specific questionnaire was designed for women in such a way that it included questions both about their lifestyles and their menses to establish a connection between both of them. The questionnaire covered questions on lifestyle factors such as fat-rich diets, caffeine intake, anxiety/depression caused due to hormonal imbalance and correlate them to delayed child bearing, sexual behavior. Based on the findings, the final questionnaire was designed. The obtained data was analyzed using various statistical techniques. The study hypothesized that there is a difference between reproduction ability of Urban and Rural Women.

**Area of the Study:** Ajmer District was selected as the study area.

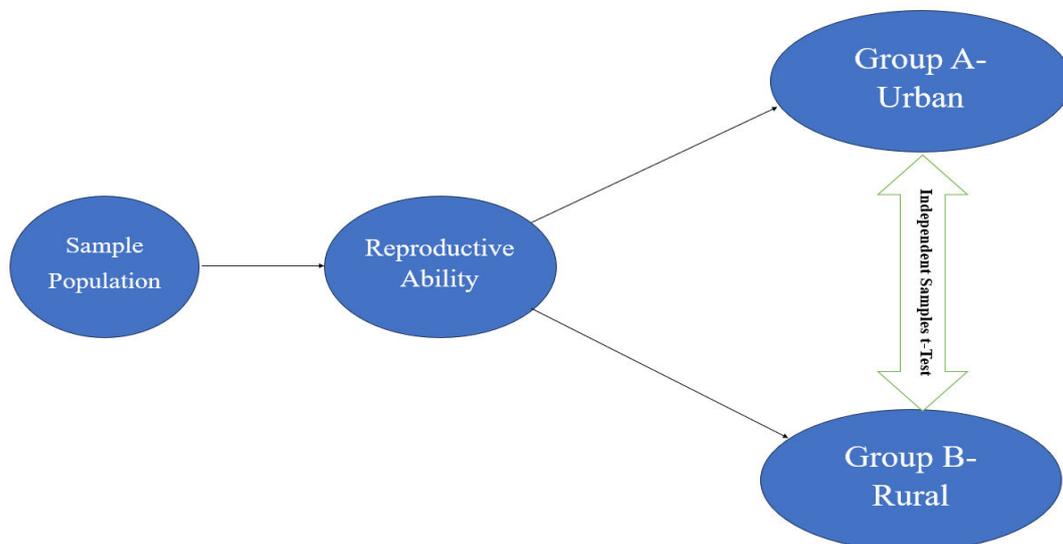
Fig 1: Map of Study Area



**Data Collection:** The study utilized both primary and secondary sources of data. Primary data was collected directly through fieldwork involving 150 women participants from Ajmer city. A structured questionnaire was formulated in consultation with patients and experienced medical professionals. This customized questionnaire focused on gathering information related to women's lifestyle habits and menstrual patterns to explore potential links between the two. It included questions on various lifestyle aspects such as consumption of high-fat foods, caffeine usage, and experiences of anxiety or depression associated with hormonal imbalances, as well as their influence on reproductive behaviors like delayed childbearing and sexual activity. Secondary data was gathered from published literature, including academic journals, newspapers, and magazines.

**Data Analysis:** For Hypothesis testing, which involved comparing reproductive health between urban and rural women, an Independent Samples t-Test was conducted. This test evaluated whether the mean values of various reproductive health indicators differed significantly based on place of residence. Variables such as age at menarche, menstrual duration, cycle length, fertility difficulties, pregnancy-related complications and hormonal medication use were compared between the two groups. Levene's Test for Equality of Variances was first conducted to determine which version of the t-test (equal or unequal variances assumed) was appropriate. Figure shows the Conceptual Model for t Test.

Fig 2: Conceptual Model for t Test





### III. RESULT AND DISCUSSION

The hypothesis seeks to compare the reproductive health and ability of women residing in urban and rural areas. Reproductive ability includes various indicators such as the age of menarche, regularity and duration of menstrual cycles, presence of infertility or challenges in conceiving, diagnosis of conditions like Polycystic Ovary Syndrome (PCOS), experience of hormonal imbalance symptoms, history of pregnancy-related complications or miscarriages and the use of hormonal medications. The hypothesis is based on the assumption that lifestyle, healthcare access, environmental conditions, nutritional habits and awareness levels differ significantly between rural and urban populations and these differences may affect women’s reproductive health outcomes. For instance, urban women might have greater access to healthcare services and awareness about reproductive health, while rural women may face barriers like limited medical resources, traditional beliefs or nutritional deficiencies, which could impact their reproductive wellness. To examine this hypothesis, the study analyzed data from both groups across a set of reproductive health parameters using statistical methods like group statistics and independent samples t-tests. The results showed that although slight differences exist between the two groups in terms of mean scores across various indicators, none of these differences were statistically significant ( $p > 0.05$ ). This suggests that, in the given sample, place of residence alone does not have a strong or consistent impact on reproductive ability. The findings indicate that reproductive health challenges are prevalent in both rural and urban women, possibly due to common influencing factors such as lifestyle habits, stress, delayed family planning and hormonal issues. Hence, rather than geographical location, it is the quality of health education, early diagnosis and medical care that appears to play a more critical role in determining reproductive health outcomes.

**Table 1: Group Statistics**

	What is your place of residence?	N	Mean	Std. Deviation	Std. Error Mean
At what age did you have your first menstrual cycle?	Urban	111	3.28	.992	.094
	Rural	39	3.21	1.031	.165
What is the duration of your Menstrual Bleeding	Urban	111	3.24	1.105	.105
	Rural	39	3.38	1.016	.163
What is the usual length of your menstrual cycle	Urban	111	3.54	.980	.093
	Rural	39	3.62	.935	.150
Are you actively trying to conceive but experiencing challenges in conceiving?	Urban	111	3.15	.955	.091
	Rural	39	3.18	.942	.151
If experiencing infertility, for how long have you been unable to conceive?	Urban	111	3.43	.959	.091
	Rural	39	3.51	.914	.146
Have you ever experienced Pregnancy-Related Complications or Miscarriages complications?	Urban	111	3.08	1.389	.132
	Rural	39	3.15	1.368	.219
Have you been diagnosed with Polycystic Ovary Syndrome (PCOS)?	Urban	111	3.57	.969	.092
	Rural	39	3.62	.877	.140
How often do you experience hormonal imbalance symptoms (e.g., mood swings, fatigue and irregular periods)?	Urban	111	2.86	1.462	.139
	Rural	39	2.85	1.479	.237
Have you undergone medical tests for hormonal imbalance (thyroid, FSH, LH, prolactin, AMH, etc.)?	Urban	111	2.86	1.462	.139
	Rural	39	2.85	1.479	.237
Have you taken hormonal medication for fertility or menstrual issues?	Urban	111	3.59	1.030	.098
	Rural	39	3.31	1.280	.205



Table 2: Independent Samples t-Tests

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
First menstrual cycle?	Equal variances assumed	.559	.456	.397	148	.692	.074	.187	-.295	.443
	Equal variances not assumed			.390	64.434	.698	.074	.190	-.305	.454
Duration of Menstrual Bleeding	Equal variances assumed	2.223	.138	-.701	148	.484	-.141	.202	-.540	.257
	Equal variances not assumed			-.730	71.888	.468	-.141	.194	-.527	.245
Length of menstrual cycle	Equal variances assumed	.625	.431	-.415	148	.679	-.075	.180	-.431	.281
	Equal variances not assumed			-.425	69.390	.672	-.075	.176	-.426	.277
Challenges in conceiving?	Equal variances assumed	.408	.524	-.149	148	.882	-.026	.177	-.377	.324
	Equal variances not assumed			-.150	67.366	.882	-.026	.176	-.378	.325
Unable to conceive?	Equal variances assumed	.550	.460	-.456	148	.649	-.080	.176	-.429	.268
	Equal variances not assumed			-.466	69.517	.642	-.080	.172	-.424	.263
Pregnancy-Related Complications	Equal variances assumed	.338	.562	-.283	148	.778	-.073	.258	-.582	.436
	Equal variances not assumed			-.285	67.479	.777	-.073	.256	-.583	.437
PCOS - Diagnosis	Equal variances assumed	.445	.506	-.272	148	.786	-.048	.176	-.396	.300
	Equal variances not assumed			-.285	72.934	.777	-.048	.168	-.382	.287
Hormonal imbalance symptoms	Equal variances assumed	.018	.892	.069	148	.945	.019	.273	-.521	.558
	Equal variances not assumed			.068	65.887	.946	.019	.274	-.529	.567
Medical tests for hormonal imbalance	Equal variances assumed	.018	.892	.069	148	.945	.019	.273	-.521	.558
	Equal variances not assumed			.068	65.887	.946	.019	.274	-.529	.567
Hormonal medication	Equal variances assumed	7.047	.009	1.401	148	.163	.287	.205	-.118	.692
	Equal variances not assumed			1.263	56.246	.212	.287	.227	-.168	.742

To evaluate Hypothesis, which compares reproductive health indicators between rural and urban women, independent samples t-tests were conducted across several variables, including menstrual characteristics, fertility issues, hormonal symptoms and related medical interventions. The group statistics table showed only minor differences in mean scores between rural and urban respondents across all variables. For instance, the average age of first menstruation was nearly the same (Urban = 3.28, Rural = 3.21) and the length of menstrual cycle (Urban = 3.54, Rural = 3.62) and duration of menstrual bleeding (Urban = 3.24, Rural = 3.38) also showed very little variation. Similarly, mean responses for challenges in conceiving, pregnancy-related complications, diagnosis of PCOS and hormonal imbalance symptoms were also closely aligned between rural and urban groups. Slightly higher mean scores were seen among urban women



in the case of hormonal medication usage (Urban = 3.59, Rural = 3.31), indicating somewhat more engagement with medical treatments in urban areas. However, the independent samples t-test results confirmed that none of these observed mean differences were statistically significant. All the p-values for the t-tests were greater than .05, suggesting that the differences between rural and urban women on all measured aspects of reproductive health were not statistically meaningful. For example, the p-value for the difference in age of first menstruation was .692, for duration of menstrual bleeding was .484, for menstrual cycle length was .679, for PCOS diagnosis was .786 and for hormonal medication use was .163, indicating no significant disparity between rural and urban women in these respects. Even for hormonal testing and symptoms of hormonal imbalance, both groups reported almost identical mean values (2.86 vs 2.85) and the p-value (.945) confirmed no significant difference.

Therefore, the hypothesis that there is a significant difference in reproductive health outcomes between rural and urban women was not supported by the data. The statistical analysis demonstrated that, based on the variables studied, reproductive health issues and related experiences are relatively consistent across rural and urban populations in this sample. This could suggest either a convergence in access to information and healthcare services or that lifestyle and physiological factors affecting reproductive health are similarly distributed regardless of residence in the studied region.

#### IV. CONCLUSION

This study, which examined the difference in reproductive health between rural and urban women, the results showed no statistically significant differences across the variables studied. The mean scores for both groups were closely aligned in terms of age at menarche, menstrual cycle characteristics, infertility challenges, hormonal testing, PCOS diagnosis and use of hormonal medication. These findings suggest that, at least within this sample, reproductive health outcomes are relatively similar across rural and urban populations. This could be indicative of increasing awareness, healthcare access or homogenization of lifestyles across geographical regions. Similarly, a cross-sectional study by **Acharya and Gowda (2017)** highlighted the role of lifestyle determinants such as alcohol, tobacco use and frequency of intercourse in influencing fertility among rural women, further validating the lifestyle-fertility link evident in our study. Furthermore, the rejection of Hypothesis —showing no significant reproductive health difference between urban and rural women—further indicates a shift in the traditional urban-rural health divide. This may be attributed to improved healthcare access, growing awareness and changing social behaviors across both settings. Thus, the study strongly reinforces the need for integrated public health strategies that promote lifestyle modification, hormonal health education and early preventive measures. These can greatly enhance fertility outcomes and overall well-being in women, regardless of their geographic or demographic backgrounds.

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