ORIGINAL RESEARCH ARTICLE

Modelling the Distribution of First Birth Interval among Indian Women Using NFHS-4 Data: A Modified Exponential Approach

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ABSTRACT

Background: The time between marriage and the first childbirth affects population composition, fertility dynamics, maternal and child health, and population policy. This study examines distribution of FBI among Indian women considering its sociodemographic variables. The analysis employs the parameters Mode and Median to study the positive skewed outcome distributions.

Statistical Methods: The distribution of FBI in the sociodemographic variables of Indian women with one child during survey was taken into consideration. The National Family Health Survey-4 is the source of the data. Using the median and mode as distributional parameters, a "Modified exponential model" was developed to assess the degree of FBI skewness across important sociodemographic variables. Log-rank test was used to check the significancy of FBI across maternal sociodemographic variables.

Results: Within 32 months of marriage, 60% of women gave birth to their first child. With a mode of 10 months, the overall median FBI was 28 months. With skewed parameters Mode and Median, the proposed exponential model explained 81.7% variation in the FBI ($p<0.001$) using age at marriage, place of residence, religion, educational attainment, wealth index, BMI, thyroid disorder status, use of any form of contraception and history of pregnancy termination as significant predictors.

Conclusion: The modified exponential model can assist health care providers and stakeholders in deciding on a treatment strategy and plan of action to start a woman's reproductive life by indicating expected FBI and skewness. This model can enhance fertility trends in certain socio-demographic, cultural, educational, and geographical female population groups in India.

Keywords: First Birth Interval, Age at Marriage, Positive skewed distribution, Level of Skewness, Exponential model, NFHS-4

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Introduction

The interval between marriage and the first live birth, commonly referred to as the First Birth Interval (FBI)[1], played an important role to study the fertility pattern[2]. A family's spacing and pattern of childbearing are subsequently influenced by the length of FBI.[3] The duration of the first birth interval affects women's reproductive behavior in addition to the length of subsequent birth intervals.[4]

Adolescent pregnancy raises the probability of negative consequences, underscoring the need for better healthcare interventions and effective prevention in low- and middle-income nations.[5] Research from urban Sahelian cities underscored elevated risks of low birth weight, infant mortality, and adverse health indicators, contributing to poor child health outcomes.[6] An earlier Indian study proposed a probability distribution model for FBI that incorporated fetal wastage, non-conception risk periods (e.g., physical separation), and individual variability in fecundity.[7]

An Ethiopian study used the Weibull-gamma shared frailty model under the Bayesian approach and estimated that the median survival time for the first birth after marriage is 24 years. The study found that the following factors consistently predict an early or delayed first birth: residence, media access, the mother's and husband's educational attainment, the use of contraceptives by the head of the household, and the sex of the household.[8]

According to the Ethiopian Demographic and Health Survey Data, applied Cox proportional hazard model and Kaplan Meier technique and found that early marriage age, lower level of education, older marriage cohort, and place of residency all significantly increased the first birth interval.[9] A study conducted in India used the Life table and hazards model analysis technique on two states: Assam and Uttar Pradesh, and found that age at marriage, mother's current age, female's occupation, family income, and place of residence all have a significant impact on the variation of the length of the first birth interval.[10] A cross-sectional study conducted in Tehran estimates mean FBI was 3.181±0.101 years using Kaplan Meier technique and cox regression model depicts that women's educational level and social insecurity had significant effects on the first birth interval.[11] Study conducted in Nigeria applied Generalized Gamma (GG) regression to model factors affecting FBI and indicated that age at marriage, place of residency, level of education and wealth index these were the main determinants of first birth after marriage in Nigeria with 1.75 years median FBI.[12] Study conducted in Uganda applied life tables, log-rank and the Cox Proportional Hazards model on Uganda Demographic and Health survey data and found median time to first birth after first marriage was 2 years (range, 1-36) with key predictors loss of a pregnancy either spontaneously or induced and knowledge of ovulation cycle and late sexual debut.[13]

Various survival techniques, such as Kaplan-Meier estimator, log-rank test, and Cox proportional hazards model, have been used to examine FBI. However, further research is needed to determine the extent of skewness in the determinants. So, in this study, an attempt is made to define a highly positive skewed distribution using skewed characteristics such as the median and mode of FBI.

Methodology

For present study data from National Family Health Survey-4 (NFHS- 4, 2015-16) of Indian married women with only one child and in reproductive period (15-49 years' age) has been considered.[14] This study only includes women who have had one child; the FBI patterns observed might not be indicative of women who have had several kids, as their socio-demographic variables and reproductive patterns may differ systematically. The data of NFHS-4, has been analysed as the time of NFHS-4 survey was a transitional period of socio-economic & cultural change in India. Furthermore, theory of demographic transition does not change as per time, though the stage of development shifts from lower to higher stages.[15] So, the study findings provide using NFHS-4 survey will be valid for future aspect also.

Log-rank test was used to study the significance of survival curves in different categories of maternal covariates. Microsoft Office Excel 2019® and IBM SPSS 27® version software was used to analyse data graphically.

To study First Birth Interval (FBI) by its covariates, Modified Exponential model was used:

Cumulative Percentage of women with first birth (Expected duration of FBI) $= A\, e^{a_1\eta + a_2\eta^2 + a_3\eta^3}$ ------(I)

Where, $A = e^{a_0}$ (intercept) and a_i, (i varies from 1 to 3) is the coefficient of FBI score (η) with parameters Mode and Median of First Birth Interval (FBI) in corresponding categories of its determinants:

$$\text{FBI Score } (\eta) = \frac{(\text{FBI} - \text{Mode})}{(\text{Median} - \text{Mode})}$$

In case of positively skewed distribution, whereas, for negatively skewed distribution η is expected

$$\text{FBI Score } (\eta) = \frac{(\text{FBI} - \text{Mode})}{(\text{Mode} - \text{Median})}$$

Function in numerator of η, (x-Mode) will have the highest frequency, as it is at Mode. Furthermore, term in function $(a_1\eta + a_2\eta^2 + a_3\eta^3)$, $\sum_1^n a_1\eta$ and $a_3\eta^3$ will be zero, when Median, Mode and Mean are equal, and the function $\sum_1^n a_2\eta^2$ will follow the normal distribution.

If (Mode- Median) =0, then η is indeterminant and distribution is normal distribution. As (Median-Mode) increases with increasing skewness, and η decreases making distribution under study more de-

terminant, studying distribution with smaller group intervals. In case of negatively skewed distribution, at place of (Mode-Median) is replaced by (Median-Mode) and for study concept remains the same.

RESULTS

The analysis of the National Family Health Survey (NFHS) -4, India data using this exponential model revealed that in India, 64% women had delivered first child by 32 months after marriage. Median and Mode of First Birth Interval (FBI) was 28 and 10 months respectively. Overall, 81.7% variation in FBI was explained (p<0.001) by modified exponential model.

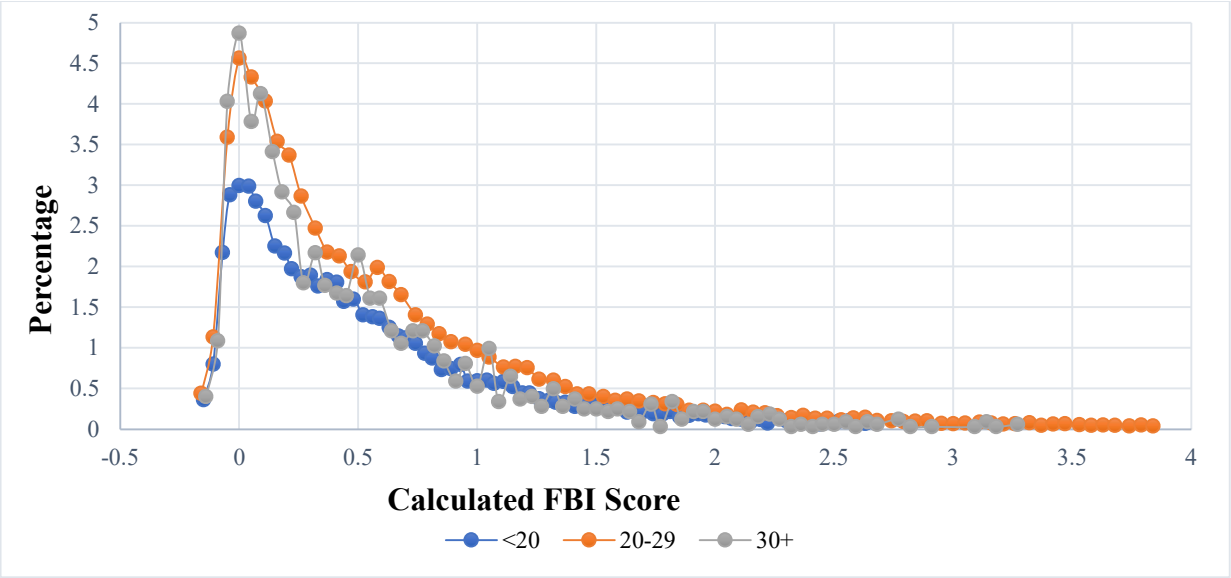
Table 1 and Graph. a, b, c, d, e, f, g, h, i, j, reveal that First Birth Interval (FBI) varied significantly (p <0.001) by categories of its covariates visibly; Age at Marriage, Religion, type of place of residence, level of education, occupational status, wealth index, BMI, status of thyroid disorder, use of contraception method and history of termination of pregnancy. Table 1a & graph 1a reveal that median First Birth Interval (FBI) was larger than mode of First Birth Interval (FBI), showing a highly positive skewed distribution in each category of age at marriage, and median FBI was largest 30 months in <20-year marriage group and decreased as age at marriage increased. In other socio-cultural categories, distribution of FBI was highly positively skewed. Furthermore, graphs indicated smoothed positively skewed distribution in all determinants of FBI, making it easier to develop methods to study skewed distributions using Mode and Median as parameters.

In marriage group 30+ year, the (Mode-Median) was least 16.7 months and increased consistently to 17.2 and 19.4 months with respect to median FBI 27.2 & 30.4 months for respective marriage age group 20-29 and <20 year. Similar pattern has been observed in all the socio-economic and cultural groups.

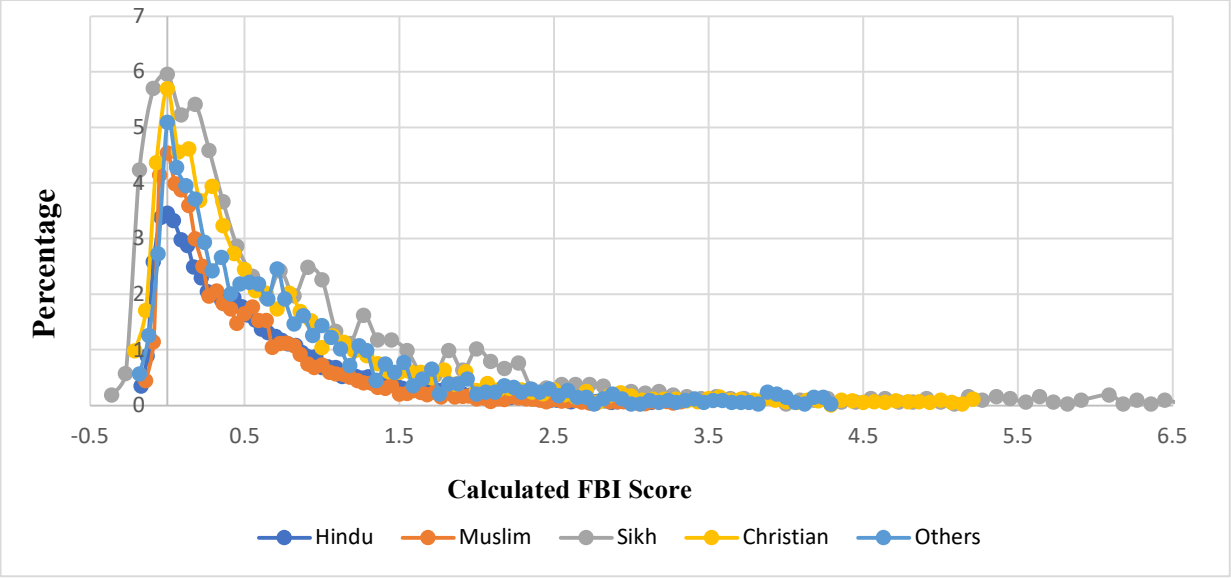
Table 1: First Birth Interval (FBI) by its covariates in India (2015-16)

Covariates	n	Mode	Percentiles of FBI in months						
			10	20	30	40	50	60	70
Age at marriage, log-rank test = 264.61, p<0.001									
<20	37295	11	14.0	19.1	22.6	26.1	30.4	35.0	-
20-29	1923	10	12.0	16.8	20.3	23.9	27.2	31.1	80.2
30+	39016	10	11.7	16.7	20.1	23.5	26.7	30.1	37.4
Type of place of residence, log-rank test = 431.76, p<0.001									
Urban	26151	10	12.3	17.0	20.3	24.9	29.7	30.3	35.3
Rural	52083	11	13.2	18.0	22.0	25.2	28.8	33.3	80.7
Religion, log-rank test = 453.89, p<0.001									
Hindu	59690	11	13.3	18.1	25.7	28.9	32.9	41.6	-
Muslim	9144	10	11.5	16.8	24.1	27.6	31.8	40.6	-
Sikh	2243	11	11.8	16.2	21.2	23.8	26.5	28.9	29.2
Christian	4790	10	10.3	14.9	21.9	25.0	28.8	34.1	34.2
Others	2294	10	11.9	16.5	23.3	26.0	29.9	35.2	35.0
Level of education, log-rank test = 264.25, p<0.001									
Illiterate	11982	13	14.8	20.0	24.2	28.8	33.3	43.1	-
Primary	7919	10	13.5	18.7	22.8	26.0	30.3	35.5	-
Secondary & above	58333	10	12.2	17.2	20.4	23.6	26.8	30.8	-
Status of occupation, log-rank test = 11.93, p<0.05									
Working	67309	10	13.0	17.8	21.5	25.0	27.9	32.1	-
Non-Working	10925	10	12.1	16.9	20.7	24.3	27.9	31.6	-
Wealth Index, log-rank test = 1040.51, p<0.001									
Poor	24952	12	13.9	19.1	23.5	27.2	31.5	38.4	-
Middle &	15750	11	12.3	17.5	20.9	24.9	27.6	31.6	-
rich	37532	10	12.0	16.8	20.3	23.5	26.7	29.6	-
Body Mass Index, log-rank test = 576.3, p<0.001									
<18.5	14231	12	12.9	18.0	21.9	25.6	28.8	33.2	-
18.5-24.9	46995	10	13.0	17.8	21.5	24.7	28.2	32.3	-
25+	15703	10	11.9	17.03	20.3	23.9	26.7	30.5	36.2
Status of Thyroid Disorder, log-rank test = 31.19, p<0.001									
Yes	1696	10	12.4	17.4	21.2	23.8	27.0	30.8	36.2
No & Don't Know	76538	10	12.5	17.8	21.3	25.0	28.4	32.1	41.3
Use of Contraception Method, log-rank test = 9437.6, p<0.001									
No	37557	10	13.8	19.6	23.4	27.9	33.0		-
Yes	40677	10	11.7	16.3	19.2	22.2	24.6	27.5	30
History of termination of pregnancy, log-rank test = 57.83, p<0.001									
Yes	12220	10	14.5	19.3	26.5	29.8	34.0	43.5	44.2
No	66014	10	12.4	17.3	25.0	28.0	31.8	40.6	41.4

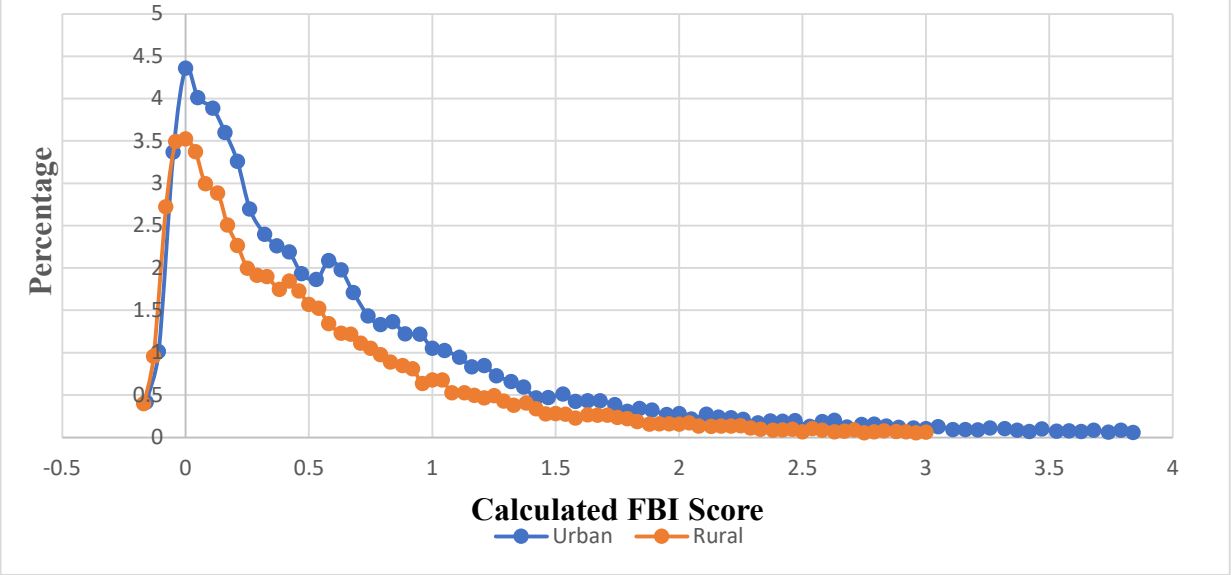
(FBI; First Birth Interval, BMI; Body Mass Index)



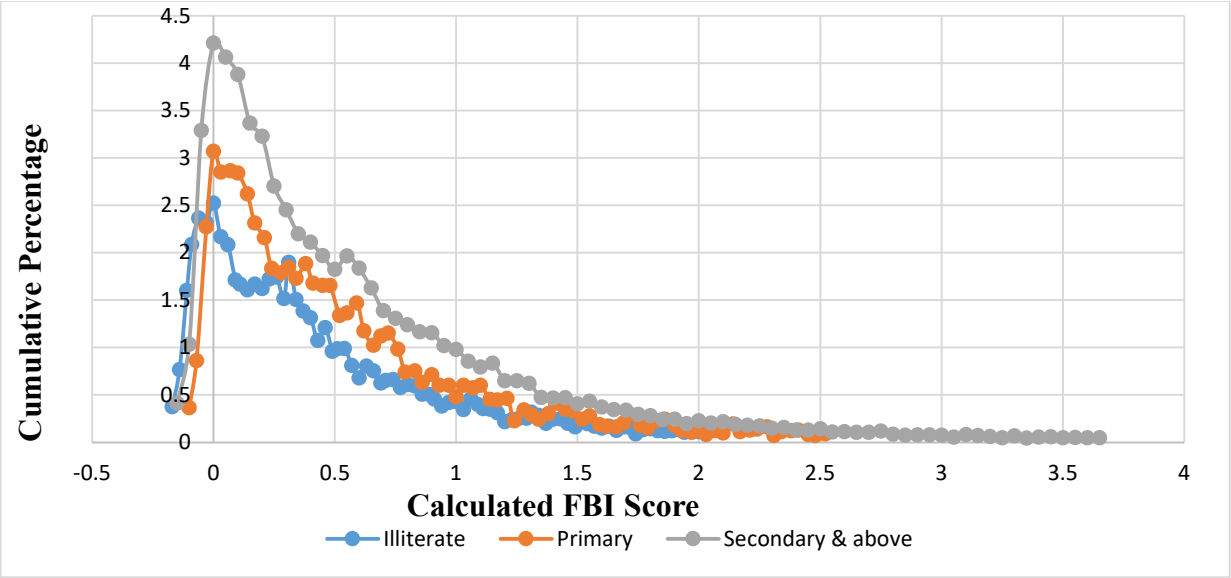
Graph a: Distribution of First Birth Interval (FBI) by Age at marriage



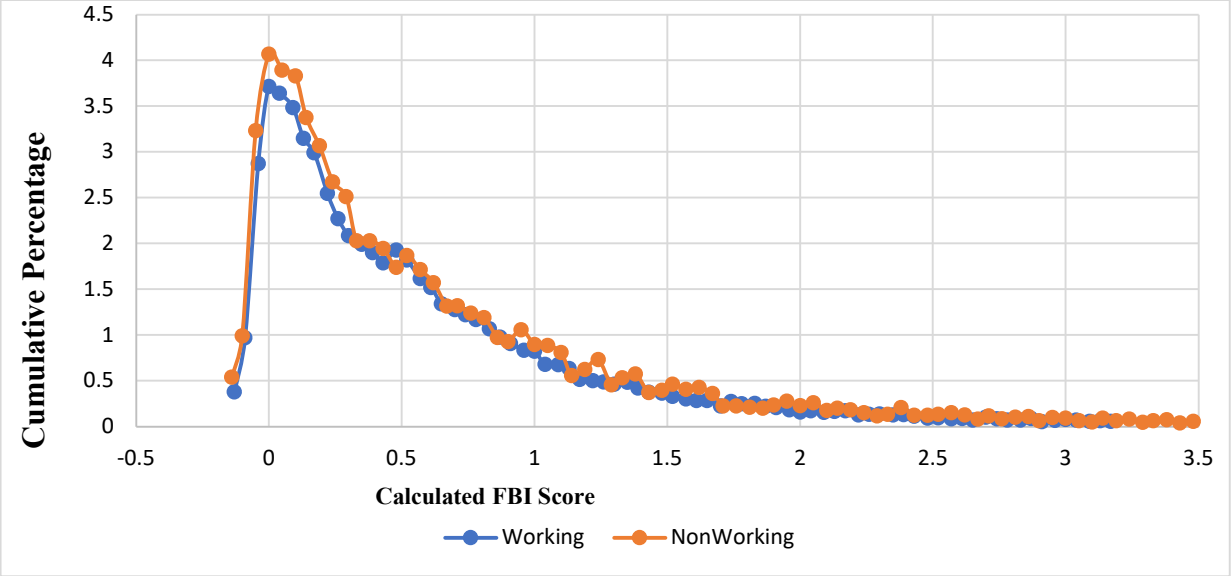
Graph b: Distribution of First Birth Interval (FBI) by Religion



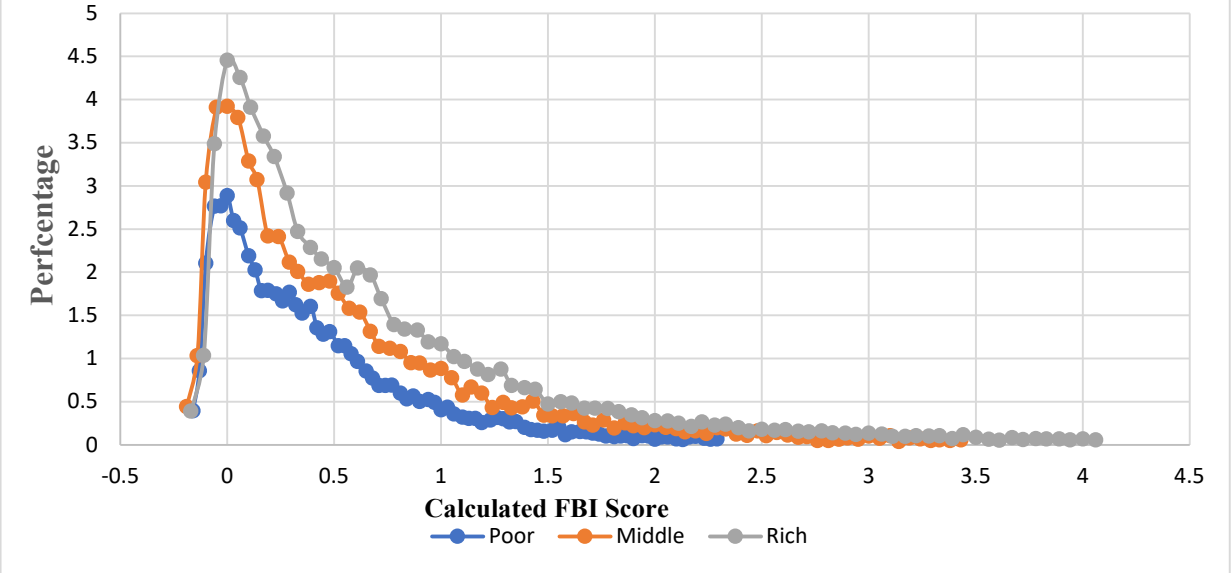
Graph c: Distribution of First Birth Interval (FBI) by Place of residency



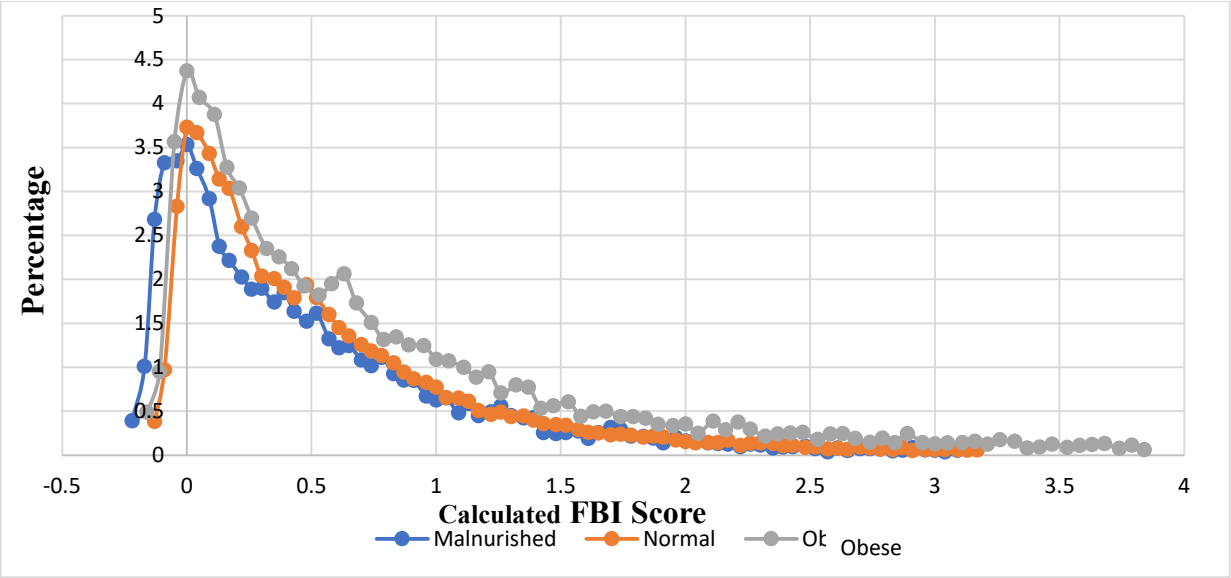
Graph d: Distribution of First Birth Interval (FBI) by Level of education



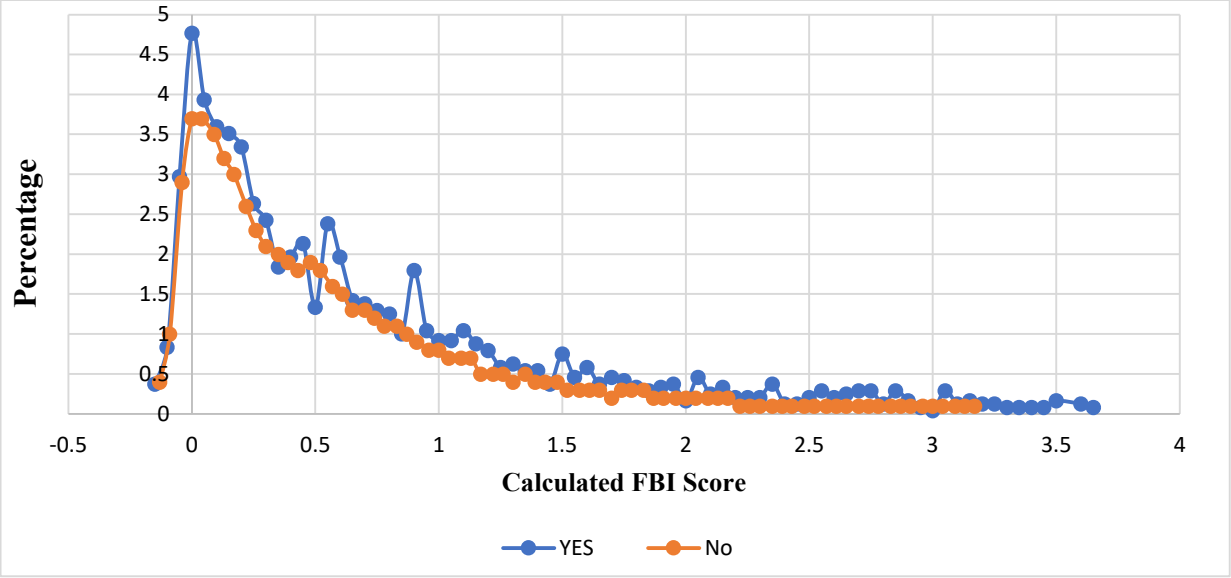
Graph e: Distribution of First Birth Interval (FBI) by Occupation Status



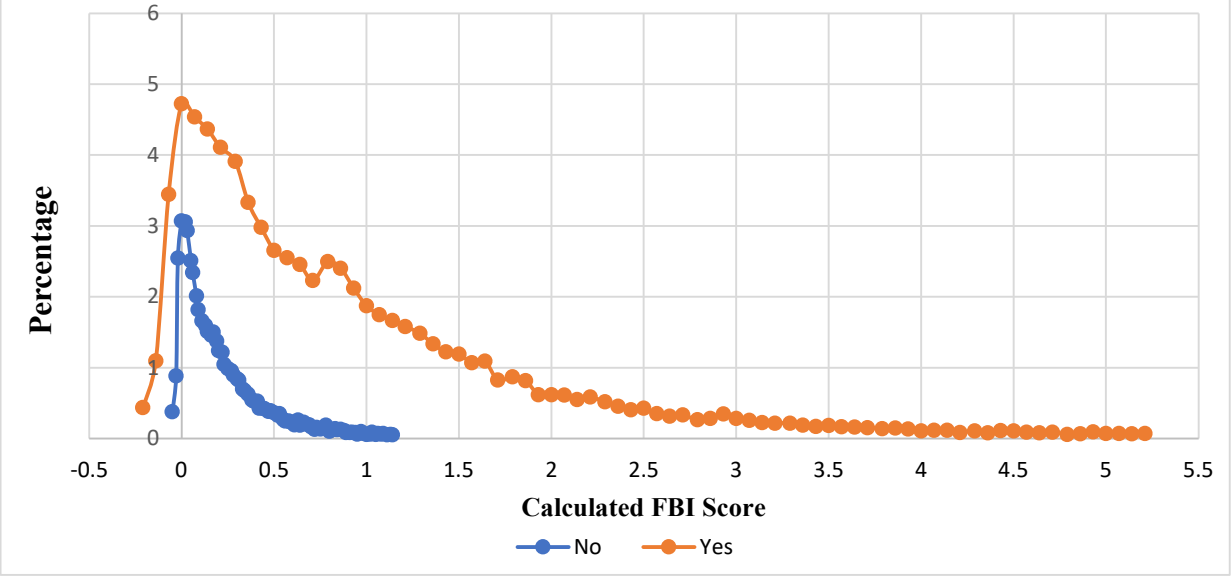
Graph f: Distribution First Birth Interval (FBI) by Wealth Index



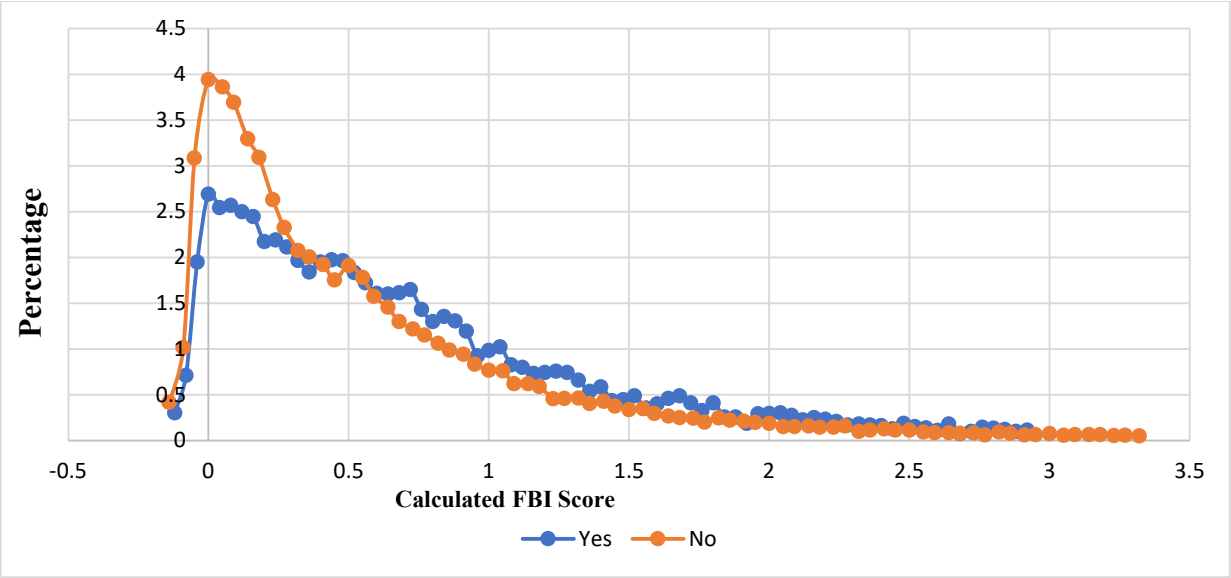
Graph g: Distribution of First Birth Interval (FBI) by Body Mass Index



Graph h: Distribution of First Birth Interval (FBI) by Status of thyroid disorder



Graph i: Distribution of First Birth Interval (FBI) by use of any contraception method



Graph j: First Birth Interval (FBI) by history of termination of pregnancy

Table 2: Estimation of First Birth Interval (FBI) by its covariates

Covariates	R Square	Unstandardized Coefficients (B)		SE	F - Statistics	Sig.
Overall						
	81.7	b_1	4.4	0.34	110.2	p<0.001
		b_2	-2.51	0.26		
		b_3	0.44	0.06		
		b_0	1.79	0.12		
Age at marriage						
<20	85	b_1	5.12	0.35	140.32	p<0.001
		b_2	-3.46	0.33		
		b_3	0.71	0.09		
		b_0	1.77	0.1		
20-29	79.2	b_1	3.55	0.28	94.1	p<0.001
		b_2	-1.69	0.18		
		b_3	0.25	0.03		
		b_0	1.94	0.12		
30+	77.3	b_1	4.11	0.36	76.17	p<0.001
		b_2	-2.32	0.27		
		b_3	0.39	0.06		
		b_0	1.92	0.13		
Type of place of residence						
Urban	80.6	b_1	3.64	0.28	102.49	p<0.001
		b_2	-1.72	0.18		
		b_3	0.25	0.03		
		b_0	1.87	0.12		
Rural	82.6	b_1	4.38	0.32	117.42	p<0.001
		b_2	-2.67	0.27		
		b_3	0.49	0.06		
		b_0	1.92	0.1		
Religion						
Hindu	82.5	b_1	4.31	0.32	116.08	p<0.001
		b_2	-2.51	0.26		
		b_3	0.44	0.06		
		b_0	1.88	0.11		
Muslim	78.1	b_1	3.96	0.33	87.85	p<0.001
		b_2	-2.19	0.24		
		b_3	0.37	0.05		
		b_0	1.96	0.12		
Sikh	71.8	b_1	2.26	0.21	61.81	p<0.001
		b_2	-0.66	0.08		
		b_3	0.06	0.01		
		b_0	2.07	0.15		
Christian	79.5	b_1	2.28	0.18	95.42	p<0.001

Covariates	R Square	Unstandardized Coefficients (B)		SE	F - Statistics	Sig.
		b_2	-0.8	0.09		
		b_3	0.09	0.01		
		b_0	2.28	0.1		
Others	82.2	b_1	3.15	0.23	113.88	p<0.001
		b_2	-1.33	0.13		
		b_3	0.17	0.02		
		b_0	1.96	0.11		
Level of education						
Illiterate	88.2	b_1	6	0.36	138.57	p<0.001
		b_2	-5.43	0.48		
		b_3	1.51	0.17		
		b_0	1.96	0.08		
Primary	84.9	b_1	5.66	0.4	139.01	p<0.001
		b_2	-3.99	0.39		
		b_3	0.87	0.1		
		b_0	1.61	0.11		
Secondary	79.9	b_1	3.82	0.3	98.34	p<0.001
		b_2	-1.91	0.2		
		b_3	0.29	0.04		
		b_0	1.86	0.12		
Occupational status						
Working	81.7	b_1	4.44	0.34	109.89	p<0.001
		b_2	-2.53	0.26		
		b_3	0.44	0.06		
		b_0	1.76	0.12		
Nonworking	81.7	b_1	3.86	0.29	110.41	p<0.001
		b_2	-2.01	0.21		
		b_3	0.32	0.04		
		b_0	1.9	0.11		
Wealth Index						
Poor	85.4	b_1	5.45	0.36	144.54	p<0.001
		b_2	-4.33	0.41		
		b_3	1.05	0.12		
		b_0	1.94	0.09		
Middle	81.1	b_1	3.75	0.28	106.03	p<0.001
		b_2	-2.01	0.21		
		b_3	0.33	0.04		
		b_0	2.03	0.11		
Rich	79.6	b_1	3.46	0.28	96.5	p<0.001
		b_2	-1.56	0.17		
		b_3	0.21	0.03		
		b_0	1.89	0.12		
Body Mass Index (kg/m2)						
<18.5	82.5	b_1	3.99	0.29	116.35	p<0.001
		b_2	-2.39	0.24		
		b_3	0.43	0.05		
		b_0	2.1	0.1		
18.5-24.9	81.6	b_1	4.43	0.34	108.93	p<0.001
		b_2	-2.53	0.26		
		b_3	0.44	0.06		
		b_0	1.76	0.12		
25+	81.6	b_1	3.55	0.27	109.52	p<0.001
		b_2	-1.67	0.18		
		b_3	0.24	0.03		
		b_0	1.9	0.11		
Status of thyroid disorder						
Yes	80.3	b_1	3.9	0.31	99.43	p<0.001
		b_2	-1.94	0.21		
		b_3	0.3	0.04		
		b_0	1.81	0.12		
No & Don't Know	81.7	b_1	4.4	0.34	110.08	p<0.001
		b_2	-2.5	0.26		
		b_3	0.43	0.06		
		b_0	1.78	0.12		
Use of contraception method						
No	82.3	b_1	11.81	0.89	114.38	p<0.001
		b_2	-18.63	1.91		

Covariates	R Square	Unstandardized Coefficients (B)		SE	F - Statistics	Sig.
		b_3	8.98	1.13		
		b_0	1.64	0.11		
Yes	81.3	b_1	2.77	0.21	107.41	p<0.001
		b_2	-0.96	0.1		
		b_3	0.1	0.01		
		b_0	1.95	0.12		
History of termination of pregnancy						
Yes	87.2	b_1	5.22	0.35	167.75	p<0.001
		b_2	-3.11	0.29		
		b_3	0.58	0.07		
		b_0	1.44	0.11		
No	81	b_1	4.17	0.32	104.89	p<0.001
		b_2	-2.29	0.24		
		b_3	0.38	0.05		
		b_0	1.83	0.12		

Table 2 reveals statistical distributions of First Birth Interval (FBI) in categories of its covariates with R^2 varying from 71.8% to 88.2%, at p<0.001. For <20 years' marriage group, 85% variation in FBI was explained by the suggested model. Similar Values for 20-29 and 30+ years marriage group were 79.2% and 77.3% respectively. For urban area, 80.6% variation in FBI was explained by suggested model, whereas, 82.6% variation was explained for rural resident women. Hindu religion group, R^2 was 82.5%. similar values for Christian, Muslim and Sikh were 79.5, 78.1 and 71.8% respectively. For illiterate women, R^2 was 88.2%, whereas, primary and secondary educated women had 84.9% and 79.9% respectively. For poor wealth index group, R^2 was 85.4% whereas, for middle and rich it was 81.1 and 79.6% respectively. Women having BMI <18.5, had 82.5% R^2, whereas, women having BMI greater than 18.5 had R^2 81.6%. Non thyroid disease women had explained 81.7% variation in FBI, whereas, thyroid women had explained 81.7% variation. Contraceptive non-users had explained 82.3% variation ibn FBI, whereas, users explained 81.3%. women having history of termination of pregnancy had explained 87.2% variation in FBI, whereas, non-terminated women had 81% variation in FBI.

Discussion

An in-depth analysis of the First Birth Interval (FBI) among Indian women across socioeconomic and health indicators reveals substantial variation, underscoring the influence of biological, social, and cultural determinants on fertility behavior. This study examined the interval from marriage to first birth using modified exponential model with median and mode as distributional parameters. In the present study Median and Mode of First Birth Interval (FBI) were 28 and 10 months respectively. This type of finding is consistent with previous studies done in Nigeria (21 months)[12], 24.0 months in Uganda[13], Ethiopia 30.0 months[16], 25.2 months for Iranian women[17]. This little variation in median FBI was observed due to socio-cultural and geographical changes.

Overall, 81.7% variation of FBI was explained by proposed modified exponential model. The distribution for FBI has been developed using Mode and Median as its parameters, however, in multi-mode distributions partition of distribution by its modes is needed.

In present study, proposed exponential model provided expected duration of first child birth after marriage for given socio-demographic and cultural covariates by considering Median and Mode of First Birth Interval (FBI) as parameters. Whereas previous studies have provided the risk of having first child for reference group using techniques like Cox proportional hazard model and Kaplan Meier[1,10], mixture of an exponential distribution for accounting physical separation after marriage[7], modified Gompertz cure model[8], Kaplan-Meier (KM) for univariate and Cox model for multivariate survival analysis[11], Cox models & bootstrapping for validation[18], Kaplan-Meier (KM) estimates and Log-Rank test for univariate and Cox model for multivariate survival analysis[12] Parametric Shared Frailty Model[16,19], Inverse Weibull gamma shared frailty model[20]. One study conducted in rural areas of Shiraz (southern Iran) in 2008 throw some light on use of parametric model to study the interval from marriage to first child[17].

In present study, the proposed exponential model reveals that level of skewness of FBI increased with decreasing age at marriage, similar pattern of decreasing FBI has also been observed with increasing age at marriage[2,21,22]. Delaying marriage typically results in women having children soon after to make up for their delayed motherhood. In urban area, level of skewness was more as compared to rural area. In previous studies also found significant risk of having first child by type of place of residence.[23] This variation is occurred may be due to awareness regarding the delayed motherhood or due to health facility viability was more in urban area as compared to rural area. The variation in findings of present study and those conducted in countries like Iran, Bangladesh etc. can better be explained by variation in socio-demographic and cultural values of the specific countries or the methods used in data collection and anal-

ysis. In Sikhs, the level of skewness was large as compared to other religion. Showing that religion is one of the affecting factors to vary level of skewness in interval from marriage to first child birth. Similar type of findings was consistent with previous findings.[18,21] In India more cultural variation and cultural beliefs has seen, due to these religious beliefs the variation in level of skewness has found. In present study, level of education is inversely proportional to level of skewness of FBI. Similar findings were observed in previous studies.[18] Having more education stabilizes the women's economic condition, so to get stabilization in her own life, women's preferred higher education level, to compensate this time period, secondary educated women prefer having first child earlier in married life. Non-working women found less variation in level of skewness as compared to working women, similar findings were consistent with previous studies.[2,18] Working women had delayed motherhood as compared to nonworking women due to improved socio-economic and cultural determinants, resulting in decreased level of skewness of FBI. Furthermore, wealth index had also made contributions to the decreased level of skewness. In present study, level of skewness of FBI was decreased by increasing level of wealth index, similar findings were consistent with previous studies.[21] In present study, obeys women had large level of skewness as compared to non-obeys, similar findings were consistent with previous study[2]. This is due to oobesity is associated with polycystic ovary syndrome, which creates irregularities in menstrual cycles and infertility[24]. In present study, thyroid women have large skewness as compared to non-thyroid women. This type of findings was supported by previous studies.[25,26] As thyroid hormones are having effect on either pre-conception or on many maternal complications level of skewness of FBI was large in thyroid women as compared to no thyroid women. Women having history of use of contraception method had large level of skewness as compared to non-users, similar findings were found in previous studies.[27] Women having history of termination of pregnancy had large level of skewness as compared to non-terminated pregnancy, similar findings were found in previous studies[13,21]. To avoid the adverse outcome of earlier birth, physicians' advice to keep some time gap between loss of pregnancy and conception. Thyroid dysfunction, obesity (by PCOS), and history of pregnancy termination play an important role to reduce the "Fecundability", which affects the FBI pattern. Also, post-marital separation which is very common in Indian rural culture, reduces the coital frequency in earlier marriage life. This affects the pattern of FBI.[28]

Study provides expected average duration of having first child along with 95% CI, so that healthcare providers can set useful limits for needed healthcare for mother and father along with using Assisted Reproductive Technologies (ART) if necessary. Furthermore, National Health Policy may include comprehensive reproductive healthcare to reduce maternal health complications, economic and socio-psychological burden.

Limitations

Proposed exponential model provides the level of skewness of First Birth Interval (FBI) in each of its determinants, using Median and Mode as distribution parameter. Though, the proposed exponential model considers unimodal distribution, the further study needed to check the model for bimodal distribution. The positively skewed distribution of FBI has been constructed using NFHS-4 survey data, which was collected during 2015-16. However, the transition of FBI distribution as affected by its socio-demographic and cultural parameters does not change by time[15]. FBI distributions may have changed after data collection due to major socioeconomic developments since 2016, such as greater urbanization, digital access to reproductive health information, and changing marriage patterns among younger cohorts. To accounting those factors, there is a need to check the modified exponential model with updated survey data. Also, as NFHS-4 uses self-reported data, memory bias is an inevitable constraint, especially when it comes to the exact month of marriage and first birth. Measurement error may be introduced into the FBI assessment since older respondents and those with less education may have less accurate retrospective recollections of these occurrences. The "No & Don't Know" category for Thyroid Disorder has a massive sample size compared to the "Yes" category. This imbalance and the inclusion of "Don't Know" responses create significant uncertainty. Present study evaluates skewness in distribution, which overshadows the significance in this predictor category. In present study, due to lack of information on factors like; coital frequency or post marital separation, which plays an important role in women's earlier married life were not considered.

Conclusion

The proposed exponential model with Mode and Median as distributional parameter can be used to study the level of skewness in skewed distribution. Also, by using Median and Mode as distributional parameter, First Birth Interval (FBI) is showing highly positive skewed distribution in its each category of determinants namely; age at marriage, Type of place of residence, Type of religion, Level of education, Occupational status, level of wealth index, Body Mass index, status of thyroid disorder, history of termination of pregnancy and use of any contraception method.

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Availability of Data: The data supporting the findings of this study are available online (NFHS-4).

Declaration of Non-use of Generative AI Tools: This article was prepared without the use of generative AI tools for content creation, analysis, or data generation. All findings and interpretations are based solely on the authors' independent work and expertise.

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