



Reproductive behavior among the Tani tribes of Arunachal Pradesh, India

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KEYWORDS

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ABSTRACT

Controlling Fertility is important to check the growth of the population. It is, therefore, necessary to understand the reproductive behavior and factors associated with it to control fertility. The present study aims to understand the reproductive behavior among four major tribes of Arunachal Pradesh – Nyishi, Adi, Galo, and Apatani collectively known as Tani Tribes. Reproductive profiles of 1560 ever-married women were interviewed using pretested schedule from different parts of Arunachal Pradesh. The study validates some of the social and biological determinants of fertility among Nyishi, Adi, Galo, and Apatani. The study also reveals the practice of polygamy in all the study populations.

Introduction

Fertility along with mortality and migration determine the composition and structure of a population. However, of these three determinants, fertility is always playing an important role because it is through reproduction that the human being continues to exist. The reproductive potential of humans is seldom utilized to its fullest. Doing so will be a challenge for humans to live a healthy society considering the limited natural resource we have. Therefore, every effort is made to check the population growth in every developing and developed country. Moreover, fertility is not free from various social and biological determinants. These determinants are population or regionally specific. These make the importance of understanding the reproductive behavior of a population in order to check its population growth.

A plethora of studies have already reported across the globe on the behavior and factors associated with fertility (Bangham and Sacherer 1980; Kameih and Kshatriya 2016). However, few studies are reported from Northeast India (Mukhopadhyay, 2001; Singh, 2006; Asghar et al., 2014, 2020) and no such reports are available from some of the present study populations. So, this study aims to understand the reproductive behavior and associated factors among the Tani tribes of Arunachal Pradesh. Tani group of tribes consist of Nyishi, Adi, Apatani, and Galo. They share a common myth of origin and have mongoloid features. They are normally monogamous, but polygamy is also practiced by affluent people. Each of them has its own dialect, culture and matting pattern.

The Nyishi is a major tribe of Arunachal Pradesh. They are inhabiting the districts of Kurung Kumey, Lower Subansiri, Kra Dadi, Papum Pare, East Kameng, and West Kameng. According to the 2011 census of India, their population is around 300,000. They are the largest population in

Arunachal Pradesh in terms of number. Adi is the second largest population in Arunachal Pradesh with around 200,000 individuals. They are found in a majority in East Siang, Upper Siang district, in some part of West Siang, and Lower Dibang Valley district of Arunachal Pradesh. The Adi was earlier known as 'Abor'. After India's independence, the term 'Abor' was replaced by the term 'Adi', meaning 'hillman' in compliance with the popular desire. The Adi are divided into different sub-tribes, such as Ashing, Bokar, Bori, Karko, Millang, Minyong, Padam, Pailibo, Pangi, Pasi and Shimong. The Galo are primarily inhabiting the West Siang, East Siang and Upper Subansiri districts of Arunachal Pradesh. Their population is about 80,000. The Apatani is one of the well-known tribes among the major tribes of Arunachal Pradesh. Their population is about 60,000. They live in Ziro valley in the Lower Subansiri district of Arunachal Pradesh. The valley is surrounded by hill ranges in all directions.

Methodology

Sample size: The present study is based on quantitative data. Pretested schedule was used to collect information on various aspects of married women. A total of 1560 ever-married women were interviewed using this pretested schedule on various issues of reproductive health. Of these, 524 were Nyishi, 422 were Adi, 359 were Galo and 255 were Apatani. Clustered random sampling was applied to obtain the samples. Care was taken to cover both the rural and urban areas also to cover almost all the districts where these populations are inhabited.

Field Area: These four populations are scattered in different parts of the Arunachal Pradesh. So, data are collected from various parts of the state to represent the population. Clustered random sampling method was applied to select the villages/ town. Both urban and rural populations were considered. For Nyishi population, data were collected from villages in and around Seppa circle, Chayang Tajo circle, Jote Tajo, Sagalee circle, Pakke Kesang circle, Kamle and Rach-Tabio. Adi samples were selected from villages like Mirsum, Mirku, Sigre, Pasighat, Mirmir, Balek, Paglak, Jarku, Mirbuk, Siyum, Dikting and Rassam. Galo samples were collected from villages in and around Aalo circle, Panya, Darka, and Kabu. And for Apatani, Tajang village, Hong village, Hari village, Hija village, Bulla village, Bamin-Michi village, Mudang Tage village, Hapoli, Old Ziro and Dutta village were considered for data collection.

Data Analysis: The data collected were entered in Excel Sheet for further analysis and interpretation. Mean conception was calculated as the number of conceptions per married woman. Similarly, mean live birth were calculated as the number of live births per mother. Mean miscarriage, mean abortion, and mean stillbirth were calculated in the same manner. For a detailed understanding, women were categorized on the standard cohort and analyzed.

Findings

The finding of the research is discussed in the following tables. Each table is analyzed and discussed in comparison with the other reported studies.

Table 1: Basic information about the subjects

Parameters	Nyishi	Adi	Galo	Apatani	Pooled
Sample Size	524	422	359	255	1560
Average age of the respondents (year)	31.99	37.82	35.45	33.72	34.65
Illiterate %	44.46%	18.01%	26.18%	31.37%	30.96%
Literate %	55.54%	81.99%	73.82%	68.63%	69.04%

House Wife	36.83%	50.71%	49.02%	36.86%	43.39%
Working Woman	63.17%	49.29%	50.98%	63.14%	56.61%
Average age at menarche (year)	12.97	13.40	13.01	12.92	13.09
Average age at Marriage (year)	16.47	20.94	18.80	18.77	18.59
Average age at first conception (year)	17.60	21.16	19.85	19.58	19.49
Polygamous Marriage	125 (23.85%)	77 (18.25%)	28 (7.80%)	9 (3.53%)	239 (15.32%)

The average age of the respondent is 34.65 years, the highest is among the Adi and the lowest is among the Nyishi. The literacy rate of respondents is found to be highest among the Adi (81.99%) and the least is found among the Nyishi (55.54%). The pooled literacy rate is 69.04%. Of all the respondents, 43.39% are found to be housewives while 56.61% are found to be engaging in some form of earning. The highest number of housewives is found among the Adi with 50.71% followed by Galo (49.03%) and the least is found among Nyishi and Apatani having almost equal percentage, 36.83% and 36.86%, respectively.

The average age at menarche is found to be 13.09 years, the highest is among Adi and the least is among Apatani and Nyishi having almost similar age, 12.92 and 12.97 years, respectively. The average age at marriage (18.59 years) and the average age at first conception (19.49 years) are found to be differed by only about one year. Nyishi shows the lowest age at marriage (16.47 years) and Adi, the highest (20.94 years). Polygamy is found in all the studied populations. The frequency of polygamy is found to be highest among the Nyishi with 23.85% and the least is found among the Apatani with 3.53%. The pooled frequency of polygamy is 15.32%.

Table 2: Fertility profiles of the studied populations

Parameters	Nyishi	Adi	Galo	Apatani
No. of woman	524	422	359	255
Total No. of Conception	1859	1143	1021	766
Mean no. of Conception	3.55	2.71	2.84	3.00
Total no. of Live births	1741	1031	952	741
Mean no. of Live births	3.32	2.44	2.65	2.90
No. of married woman yet to concept or in pregnant during the time of data collection (%)	45 (8.59%)	50 (11.84%)	21 (5.85%)	9(3.53%)
Miscarriage	35 (6.68%)	54 (12.79%)	33 (9.19%)	14 (5.49%)
Mean No. of Miscarriage	0.07	0.13	0.09	0.05
Abortion	26 (4.96%)	13 (3.08%)	10 (2.78%)	2 (0.08%)
Mean No. of Abortion	0.05	0.03	0.03	0.01
Still Births	33 (6.30%)	17 (4.02%)	13 (3.62%)	5 (1.96%)
Mean No. of Still Births	0.07	0.04	0.04	0.02

Table 2 shows various parameters of the reproductive profile of the study populations. Nyishi has the highest mean number of conception (3.55), followed by Apatani (3). The least is found among Adi (2.71). In a similar trend, Nyishi has the highest mean live birth and followed by Apatani. The least is found among the Adi. This indicates that the fertility is high among the Nyishi and the least is among the Adi. The number of married women without conception is found to be high among the Adi (11.84%) and the least is among the Apatani (3.53%). This can be considered as a hint for

infertility being found highest among the Adi and Lowest among the Apatani. However, it will be wrong to conclude as many of these women might be newly married and yet to get conceived.

Table 2 also shows the prenatal mortality status of the study populations. It is observed that all three forms of prenatal mortality are present in all the populations. Miscarriage is reported to be in the highest frequency in all four populations compared to other forms of prenatal mortality. The frequency of miscarriage is found to be highest among Adi (12.79%) followed by Galo (9.19%). The least number of miscarriages is found among Apatani (5.49%). However, abortion is found highest among Nyishi (4.96%) followed by Adi (3.08%) and least among Apatani (0.08%). The case of stillbirth is also found highest among the Nyishi (6.30%) followed by Adi (4.02%) and Galo (3.62%) and the least among the Apatani (1.96%). The reason for most of the abortion in all the four populations is 'not ready for the next child'. They want more gap between the two adjacent children. Some medical-related cases are also found. Due to medical complicacy, they get aborted.

Table 3a: Fertility and its associated factors among Nyishi and Adi

Parameters	Nyishi			Adi		
	%	Mean no. of conception	Mean no. of live birth	%	Mean no. of conception	Mean no. of live birth
<i>Age at menarche (year)</i>						
10	0.57	2.67	2.33	1.18	1.2	1.2
11	4.39	2.65	2.61	7.58	2.59	2.22
12	27.67	3.5	3.36	18.48	2.31	2.09
13	43.13	3.82	3.56	25.83	2.66	2.39
14	16.22	3.54	3.29	23.93	2.72	2.52
15	6.11	3.28	2.97	17.06	3.39	2.97
16 and above	1.91	1.09	0.73	5.92	2.6	2.52
<i>Age at marriage (year)</i>						
below 15	30.53	5.06	4.84	5.21	5.04	4.86
15 to 19	49.62	3.16	2.93	35.55	3.48	3.13
20 to 24	15.65	2.4	2.16	34.36	2.29	2.1
25 to 29	3.82	1.45	1.4	20.14	1.77	1.61
30 above	0.38	0.5	0.5	4.74	1.35	1
<i>Age at first Conception (year)</i>						
below 15	20.25	5.58	5.33	3.76	5	4.93
15 to 19	53.03	3.92	3.66	34.68	3.79	3.43
20 to 24	20.88	2.76	2.5	33.06	2.98	2.69
25 to 29	4.8	1.74	1.61	21.77	2.05	1.83
30 above	1.04	1.4	1.4	6.72	2.04	1.72
<i>Educational Status</i>						
Illiterate	44.47	5.24	4.99	18.01	4.18	3.84
Literate	55.53	2.2	1.99	81.99	2.38	2.14
<i>Occupation</i>						

House Wife	36.83	2.68	2.42	50.71	2.701	2.48
Working	63.17	4.05	3.85	49.29	2.72	2.4
Total	100	3.88	3.63	100	3.07	2.78

Table 3b: Fertility and its associated factors among Galo and Apatani

Parameters	Galo			Apatani		
	%	Mean no. of conception	Mean no. of live birth	%	Mean no. of conception	Mean no. of live birth
<i>Age at menarche (year)</i>						
10	3.34	2.58	2.33	0.39	1	0
11	6.96	2.48	2.44	6.27	2.94	2.94
12	25.63	2.38	2.23	36.08	3.11	2.99
13	27.86	3	2.73	33.73	3.06	3.03
14	23.4	2.99	2.87	12.94	2.79	2.61
15	11.7	3.59	3.24	5.88	2.67	2.53
16 and above	1.11	2.25	2	4.71	3.08	2.83
<i>Age at marriage (year)</i>						
below 15	12.53	4.13	3.98	18.82	5.06	4.89
15 to 19	50.42	3.02	2.86	42.35	3.11	3.02
20 to 24	25.91	2.32	2.06	26.27	1.85	1.83
25 to 29	10.03	1.72	1.5	9.02	2.22	1.96
30 above	1.11	2.5	2.25	3.53	1.33	1.33
<i>Age at first Conception (year)</i>						
below 15	8.88	4.7	4.57	15.04	5.3	5.13
15 to 19	42.9	3.3	3.11	41.46	3.49	3.42
20 to 24	32.84	2.68	2.46	25.61	2.17	2.09
25 to 29	13.31	2.04	1.78	13.82	1.88	1.68
30 above	2.07	1.71	1.57	4.07	1.3	1.3
<i>Educational Status</i>						
Illiterate	26.18	4.3	3.97	31.37	4.45	4.34
Literate	73.82	2.33	2.18	68.63	2.34	2.25
<i>Occupation</i>						
House Wife	49.03	2.75	2.52	36.86	2	1.91
Working	50.97	2.93	2.78	63.14	3.59	3.48
Total	100	3.02	2.82	100	3	2.9

Tables 3a and 3b show the relationship between fertility and various associated factors. Among Nyishi, the average age at menarche is 12.97 years and both mean conception and live birth is found highest among the women with age at menarche of 12 and 13 years. If we analyze the trend of mean fertility and mean conception according to the age at menarche, it is observed that both mean increase with the increase of age at menarche up to 13 years and then it gradually decreases with the

age. Therefore, the maximum fertility is observed among the women with age at menarche 12 and 13 years. In the case of Adi, the average age at menarche is 13.40 years, and mean conception and live birth increase with the increase of age at menarche with the highest being found among women with age at menarche of 15 years. The average age at menarche among Galo is 13.01 years and the mean live birth and conception increase more or less with the increase in age at menarche up to 15 years. The average age at menarche among Apatani is 12.92 years. The highest mean conception is found among the mother with menarche age of 12 years and decrease with the increase in menarche age.

Age of marriage is one of the important factors affecting fertility. The average age of marriage among Nyishi is 16.47 years, which is the lowest among all the study populations. The study shows a direct association between fertility and age at marriage. Both mean conception and live birth is found highest among those women who married before 15 years of age and it decreases with an increase in the age of marriage. Adi has the highest age at marriage (20.94 years) among all the study populations. Like in Nyishi, fertility has a direct association with the marriage age among Adi. Both mean conception and live birth is highest among those who married before 15 years of age and it decreases with an increase in marriage age.

The average age at marriage among the Galo is 18.80 years. In the similar trend with the Nyishi and Adi, among Galo also both mean conception and live births are found highest among the women married before 15 years of age and it decreases with the increase in marriage age except for the women married at 30 and above years of age. The average age of marriage among the Apatani is 18.77 years and mean live birth is found highest among the women who married before 15 years of age and it decreases with the increase in marriage age except for the women who married at 25 to 29 years of age.

Marriage is considered as a social sanction for the couple to start reproduction. Childbirth before marriage is usually not acceptable in many societies. So, age at first conception is an important biological factor for fertility. Women married at an early age have a greater chance of having a larger number of children. In the present study, in all the populations, both the mean live birth and conception are found highest among the women who conception below 15 years of age for the first time and it decreases with the delay in the age at first conception. Hence both these means are found least among the age group 30 years and above.

Education is an important social determinant for the fertility rate. It is usually believed that illiterate women have the tendency to have a large number of children. In the present study, in all the populations, the educational status of women is associated with the fertility rate. Both the mean live birth and conception are found highest among the illiterate women compare to literate women in all the populations. Among Nyishi the mean live birth for illiterate women is 4.99 compared to 1.99 for literate women. Similarly, among Adi, the mean live birth is 3.84 for illiterate compare to 2.14 for literate women. Among Galo also the mean live birth is 3.97 for illiterate compare to 2.18 for literate women. Among Apatani the mean live birth is 4.34 for illiterate compare to 2.25 for literate women. So, education has an inverse relation with fertility in all the populations.

Occupation is also an important social determinant affecting fertility. The number of working women is much higher than the number of housewives among Nyishi (63.17%) and Apatani (63.14%). However, among Adi (49.29%) and Galo (50.97%) the number of housewives and working-class are more or less the same. Coincidentally, among the tribes with a higher proportion of working women, mean live birth and conception are found highest among these groups of women

compare to housewives. So, among working Nyishi and Apatani women, the mean live birth is 3.85 and 3.48, respectively compared to 2.42 and 1.91 among housewives, respectively. However, among Adi and Galo working women, the mean live birth is 2.4 and 2.78, respectively compared to 2.48 and 2.52 among housewives, respectively.

Discussion and Summary

The present study revealed the association of fertility with some of its determinants. It is observed that the age at menarche is more or less in direct proportion with fertility. With early age at menarche gives a longer active reproductive period and hence higher fertility. But in the present study, a reverse trend is observed where fertility decreases with an increase in age at menarche. However, fertility is inversely proportional with marriage age and age at first conception in all the populations under study. A similar finding is reported from the other populations as well from the same state like Miji and Sartang (Asghar, 2020). Generally, the education of the mother affects the fertility rate (Asghar 2014 and 2020; Choudhury and Devi 1997; Singh 2006). The present study agrees with this statement. In all the study populations, fertility is higher among illiterate women compared to literate women. Similarly, in the present study, the fertility rate is found higher among working mothers compared to housewives in Nyishi and Apatani. There is no difference in fertility rate between working mothers and housewives among Adi and Galo. A similar trend is also reported among Miji and Sartang tribes of the same state (Asghar, 2020).

The fertility rate is found highest among the Nyishi (3.32) compared to other study populations. It is higher than the other two populations – Miji (3.26) and Sartang (2.98) – reported from the same state (Asghar 2020). The mean number of miscarriages is found highest among Adi (0.13). But, it is lower in all the study populations compared to Miji (0.21) and Sartang (0.17) (Asghar 2020). The mean number of abortions and stillbirth is more or less similar among all the study populations and also with Miji and Sartang (Asghar 2020). The age of menarche is found highest among Adi (13.40 year) but lower than that of Sartang (13.61) (Asghar 2020). The age at marriage is found lowest among Nyishi (16.47 year) which is even lower than the legal age at marriage in India. A similar case is also reported among Miji and Sartang (Asghar 2020). However, among the other three populations (Adi, Galo, and Apatani) the average age of marriage is just above the legal age of marriage. On average, the difference between the average marriage age and the average age at first conception is one year. It indicates that in the present study, women usually conceive shortly after marriage. Another important finding from this study is the frequency of polygamy. It is found in all the population but the highest is found among Nyishi which is also coincidentally having the highest fertility rate.

The present study could able to validate some of the determinant factors associated with fertility among Nyishi, Adi, Galo, and Apatani. The study also brings out the frequency of polygamy in all the study populations. This is important because polygamy is one of the current discourses among the educated folks of the state. The study also revealed some base data which may be useful for future studies.

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