A Cross-Sectional Study of Antenatal Healthcare: Thiruvarur District, Tamil Nadu, India

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Abstract

Background: Antenatal care is providing pregnancy related health services for mother and child. Antenatal care visits are more important to identify the complications in timely manner. The first visit is important for the complete assessment of gestational age and the risk factors a woman receives.

Objective: To investigate the socio-economic backgrounds of the respondents, to examine the attitude and awareness towards utilization of antenatal healthcare and to analyze the emotion, change in eating habits, allergic to food and mind-set of pregnant women in Thiruvarur district, Tamil Nadu, India.

Methodology: The primary data (questionnaire schedule) was distributed to the pregnant women who have come for antenatal check-ups to 10 government hospitals (781) and 44 primary health centres (1320), totally 2101 samples were collected from this district and they are the respondents of this study. This information was entered in to SPSS software. Further, factor analysis techniques are used for interpretation.

Results: After confirmation of pregnancy women encounter some health problems. Their pregnancy leads to high level of happiness among family members. They start continuously monitoring the growth and development of the child in the womb at regular intervals. The socio-economic conditions are controlling the maternal women's happiness. They are emotionally affected by their husband's family members. Allergic reaction during pregnancy is noticed and they feel dejected if their husband is not accompanying to the hospital.

Key Words: Antenatal Healthcare, Attitude of Healthcare, Factor Analysis, Health Problems

Introduction

Antenatal care is broadly defined as encompassing pregnancy related services provided between conception and the onset of labour with the aim of improving pregnancy outcome and the heath of the mother/child. This care involves monitoring of the health status of the woman, provision of medical and psychosocial interventions and support and health promotion. The regular antenatal check-ups induce the secured child birth and reduce infant mortality. Hence, this present study examine the antenatal healthcare of pregnant women in Thiruvarur district of Tamil Nadu

Overview

Antenatal care is the care given to pregnant women so that they have safe pregnancy and healthy baby (Abosse Z, Woldie M, Ololo S (2010). The provision of antenatal care services brings with it a positive impact on pregnancy as it enables the identification of risk factors and early diagnosis of pregnancy complications like preterm delivery and appropriate management (Perumal N, Cole DC, Ouédraogo HZ, et al (2013). The positive impact can be achieved through screening for pregnancy problems, assessing pregnancy risk, treating problems that may arise during the antenatal period, giving medication that may improve pregnancy outcomes, providing information to the pregnant woman, preparing physically and psychologically for childbirth and parenthood (Kisuule I, Kaye DK, Najjuka F, et al. (2013); WHO Global Health Observatory (2011). Antenatal care visits to identify the complications like preterm delivery and manage these complications in timely manner (Finlayson K, Downe S. (2013). The first visit is important because that is when a woman receives a complete assessment of gestational age and the risk factors (Women's NCC (2008).

Antenatal care along with family planning, skilled delivery care, and emergency obstetric care, is a key element of the package of services aimed at improving maternal and newborn health (Pell C, Menaca A, Were F, et al (2013). A number of studies have identified the lack of antenatal care as a risk factor for maternal morbidity and mortality (Bauserman M, Lokangaka A, Thorsten V, et al (2015); Carroli G, Rooney C, Villar J. (2001); McDonagh M. (1996). Since inadequate antenatal care is associated with worse pregnancy outcomes, it is vital for health policymakers to better understand the factors influencing proper and prompt utilization of antenatal care.

Study Area

Thiruvarur district is chosen as a study area and it occupies an area of 2161 km². It lies between Nagapattinam district on the east and Thanjavur district on the west and it is bounded by the Palk Strait on the south. There are 2 Revenue Divisions, 8 Taluks, 573 Villages, 10 Blocks, 4 Municipalities and 7 Town Panchayats in Thiruvarur District. The district headquarters is Thiruvarur town. According to 2011 census, the district had a population of 1,264,277 with a sex-ratio of 1,017 females for every 1,000 males much above the national average of 929.

Significance of the Present Study

The availability and accessibility to the healthcare centres are influencing factors for the utilization of antenatal healthcare. Further, the people's attitude, perception and magnitude of health problem and socio-economic conditions are also persuading the antenatal healthcare of pregnant women. This district had a delivery complication that ranges from 42.1 to 61.4 percent. Therefore, this present study examining the antenatal healthcare of pregnant women in Thiruvarur district.

Objective

The objectives of the present study are 1) to investigate the socio-economic backgrounds of the respondents, 2) to examine the attitude and awareness towards utilization of antenatal healthcare and 3) to analyze the emotion, grieves, reaction of food and mind-set of pregnant women in Thiruvarur district, Tamil Nadu, India.

Methodology

This present study is based on questionnaire survey by random sampling method. The pregnant women who have come for antenatal check-ups to 10 government hospitals (781) and 44 primary health centres (1320), totally 2101 samples were collected from this district and they are the respondents of this study. The questions are related to their attitude towards antenatal healthcare providers, health problems, happiness, health check-ups, grieves, emotions, reaction of food and psychological conditions after become pregnant.

The information collected through the questionnaire has been transformed into 108 selected variables and entered into SPSS for the application of statistical technique to find out the association. These variables are assumed to be the important factors which influence the antenatal healthcare of pregnant women. Factor analysis was employed for the present data structure and accordingly a matrix of 2101x108 was subjected to dimension reduction process. 47 out of 108 variables were extracted for the interpretation purpose of present study. So the data were reduced to 47x47 inter-correlation matrixes to facilitate for analysis. In addition to the above, the factor loading matrix was used to explain the power of association and the variance of each variable with all other variables.

The application of factor analysis in the present study is very constructive in separating the major dimensions of antenatal healthcare of pregnant women in Thiruvarur district. In the present study, the Kaiser-Meyer-Olkin (KMO), a Measure of Sampling Adequacy (MSA) was used that the appropriateness of carrying out of factor analysis. The maximum value of KMO can be 1.0, a value of 0.9 is (Andy Field 2013) considered as marvellous, meritorious (0.80), middling (0.70), mediocre (0.60), miserable (0.50). Hence, the (KMO) value for the present study is 0.902 (Table 1) which is falls in to the range of marvellous so the sample size is adequate for factor analysis. The Barlett's Test of Sphericity reached statistical significance (0.001), supporting the factorability of the correlation matrix. Principal components analysis revealed the presence of eight components with Eigen values exceeding 1.0. The communality gives the variance accounted for a particular variable by all the factors. It is the sum of square loadings for a variable across all the factors. The higher the value of communality for a particular variable after extraction, higher is its amount of variance explained by the extracted factors.

Table 1 KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.902
Bartlett's Test of Sphericity	Approx. Chi-Square	60687.062
	df	1081
	Sig.	0.001

Results and Discussions

Socio-Economic Backgrounds

Of the 2101, pregnant women respondent ages were < 20 (1.2%), 21-25 (28.4%), 26-30 (63.9%) and >31 (6.5%) in Thiruvarur district. 15.0, 53.7, 31.2 and 0.1 per cent got married at the ages of <20, 21-25, 26-30 and >31 respectively. Their husband is relative (35.0%), not relative (57.0%) and other caste/religion (8.0%). Their marriages has been decided by their parents (74.0%), love marriage with the help of friends (7.0%), love marriage with the co-operation of parents (12.9%) and love marriage by themselves (6.1%). The respondent's educational background was illiterate (1.0%), elementary (3.0%), middle school (17.0%), high school (21.6%), higher secondary/diploma (20.2%), bachelor degree (33.8%) and master degree (3.4%). Their life partner's educational status was illiterate (1.4%), elementary (3.0%), middle school (7.5%), high school (21.3%), higher secondary/diploma (18.7%), bachelor degree (39.8%) and master degree (8.3%). 5.1 and 94.9 per cent of the respondents revealed that they were not living and living with their husband respectively.

The respondent's family income was `< 100,000 (33.9%), 100,001 to 200,000 (33.3%), `200,001 to 300,000 (22.3%), `300,001 to 400,000 (6.3%), `400,001 to 500,000 (2.6%) and `>500,001 (1.6%). Their family sizes were <3 (54.3%), 4-6 (40.9%) and >7 (4.8%). They live as a separate family (61.4%) and joint family (38.6%). Their houses were own (76.1) and rented (23.9%). Their houses were thatched roof with mud-wall (13.2%), thatched roof with red bricks-wall (21.5%), tiled house with mud-wall (17.1%), tiled house with red bricks-wall (21.0%), green house (8.3%) is build by the State Government for poor people, building (17.9%) and multi storied building (1.0%). Religiously, they are Muslim (4.5%), Christian (13.3%), Hindu (82.1%) and others (0.2%). They were belongs to the other (3.1%), backward (25.7%), most backward (22.1%), scheduled (48.5%) and scheduled tribe (0.5%) communities. The respondents are having one (26.1%), two (1.5%), three (0.3%) male child and not having (72.1%) male child; similarly, they have one (22.1%), two (2.4%), three (0.01%) and not having (75.4%) female child.

Factor I: Attitude towards Antenatal Healthcare Providers

The pregnant women's thoughts are influencing the utilization of healthcare and pave the way to attract people by providing healthcare services. Hence, the first factor attitude towards antenatal healthcare providers has been emerged as the single most important factor with an Eigen value of 6.480 and the total variance of 13.788 per cent (Table 2). Eleven out of forty-seven variables are positively loaded on this factor. The variables nurses are giving proper advice in government hospital (0.770),

government hospital doctor's are giving proper advice (0.769), providing quality medicine in government hospital (0.745), nurses are very kind in government hospital (0.722), gynaecologist availability in government hospital (0.721), my work is a problem (0.700), infrastructure facilities in government hospital (0.689), adequate employers in government hospital (0.664), attention of husband and physician (0.635), emergency service in government hospital (0.632) and waiting time in government hospital (0.578). As a result, the pregnant women are opined that the government hospital and primary health centres are providing appreciable maternal healthcare services in the Thiruvarur district.

Table 2 Factor I: Attitude towards Antenatal Healthcare Providers

Variable No.	Name of the Variable	Factor Loading	Communalities
1	Nurses are giving proper advice in Government Hospital	0.770	0.623
2	Government Hospital Doctor's are giving proper advice	0.769	0.627
3	Providing Quality Medicine in Government Hospital	0.745	0.645
4	Nurses are very Kind in Government Hospital	0.722	0.619
5	Gynaecologists in Government Hospital	0.721	0.620
6	My Work is a Problem	0.700	0.566
7	Infrastructure Facilities in Government Hospital	0.689	0.656
8	Adequate Employers in Government Hospital	0.664	0.671
9	Attention of Husband and Physician	0.635	0.481
10	Emergency Service in Government Hospital	0.632	0.602
11	Waiting Time in Government Hospital	0.578	0.703
Eigen Value 6.480		**Percentage of Variance 13.788**	
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.[a]			
a. Rotation converged in 7 iterations.			

Factor II: Antenatal Health Problems

After confirmation of pregnancy till the child birth, women are encountering many health problems. This study also confirms that the antenatal health problems (Table 3) emerged as the second most important factor with an Eigen value of 5.883 and the total variance of 12.518 per cent. Twelve out of forty-seven variables are contributed on this factor namely unable to walk (0.758), itching in abdomen (0.737), unable to sleep normally (0.724), drowsiness (0.661), face pale/darken (0.658), pain in abdomen (0.657), often urine discharge (0.643), increasing weight (0.642), breathing trouble (0.640), swelling of face (0.611), constipation (0.559) and medicine allergy (0.553).

Factor III: Happy of Pregnancy

To become parenthood is an enjoyable experience and it leads to an increased level of pleasure for an individual and the family. As a result, the data set reveals that the third factor happiness of pregnancy (Table 4) emerged with an Eigen value of 4.270 and the total variance of 9.085 per cent. Seven out forty-seven variables specifically husband's family happiness towards my pregnancy (0.815), my family happiness towards my pregnancy (0.808), my husband's happiness towards my pregnancy (0.783), desire to give well-birth (0.627), afraid of giving birth (0.623), I am very happy about my pregnancy (0.620) and I am longing to see my child face (0.564) are loaded on this dimension and these variables are revealing interrelationship with each other when a women becomes pregnant.

Table 3 Factor II: Antenatal Health Problems

Variable No.	Name of the Variable	Factor Loading	Communalities
1	Unable to Walk	0.758	0.645
2	Itching in Abdomen	0.737	0.654
3	Unable to Sleep Normally	0.724	0.622
4	Drowsiness	0.661	0.595
5	Face Pale/Darken	0.658	0.683
6	Pain in Abdomen	0.657	0.576
7	Often Urine Discharge	0.643	0.668
8	Increasing Weight	0.642	0.569
9	Breathing Trouble	0.640	0.555
10	Swelling of Face	0.611	0.619
11	Constipation	0.559	0.464
12	Medicine Allergy	0.553	0.583
Eigen Value 5.883		**Percentage of Variance 12.518**	

Factor IV: Antenatal Health Check-up

Continuous monitoring and health check-up is mandatory to analyse the growth and development of a child in the womb and the mother. Hence, the data set confirmed that the respondents are (Table 5) measuring blood sugar level (0.869), urine sugar level (0.867) and observing child's growth by ultra scan (0.752), blood pressure (0.726) and Weight (0.534). These five

variables are loaded on this factor antenatal health check-up with an Eigen value of 3.106 and the total variance of 6.608 per cent. Therefore, the pregnant women's antenatal health check-ups in this study area are at very satisfactory level.

Table 4 Factor III: Happy of Pregnancy

Variable No.	Name of the Variable	Factor Loading	Communalities
1	Husband's Family Happiness towards my Pregnancy	0.815	0.705
2	My Family Happiness towards my Pregnancy	0.808	0.686
3	My Husband's Happiness towards my Pregnancy	0.783	0.686
4	Desired to give Well-Birth	0.627	0.473
5	Afraid of Giving Birth	0.623	0.415
6	I am very Happy about my Pregnancy	0.620	0.465
7	I am Longing to see my child face	0.564	0.392
Eigen Value 4.270		**Percentage of Variance 9.085**	

Table 5 Factor IV: Antenatal Health Check-ups

Variable No.	Name of the Variable	Factor Loading	Communalities
1	I am Measuring my Blood Sugar Level	0.869	0.771
2	I am Measuring my Urine Sugar Level	0.867	0.774
3	I am Observing Child Growth by Ultra Scan	0.752	0.593
4	I am Measuring Blood Pressure	0.726	0.549
5	I am Measuring my Weight	0.534	0.444
Eigen Value 3.106		**Percentage of Variance 6.608**	

Factor V: Grieve

The pregnant women conveyed that they are unhappy and depressed. As a result, the fifth factor grieve (Table 6) comes out with an Eigen value of 2.972 and the total variance of 6.324 per cent. The four variables explicitly I regret born in poor family (0.710), due to economic condition I am unable to fulfil my desire (0.692), I am under stress (0.690) and I regret married in poor family (0.688) loaded on this factor. Therefore, the socio-economic conditions are influencing the pregnant women's happiness.

Table 6 Factor V: Grieve

Variable No.	Name of the Variable	Factor Loading	Communalities
1	I regret born in poor family	0.710	0.742
2	Due to economic condition I am unable to fulfil my desire	0.692	0.666
3	I am under stress	0.690	0.699
4	I regret married in poor family	0.688	0.729
Eigen Value 2.972		**Percentage of Variance 6.324**	

Factor VI: Emotionality

Newly married women entered in to unfamiliar family environments, cannot accommodate and adjust with her husband's family members immediately. This leads to emotional influence. Accordingly, the sixth factor emotionality (Table 7) emerged with an Eigen value of 2.434 and the total variance of 5.179 per cent. The variables I am psychologically affected by sister-in-law (0.820), I am psychologically affected by father-in-law (0.806) and psychologically affected by brother-in-law (0.695) are positively loaded on this factor. Thus, the data set reveals that the pregnant women in the study area are emotionally affected by their husband's family members.

Table 7 Factor VI: Emotionality

Variable No.	Name of the Variable	Factor Loading	Communalities
1	I am Psychologically affected by sister-in-law	0.820	0.746
2	I am Psychologically affected by father-in-law	0.806	0.712
3	Psychologically affected by brother-in-law	0.695	0.586
Eigen Value 2.434		**Percentage of Variance 5.179**	

Factor VII: Reaction of Food

Some physiological changes are inevitable when women become a pregnant. This results in sensitiveness to consumption of food items. For that reason, the seventh factor reaction of food emerged with an Eigen value of 2.376 and the total variance of 5.054 per cent (Table 8). Therefore, the variables omitting while eating (0.799), cannot eat properly (0.731) and month of pregnancy (0.712) are positively loaded on the above cited factor. Hence, the reaction/allergic reaction of food during pregnancy are undoubtedly proved by this study.

Table 8 Factor VII: Reaction of Food

Variable No.	Name of the Variable	Factor Loading	Communalities

1	Omitting while Eating	0.799	0.710
2	Cannot Eat Properly	0.731	0.686
3	Month of Pregnancy	0.712	0.619
Eigen Value 2.376		**Percentage of Variance 5.054**	

Factor VIII: Mind-Set

Pregnancy period is very critical, caring is more important and they depend on loveable family members particularly their husband. In this regard, the eighth factor mind-set is appeared with an Eigen value of 1.818 and the total variance of 3.868 per cent (Table 9). The variables namely I regret my husband not accompanying to the hospital (0.811) and I become tired due to domestic work and no one is there to assist me (0.790) are positively loaded on this factor. As a result, the pregnant women's state of mind reflects that their husband is not accompanying to the hospital, no one to assist them for household work and they endure tiredness.

Table 9 Factor VIII: Mind-Set

Variable No.	Name of the Variable	Factor Loading	Communalities
1	I regret my husband not accompanying to the hospital	0.811	0.732
2	I become tired due to household work and no one is there assist me	0.790	0.714
Eigen Value 1.818	**Percentage of Variance 3.868**		

Conclusion

This present study proven that the government hospital and primary health centres are providing appreciable maternal healthcare services in the Thiruvarur district. After confirmation of pregnancy women encounter some health problems. Their pregnancy leads to increased level of happiness among the family members. They are observing monitoring the growth and development of child. The socio-economic conditions are controlling the maternal women's happiness. They are emotionally affected by their husband's family members. Allergic to food during pregnancy is noticed and their state of mind reflects emotionally charged issues and unhappy family relationships.

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