

Quality of antenatal care received and compliance towards it among the pregnant women attending Bankura Sammilani Medical College and Hospital, Bankura

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Abstract:

Background: Quality antenatal care, one of four Pillars of Safe Motherhood in reducing maternal mortality, is an effective route to emergency obstetric care, skilled delivery and important determinant of pregnancy outcome. **Objective:** to assess quality of ANC provided and compliance toward it. **Materials & Methods:** Cross-sectional survey was conducted for one month involving 93 randomly selected pregnant women attending antenatal clinic of BSMCH. Data were collected via interview using predesigned questionnaire after obtaining informed consent. Data analysis was done by mean, standard deviation, proportion and using tables and charts. **Results:** 82% respondents were rural inhabitants, 53% were poor, 1/3rd were married and half got pregnant before 18 and 20 years of age. Half of respondents were multiparous with 3/4th in 3rd trimester of pregnancy and 53% registered for ANC after 1st trimester. Two-third received adequate numbers of AN check up. Measuring weight, BP, fundal height was done for 94.5%, 92.8%, and 72.7% of respondents; examination of urine and Hb% was done for 85.5% and 87.1%; tetanus, Ca²⁺ and IFA prophylaxis was given to 100%, 75% and 70.9%. Advices for diet, sleep & rest, hygiene was offered to 78.2%, 72.2% and 50.9% of participants. Overall, non-compliance was 11.8% with 5.4% to IFA and rest & sleep each, mainly due to poverty and burden of house-hold activity. **Conclusion:** IEC regarding importance of ANC is to be emphasized among women of reproductive age group. Grass-root level health workers and care providers need reorientation, motivation and monitoring. **Key words:** antenatal visit; quality of care; compliance.

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I. Introduction

According to the World Health Organization (WHO), the worldwide estimated maternal mortality ratio (MMR) in year 2010 was 210 deaths/100,000 live births among women aged 15-49 years, showing a decline of 43% from the level in 2005.¹ Maternal mortality ratio (MMR) of India has declined from 437 in 1990-1991 to 178 per 100,000 live births in 2010-2012 period.²

Antenatal care (ANC) has been designated as one of the four Pillars of Safe Motherhood, along with clean and safe delivery, essential obstetric care and family planning. These four pillars are thought to contribute in reducing of maternal death. The quality ANC is an effective route to emergency obstetric care and skilled delivery and considered as an important determinant of pregnancy outcome. Moreover, rendering high quality ANC is congruent with client's satisfaction to this care.³

Indian and global studies recognise the contribution of ANC in not only sustaining better maternal health but also in reducing maternal morbidity and mortality.^{4,5} In an effort to reduce maternal mortality, the Reproductive and Child Health (RCH) Programme under National Health Mission (NHM), Government of India (GOI) is aimed at providing at least three antenatal (AN) check-ups (apart from registration) which include: weight and blood pressure check, abdominal examination, immunization against tetanus, iron and folic acid (IFA) prophylaxis, as well as management of anemia.⁶ GOI further strengthened it in the form of Reproductive Maternal, Newborn, Child Health+ Adolescent (RMNCH+A) interventions which include many programmes such as promotion of institutional births through *Janani Suraksha Yojna (JSY)*; comprehensive obstetric care and tracking of each and every pregnant women; antenatal, intra-natal and postnatal care.⁷⁻⁹ Quality of care is defined as the extent to which health services for the individuals and population increase the likelihood of

desired health outcomes and are consistent with current professional knowledge.¹⁰ In spite of utilisation of AN services, pregnancy outcome is not significantly improving. Reason behind it is the worrying gaps in quality of ANC exist. Huge interstate as well as intrastate variation coupled with socioeconomic and cultural constraints that lead to poor quality and ineffectiveness ANC in practice.¹¹ Women's satisfaction towards the quality of ANC is an important determinant of their utilization and continuation of the same.¹² In India, according to National Family Health Survey (NFHS)-3, more than 3/4th of pregnant women received at least some ANC, but only half of the women had received at least three ANC visits as prescribed mandatory by the government norms of ANC in India.¹³

With a view to assess the quality of ANC and compliance of the beneficiaries in utilization of it the present was contemplated.

OBJECTIVES

1. To assess the quality of antenatal care received by the study subjects
2. To find out the compliance among the attendees towards the ANC.
3. To ascertain the factors behind the non-compliance, if any.

II. Methodology

A cross-sectional survey was conducted for a period of one month involving the pregnant women attending the antenatal clinic of Bankura Sammilani Medical College & Hospital, Bankura, a tertiary care teaching institution catering about 300 such clients daily coming from all the blocks of Bankura district of West Bengal. Women having at least two antenatal visits and gave informed consent were selected via a systematic random sampling method. The sample size for the study was estimated to be 93 by using the formula $n = Z^2 pq / L^2$, where $Z=1.96$ (two tailed) at 95% confidence interval, p = prevalence of event of interest (here the women received proper anti-tetanus measure in antenatal care=79.5%)¹¹, q =complement of $p=(100-p)$ and L =allowable error (absolute) around the reported prevalence of event of interest (here it was assumed to be 10). Information pertaining to socio-demographics e.g. age, religion, caste, residence, type of family, education (self & spouse), occupation (self & spouse), total monthly family income, per-capita income and socio-economic status of the attendees; knowledge, attitude and practice of the attendees towards ANC; extent of ANC received and proportion of non-compliance with factors behind it were collected via direct interview and scrutinizing record of the attendees using pre-designed pre-tested questionnaire.

Quality of ANC was assessed by the following variables: (i) AN visit - The time of the 1st visit, frequency of visit, (ii) Investigations- Routine including Hb%, HbSAgE, VDRL, ultra sound scanning (USS); (iii) Physical examination, (iv) Health education: advice on diet, hygiene, exercise, sleep & rest, (v) Immunisation: frequency & timing of TT, (vi) Anaemia Prophylaxis, (vii) Counselling about danger sign and birth preparedness-complication readiness.¹⁴

ANC was graded based on the extent of outcome of antenatal services. It contained 3 main items e.g. AN visit: time of the 1st antenatal visit, number of antenatal visits; interventions like: measuring height, weight and blood pressure (BP); blood investigation for Hb & grouping; urine analysis, tetanus vaccination, IFA supplementation; and provide counseling regarding diet, rest & sleep, danger signs, and the plan & preparation for delivery (total eleven interventions).

High quality outcome indicated that initiation of antenatal visit during first trimester, availing AN visits as per recommendation for their current duration of gestation or more as well as reception of at least nine out of the recommended eleven antenatal interventions. **Moderate quality outcome** indicated that initiation of antenatal visit during second trimester, availed AN visits as per recommendation for their current duration of gestation or more as well as reception of at least 6-8 out of the recommended eleven antenatal interventions. **Low quality outcome** indicated that initiation of antenatal visit during third trimester, attended for less AN visits than the recommendation for their current duration of gestation as well as reception of at least five out of the recommended eleven antenatal interventions.¹

If any of the three items isn't fulfilled at any of the first two levels then the next lower grade would be allotted by default.

Data were analysed by calculating mean, standard deviation, percentage and using tables and charts for display.

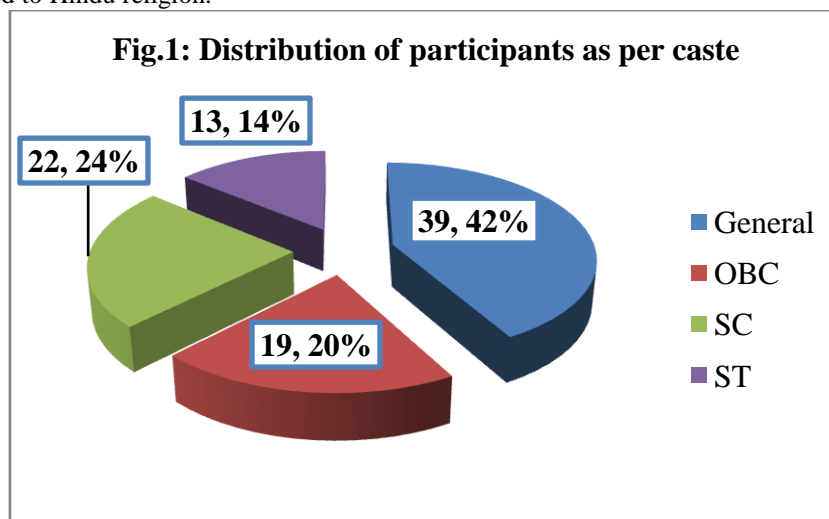
III. Results

Table-1: Distribution of participants according to age (N=93)

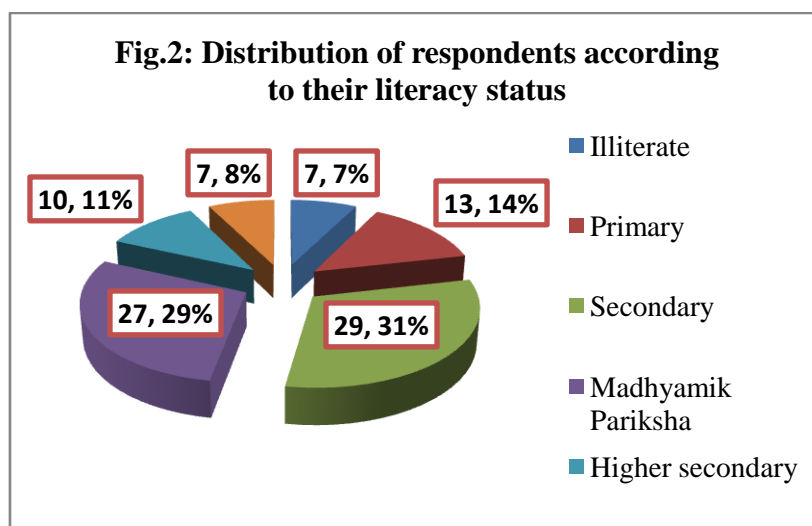
Age group (yrs)	Number	Percentage
<20	17	18.3
20-25	49	52.7
25-30	24	25.8
≥30	03	3.2

Total	93	100
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Analysis revealed that average age of participants was estimated to be 23.13± 3.85 (mean±sd) years and slightly more than half (52.7%) of A N women belonged to age group of 20-25 years. [Table-1] Majority of them (87.1%) belonged to Hindu religion.

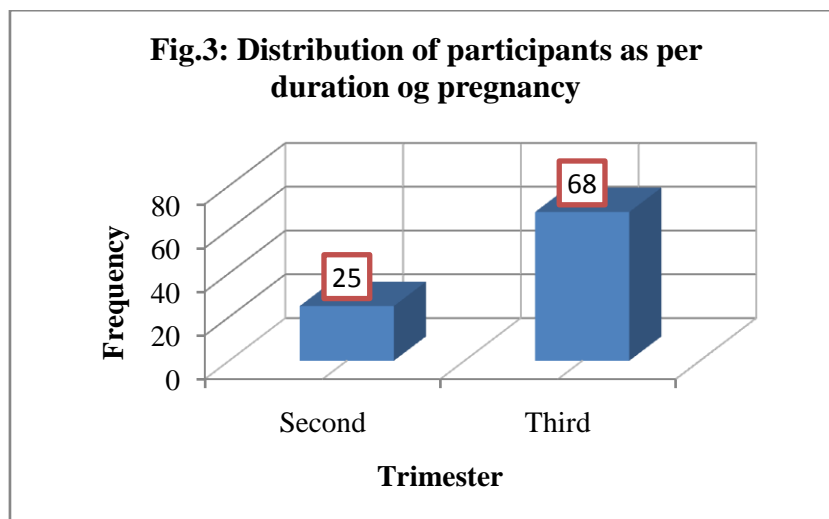


Analysis revealed that 41.9% of the participants belonged to general caste [Fig.1] and 81.7% were rural inhabitants. Majority (70.9%) of them belonged to joint family.



About one third of the participants (31.9%) were educated up to middle school (Secondary) level. [Fig.2] It was evident from analysis that majority of the participants were home maker (93.5%). Few (3.2%) were reportedly engaged in works demanding unskilled labour and self-employment each. Majority (73.1%) of the participants' spouse were labourer by profession

Lion's share (94.6%) of the respondents belonged to poor socioeconomic status (Class-IV & V) according to modified B G Prasad's scale updated on 2016. Around one third (34.4%) of them got married before legal age of marriage and near about half (49.5%) got pregnant for first time before the age of 20 years. Overall, 5.4% of participants had history of abortion, 44.1% were primigravida and around half (50.5%) of them had one or two living children.



It was found from the analysis that almost 3/4th (73.1%) of participants were in 3rd trimester of pregnancy [Fig.3] and slightly more than half (52.7) of them registered for ANC after first trimester of their current pregnancy. About two-third (73%) of participants received ANC for number of times seemed adequate (as per recommendation) for their current duration of gestation.

Table-2: Distribution of participants according to component of ANC received (N=93*)

Item of investigation	Health check up received at ANC	Number	Percentage
One time	HIV testing	73	78.5
	Testing for blood grouping and typing	68	73.1
	Measurement of Height	36	38.7
	VDRL testing	34	36.6
Repeated	Measurement of Weight	88	94.6
	Measurement of BP	86	92.5
	Estimation of Hb%	81	87.1
	Urine examination	79	84.9
	USS	68	73.1
	Measuring fundal height	63	67.7
	Asking for fetal movement	56	60.2
	Checking for pallor	51	54.8
	Examination of fetal heart sound	46	49.5
	Examination for oedema	30	32.3

*Multiple responses

More than 2/3rd attendees received HIV testing and blood grouping and typing (78% and 73%) out of the ANC related services usually provided onetime. However, among the items requiring follow up checking, measurement of weight stood top on the list (94.6%), closely followed by measurement of BP (92.5%), estimation of Hb % (87.1%), urinalysis (84.9%), USS (73.1%), measuring fundal height (67.7%) and enquiring about fetal movement (60.2%). [Table-2]

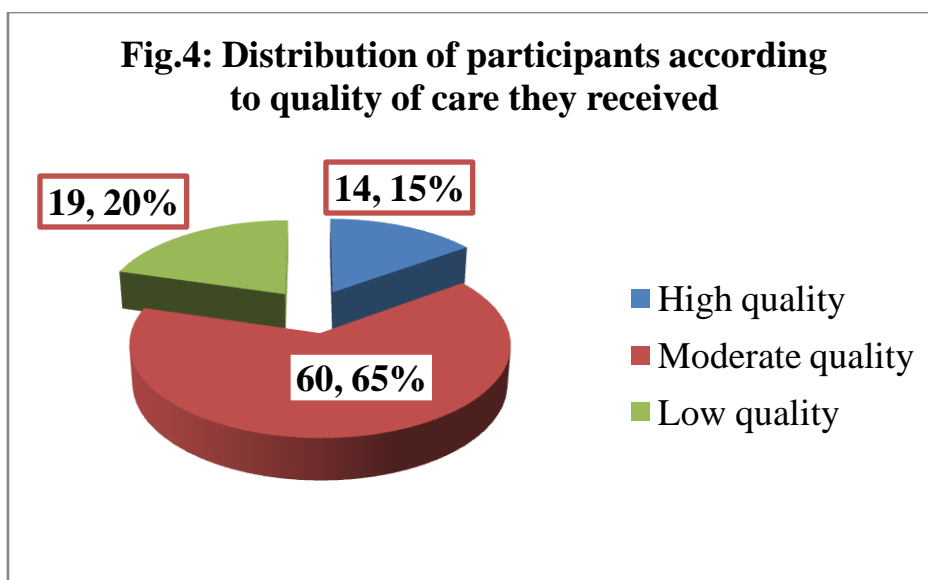
On the whole, IFA prophylaxis was done for 95.7% of respondents and majority (70.9%) of them received IFA supplementation seemed appropriate to the duration of their current pregnancy. Tetanus toxoid was given appropriately to all pregnant women and 76.3% of them received calcium supplementation appropriately.

Table-3: Distribution of participants according to antenatal advices received (N=93)

Antenatal advices given about	Numbers	Percentage
Diet	73	78.5
Sleep & Rest	68	73.1
Hygiene	47	50.5
Physical activity	41	44.1
Medication	34	36.6

Danger sign	29	31.2
Exercise	22	23.7
Birth preparedness	19	20.4
Sex activity	15	16.1

It was revealed that AN advices regarding diet, sleep & rest and hygiene were received by half or more than that of respondents. However, other advices were received by less than fifty percent of attendees. [Table-3] Only 15.1% respondents received high quality ANC so far as the predefined criteria were concerned. However, around one fifth received low quality ANC. [Fig.4]



It was found that that almost 71% of the participants responded favourably to the statement “Antenatal visits should be essential” reflecting their positive attitude towards ANC. Almost four in every ten mothers opined that ANC is due to the well being of their babies. Slightly more than 1/4th (26.9%) reported that it is for the benefit for both the mother and child. However, around 1/5th (23.67%) of the participants had no specific idea about it.

Table-4: Distribution of participants as per their non-compliance and its cause (n=11*)

Item of non-compliance	C a u s e	N u m b e r	Total	% **
IFA	• N o r e a s o n n s p e c i f i c	1	05	5.4
	• F o r g o t t e n	1		
	• B a d s m e l l & n a u s e a	3		
Inadequate Diet	• P o v e r t y	2	03	3.2
	• N o s p e c i f i c r e a s o n	1		
Rest & avoidance of heavy activity	• P o v e r t y	2	05	5.4
	• H o u s e h o l d p r e s s u r e	2		
	• M o t h e r i n l a w f o r c e	1		

* Multiple response, ** % was calculated in respect to total (93)

Overall, 11 respondents i.e. 11.8% reported to be non-compliant to AN advice. On the whole, one out of every 20 women failed to consume IFA, mainly due to bad smell and nausea. Similar proportion of women failed to comply with advice for adequate rest and avoidance of heavy work due to poverty, household pressure. [Table-4]

The present study wasn't without limitations. It was conducted on a small sample. Compliance to AN advice could not be verified objectively. Data collection was done inside the AN clinic and possibility of socially favourable answers from the respondents could not be ruled out.

IV. Discussion

A poor quality of ANC is of limited use to affect maternal death. Identifying high-risk women during ANC is not effective for women who subsequently failed to obtain complete package of ANC.¹¹

According to a study carried out in Egypt by Ismail NIAA et.al. more than one-half (54%) of the pregnant women started their AN visits during their 2nd trimester, while only 18% of them had started it in their 1st trimester having concurrence with the findings of the present study where 53% registered their pregnancy after 1st trimester.¹ In a study conducted in various health care settings in Thiruvananthapuram district of Kerala, Srilatha S et.al. observed 42.2% registration in the 1st trimester of pregnancy.¹⁴

More than three-fifths (62%) of the study subjects received less than four AN visits as reported by Ismail NIAA et.al.¹ which is contrary to the present study where 73.1% of the participants had received number of AN visit adequate for their duration of pregnancy. In this study the high, moderate and low level of quality care were found to be provided in 15.1%, 64.5% and 20.4% of beneficiaries, respectively compared to the Egyptian study which reported the figures as 22.9%, 34.2% and 42.9%.¹

In regard to the observations made by the Egyptian study 99.1% & 95.1% of the study subjects received measuring for BP and weight respectively, and 95.7% for them blood investigation was done.¹ According to the study conducted by Tiwari et. al. in Uttar Pradesh three-fourths of the recently delivered women (RDWs) had weight measurement (74.9%), their abdomen examined (76.4%) and got their hemoglobin estimated (69.6%). Less than two-thirds had height (60.8%) and BP measured (66.2%). Srilatha S et. al. reported measuring BP, weight and height in 94.2%, 74.8% and 14.3% beneficiaries.¹⁴ It has concurrence with the findings of the present study where measuring weight, fundal height, BP and urinalysis were done for 94.5%, 72.7%, 87.1% and 85.5% of respondents. According to Srilatha S et. al. blood grouping & typing, Hb estimation, VDRL testing, screening for HbsAg were done in 96.5%, 95.3%, 97.4%, and 97.9% of beneficiary women. Urine for albumin, sugar and microscopic examination was done for 98.8%, 98.8% and 37.4% and 48.1% participants got USS.¹⁴

In the current study the tetanus prophylaxis was given to 100% whereas it was observed to be 81.7% by Ismail NIAA et.al.¹, 79.5% by Tiwari et.al.¹¹ and 61.5% in DLHS-3 & 76% in NFHS-3 report.¹⁵

Srilatha S et. al. observed that even though the advice of IFA & TT injection was 100%, the dietary advice was received by only 51.3% of AN women. Advice regarding rest, exercise and sleep was given only to 15.3%, 5.2% and 7.3% of beneficiaries.¹⁴ On the contrary advice for diet, sleep & rest, hygiene was offered to 78.2%, 72.2% and 50.9% of participants, respectively in the present study.

According to the present study IFA was supplied to 95.7% of the respondents and 70.9% participants received IFA supplementation appropriate to the duration of their pregnancy compared to 71.4% as reported by the study of Egypt¹ and 81.4% reported by Tiwari¹¹ in India. As a whole, 94.6% participants in the present study consumed IFA contrary to the low compliance of 14.8% observed by Tiwari et.al.¹¹ and that reported by NFHS-3 (19%).¹⁶

Kumar V et. al. found in their study involving analysis of data generated from 71st round of the National Sample Survey conducted between January to June 2014 that overall 9.2% pregnant women did not consume IFA supplements, 6.6% did not receive TT dose and 10.3% pregnant women could not receive any ANC during pregnancy in India.¹⁷

Counseling for danger signs was found to be low (31.2% versus 50%) in the present study compared to that of the Tiwari et.al.¹¹ In the present study the health education part of the ANC component, specially counseling about physical activity, medication, danger sign, birth preparedness, exercise etc. was found to be neglected as also reported by Yeoh PL et.al. in their study from Malaysia which found the lowest score at only around 35% in health education component of ANC.¹⁸

As observed by Dutta A J et. al. in a study conducted at Surat Municipal Corporation area, the overall compliance to IFA was found to be 61.7%. Forgetfulness, ignorance toward self-health care and to visit health facility, big size of tablets and palatability, and frustration to take daily pills appears to main causes of non-compliance.¹⁹ The present study reported a high overall compliance i.e. 94.6% with nausea and forgetfulness as causes of low level of non-compliance.

V. Conclusion

Information-education-communication (IEC) as well as behaviour-change-communication (BCC) regarding ANC and its importance is to be emphasized among the women of reproductive age group, soon after their marriage. It can be fostered even before the starting of marital life e.g. school goers can be made aware via school health service/ program and non-school goers through the Angan-Wadi-centers. Grass-root level health workers are to be reoriented, motivated and closely monitored. Adequacy and quality of antenatal care is to be uplifted by sensitizing the care provider as well as improving the compliance of the patients.

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