

Knowledge and behaviour about preconception care among women desiring conception, from tribal and non-tribal areas; a qualitative study using focused group discussions

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Abstract

Background India has the highest number of under-five deaths in any country in the world. World Health Organization and Government of India recommended roll out of preconception care (PCC) for reduction of maternal and child mortality. However, very few countries including India have implemented a comprehensive package of PCC services. PCC has been rolled out among all women, who desire to be pregnant in one year through the government health system in two blocks of Nashik district of Maharashtra State, India. In order to assess the impact of PCC in these two blocks, baseline and post intervention studies (both quantitative and qualitative) on women's knowledge and behaviour on PCC, their health status and pregnancy outcomes are planned in these two intervention blocks as well as in two control blocks. To assess women's knowledge and behaviour on PCC before implementation of the project, focus group discussions (FGDs) were carried out as part of this impact assessment project.

Methods From each of the four blocks, two villages having sub centre were selected for conducting FGD. A house to house survey was conducted by Accredited Social Health Activist (ASHA) to enlist women who desire a baby in one year. From the list, eight to twelve women were invited to sub centre for FGDs, which were conducted in June 2018.

Results A total of 76 women having mean age 23.97 years participated in the FGDs. Most of them (46.05%) had completed 10 years of education. About 50% of pregnancies are planned. The decision about first pregnancy is influenced by the mother-in-law. Women knew that they should not conceive before 20 years of age and their inadequate weight may have adverse impact on the health of new-born. Women had some knowledge about adverse effects of tobacco and alcohol use, very few consumed these. Most of them did not practice behaviours or accessed services related to PCC.

Background

Despite reduction in Under Five Mortality Rate from 125 deaths per 1000 live births in 1990 to 43 deaths per 1000 live births by 2015; India did not meet target 4 of the Millennium Development Goals 4 of a two-thirds reduction. The estimated total number of deaths below five years reduced from 2.516 million in 2000 to 1.201 million in 2015 in India [1]. Despite that, India has the highest number of under five deaths in any country in the world [2]. There is wide inter and intra state variations in the under-five mortality and neonatal mortality in India. The reported neonatal mortality rate in 2017 was highest 36, in rural area in Madhya Pradesh and lowest 4 per 1000 live births, in urban area in Kerala. Similar picture is evident for under-five mortality rate. Highest under five mortality rate was observed in male children in rural Madhya Pradesh (62 per 1000 live births), and lowest mortality was observed among females children from rural area of Delhi [3]. World Health Organization recommended roll out of pre-conception care (PCC) in all the countries of the world in 2013[4]. In 2013, GOI launched Rashtriya Bal Swasthya Karyakram and published a report in 2018, 'Journey of The First 1000 Days', which focuses on educating the parents and caregivers about healthy behaviours and practices for ensuring the best during first 1000 days of life [5]. It also focuses on raising awareness on PCC among men and women. A strategic change giving

enhanced focus on new born has been brought by Government of India by disseminating India Newborn Action Plan [6]. The plan includes component of preconception care. However PCC has not been rolled out in India systematically as yet. Government of Maharashtra with the support of UNICEF has started PCC in one tribal block (Peint) and one non-tribal block (Sinnar) in Nashik district of Maharashtra since 2018. Out of interventions recommended by Pan American Health Organization in 2011 for PCC and endorsed by WHO , following interventions were identified for implementation at the community level based on factors like magnitude of the problem, feasibility of implementation at the primary health care level etc.[4] :

- Using body mass index (BMI) to monitor nutritional status prior to pregnancy
- Folic acid (FA) supplementation
- Preventing and treating anaemia with iron
- Detecting and treating sexually transmitted infections (STIs) before pregnancy
- Detecting and treating chronic diseases (cardiovascular, nutritional, endocrine)
- Detecting, preventing, and managing alcohol and tobacco consumption
- Preventing pregnancy in adolescents.

In order to assess the impact of PCC in these two blocks, baseline and post intervention studies (both quantitative and qualitative) on women's knowledge and behaviour on PCC, their health status and pregnancy outcomes are planned in these two intervention blocks as well as in two control blocks (Tribal block of Trimbakeswar and non-tribal block of Niphad) in Nashik district. Before implementation of the project, focus group discussions (FGDs) were carried out as part of this impact assessment project to assess the knowledge and behaviour of women of reproductive age group who desire to conceive within one year. To our knowledge, in India this is the first qualitative study at the community level on preconception, knowledge and behaviour among the women of reproductive age group and who are planning pregnancy in succeeding twelve months. The evidence generated from the focus group discussion are expected to provide baseline information, which will be helpful for designing behaviour change communication strategies as well as for comparison with post intervention studies, which are planned after two years of intervention.

Methods

The main aim of these FGDs was to find out whether women residing in these areas had any knowledge about pre-conception care and whether they practiced behaviour and accessed services for PCC.

Study area

The study was conducted in Nashik District situated in north Maharashtra. The district has

15 blocks and population of 6,107,187 as per the census conducted in 2011. The proportion of rural population is 57.47% and tribal population is 31.55%. Blocks identified for the study are depicted in

figure 1.

The information like literacy rate in the blocks, number of villages in these blocks, number of villages selected for FGDs with the population in these villages is given in table 1.

Selection of respondents and tools for data collection

A house to house survey was conducted by ASHAs after training and using validated and pretested format. They enlisted all the women in reproductive age group (15-49 years). ASHAs specifically asked each woman about her desire to have a child in one year. A list of all such women in the village was prepared by the ASHAs.

A guide for conducting FGD was prepared. It was designed to elicit participants' responses about following sub-themes.

1. Planning of pregnancy
2. Age of mother
3. Height and weight of mother
4. Physical work
5. Nutrition
6. Medical/health advice prior to pregnancy
7. Tobacco and alcohol consumption
8. Preconception services

The respondents were either nulliparous or were already having children. Their availability on scheduled FGD date was inquired and amongst available women eight to twelve were invited to the sub-centre participate in the FGDs.

Procedure

The FGDs were conducted by a pair of public health specialists. Moderators were teaching faculty from medical college and facilitator were coordinators in the project who helped in writing and recording. In each FGD initially moderator explained the purpose of the meeting and appealed to participate in discussion. Their written informed consent was obtained for participation and recordings. Placards having number were distributed to avoid personal identities. Non-participating women were encouraged to speak. Discussion was initiated by few words about sub-themes, one by one. Further probing was done only if the discussion digressed to any other subject. The FGDs were conducted in the month of June 2018. We did not use any software for analysis of FGDs.

Results

The total number of participants in eight FGDs was 76. In each FGD the number ranged from 6 to 12 participants. The average time taken for one FGD was about 55 minutes. Age of these participants ranged from 18 years to 39 years. The age group wise number of participants is given in table 2.

The mean age of participants was 23.97 years (S.D. = 4.12). The educational status of these women ranged from illiterate to graduation and is given in table 3.

Though most of the women were passed 10th standard (46.05%), few women (3.95%) were illiterate.

It was observed that in most of the FGDs, participants needed a little more persuasion from the moderator to initiate the discussion. For all the FGDs, the discussions were initiated with enquiry about the details of family members including number of children participants had. This initial discussion helped to break the ice. For most of the FGDs, moderator then led the discussion towards pregnancy care and the perception of participants about the care before pregnancy.

Following are the key observations that are documented during the FGDs as per the sub-themes mentioned above.

1. *Planning of pregnancy*

The overall perception that was highlighted during the FGDs was that despite residence in the rural area, almost 50% of the participants mentioned that their pregnancy was planned. The discussion revealed that educated women planned the pregnancy while others did not. The key highlight of this part of discussion mentioned by the participants was that whenever the pregnancy is planned, not only the husband and wife but the other members of the family, mainly parents-in-laws were also involved in taking the decision. One of the women said, *"We stay with in-laws, so we cannot take any decision on our own. We have to talk to all elderly members in our family, then whatever they tell us, we have to obey"*. While discussing their perceptions about the timing when the first pregnancy could be planned, the general response indicated that the pregnancy should be planned within one year of marriage. Most of the family members start enquiring about conception/pregnancy after one year of marriage. When the issue about having a second child was discussed, the discussion revealed that almost all families do not want to limit to a single child. Once the first child becomes a little independent, the second pregnancy is planned. *"The second child is planned more carefully. Once the first child grows up and when the child doesn't need to be breastfed, then the second pregnancy is planned"*.

2. *Age of Mother*

The discussion about pregnancy planning lead to another important indicator that is what should be the ideal age of a woman for first pregnancy. It was unanimously pointed that the ideal age of a woman should be between 20-25 years. When asked about the reason, participants mentioned that if the pregnancy occurs before this age then a woman herself doesn't have physical capacity to carry the pregnancy. One of the participants said, *"To have a healthy child, first mother has to be healthy. If the*

pregnancy occurs before the age of 20, then the baby doesn't have adequate space to grow inside her womb, then baby has health problems in future". The overall response of women highlighted the fact that most of respondents have knowledge that first pregnancy should be planned after the age of 20 years.

3. Height and weight of mother

In one of the FGDs, when the moderator initiated a discussion by asking the height of all respondents and asked the relevance of height to the topic of discussion, participants responded affirmatively. *"Height of the woman is important for pregnancy. If the height of woman is less, then it may cause problems during delivery".* When probed further, they said that if the height of woman is less, the chances of normal delivery become less. Although in one of the FGDs, a woman mentioned that *"Height is something that we cannot change, but we can increase weight".* Regarding weight, most participants had the knowledge that if the weight of mother is less, the weight of baby may be less. Although in one FGD, few participants disagreed to this, saying that mother's weight and baby's weight are not related. One of the participants gave the example of her relative *"My sister in law's weight was hardly 40 kg before pregnancy but her daughter's birth weight was 3 kg".* In another FGD, participants mentioned that they do not know much about weight and its effect on child's weight. Overall in all FGDs women generally mentioned that if weight of mother is not adequate then it may affect the weight of child, but they were not sure minimum or ideal weight.

4. Physical work

When specifically asked about the physical work, most of the participants mentioned that once the woman is pregnant, then she should not be engaged in heavy physical work; however she should continue routine work so that she remains fit and it helps in the normal delivery. All participants mentioned the importance of being active during the pregnancy for normal healthy pregnancy. But when asked about the physical work before pregnancy, there was a consensus in all FGDs that the regular work can be continued until she becomes pregnant. One of the participants said, *"Once she becomes pregnant, she may take some rest. Till then she should continue with her regular work. Who will do the work if she doesn't? And it is not even sure when she will become pregnant. After they plan pregnancy, some of them take even more than a year to conceive. So it is not right not to stop regular work before pregnancy".*

5. Nutrition

Nutrition is one of the topic for which all women had considerable knowledge about various types of food items and necessity of their consumption. Initially mothers discussed the necessity of attaining required weight during pregnancy. But later all women mentioned that it is important to eat properly even before pregnancy. In general, all FGD discussions revealed that participants had a better idea about required diet than any other aspects that were discussed. When specifically asked about what is the meaning of proper diet, most of participants mentioned having roti, vegetables, dal rice, fruits and non-vegetarian items as a *"proper diet"*. Some of the participants also mentioned that along with other vegetables, green leafy vegetables must be a part of food at least 3 times a week. Unlike other topics that were discussed,

women accepted that the diet has to be increased once a woman decides to become pregnant. The issue of fasting as a part of religious act was also discussed. Mixed replies were documented regarding this point. Some of the participants mentioned that women should not observe fast at least when she is planning pregnancy. It was also discussed that even though most of women eat food that is allowed during fast, however these food items cause acidity and disturb the digestive system, hence fasting should be avoided. Some participants mentioned that they do not think “fast” will affect pregnancy, hence women can observe fast before pregnancy. Once she becomes pregnant, then she should stop fasting and eat properly. *“She has two lives to take care of”*.

6. Medical examination and advice prior to become pregnant

It was observed that in almost all FGDs, more probing was needed to discuss about the investigations that have to be carried out before pregnancy. When asked most of the participants mentioned “*blood tests*” have to be carried out before pregnancy. The discussion about these blood tests revealed that few participants thought that before pregnancy, woman should know her blood group as there may be some problems during delivery. However, participants who mentioned about blood group did not have detailed information. Some of participants also mentioned that blood test has to be done to know the haemoglobin levels. Upon asking details, most of participants mentioned that *“if the Hb (haemoglobin) in the blood is less, then the mother requires consuming the tablets given by ANM so that baby becomes healthy”*. In one of the FGD, few participants also mentioned that a woman has to consult the doctor before she becomes pregnant because if there is any problem in her [related to reproductive health] then that can be resolved and it will help her to become pregnant soon. In one FGD, one participant vehemently mentioned that a woman should visit a doctor regularly to avoid further complications during pregnancy. She narrated the incident of her daughter, *“We took her to ANM when she was 6 months pregnant. ANM told us that her blood pressure is high and told us to take care. My daughter did not take tablets for BP. So when she was about to deliver, her BP increased and she had a fit. We immediately took her to civil hospital but doctors could not save the baby”*. Overall, in all FGDs, there was a consensus that regular medical check-up, at least for knowing the haemoglobin levels and blood group and to get the calcium/iron tablets is required before pregnancy.

7. Tobacco and alcohol consumption

Similar to nutrition, all participants from all FGDs knew about substance abuse and addictions. When asked about *“Misri (roasted tobacco for application to teeth/gums which is common practice in rural area) use”*, most of participants mentioned that their mother in law, mother and other elderly members of family used *Misri* and they did not use. The noted reasons for not using were of two types; tobacco consumption is not in vogue among youngsters and they are aware that tobacco consumption may increase risk during pregnancy. More probing about other addictions such as smoking and alcohol consumption revealed that women generally do not indulge in such addictions in these villages. When asked about their effect, many participants stated that alcohol and cigarette cause cancer, affect liver and kidney functions. In FGD, moderator specifically asked if a woman had some of these addictions,

does it affect and how it affects the child's health. Participants responded that firstly, if a woman is having these addictions, then she will not become pregnant easily, secondly if she becomes pregnant, then she will not complete her pregnancy, abortion will occur and if at all she delivers a baby then that baby may have asthma, or will not have enough weight, brain will be affected or a child may have heart problem.

8. Preconception services: knowledge and utilization

At the end of all FGDs, moderator asked participants if they knew about "PCC and services". Participants mentioned that they knew that a woman has to be physically and mentally fit before she becomes pregnant because it may affect the growth of baby. However more details of PCC were not known. In few FGDs the aspect of domestic violence emerged and discussed as a part of PCC. One of the participants mentioned, *"If a woman is experiencing violence from in-laws, it does not only affect her physical state but also affects her mind and that can affect her chances of becoming pregnant. And if she doesn't become pregnant soon after marriage then also she may experience violence for not getting pregnant"*.

Discussion

General

The study showed that overall knowledge about PCC is low among women in reproductive age group, who are desiring to become pregnant within one year from four blocks of Nashik district, Maharashtra, India; very few of them practiced behaviour related to optimizing the body mass index and improvement in haemoglobin levels and very few accessed services related to PCC. Preconception is a sort of health promotion and for health promotion self-care is indispensable [7]. Many studies on PCC are interviews of women coming to hospitals, which also reported similar low levels of knowledge [8-14]. Sporadic efforts are made to provide information about preconception care. A systematic review revealed the tools used impart knowledge usually focus on fertility, folic acid supplementation, alcohol consumption, mental health and some questions about men's health [15]. In a study in the US, lack of knowledge was identified as the biggest barrier to the practice of pre-conception behaviour, the second most important barrier being the cost [16]. China is a world leader in implementation of PCC covering its entire rural population. National Preconception Health Care Project was scaled up to all the rural areas of the country since 2013 and all couples planning pregnancy within six months were assessed for risk factors using an ABCDX category of pre-conception risk factors. It was found that 68.29% of couples had one or more pre-conception risk factors of avoidable risks like smoking and alcohol consumption or benefiting from targeted medical interventions like anaemia, reproductive tract infections in women and abnormal liver or renal functions in men or controllable risk factors including diseases and conditions that cannot be cured but risk factors can be modified [17]. In India, PCC is largely restricted to use of contraceptives for family planning purposes, rather than for promoting woman's and new-born's health and use of peri-conceptual folic acid for preventing neural tube defects.

Planning of pregnancy

In the study area, the decision for planning first pregnancy is influenced by the mother-in-law. However, the couple have greater decision making power for planning the subsequent pregnancies. In India, it is estimated that in 2015 out of a total of 48.1 million pregnancies, only 52% were intended and rest 48% is unintended; of which 33% were aborted, 5% were miscarriages from unintended pregnancies and 11% were unintended births. [18]. Unintended pregnancies every year result in 25 million unsafe abortions and 47,000 maternal deaths globally as per estimates of world health organization [19]. Implementation of comprehensive PCC will go a long way for preventing unintended pregnancies, thereby reducing the burden on women for abortion and thus prevent maternal ill-health and deaths due to unsafe abortion.

Nutrition and body weight

Women were knowledgeable about intake of various types of food groups, however they did not know about the ideal weight, when they should conceive. In the study area women were not aware about use of multiple micronutrients for preventing adverse pregnancy outcomes. In USA women had better knowledge about folic acid supplementation before pregnancy [13].

Medical advice prior to pregnancy

It is acknowledged that women had limited knowledge about risk of chronic medical condition particularly diabetes and hypertension affect planning of pregnancy [16]. Contrarily in another study many women opined that anaemia, obesity and diabetes must be treated before pregnancy; hypertension before or during pregnancy causes miscarriage [8].

Tobacco and alcohol consumption

In Kenya majority of the women stated that alcohol should be avoided both before pregnancy and during pregnancy [8]. In USA women knew effects of alcohol and drug use during the preconception period [13]. It emerged from discussions that the habit of tobacco consumption is decreasing certainly among young generations and is corroborated by national level surveys [18].

Preconception services: Knowledge and utilization

Knowledge or awareness about PCC differs widely in different countries. A systematic review of 34 studies from 14 countries with data collected in 2000 to 2017 revealed the preconception health knowledge tools usually focus on fertility, folic acid supplementation, alcohol consumption, mental health and some issues about men's health [11,15,20,21]. Another systematic review of studies done during 1998 and 2008 focusing on factors related to preconception health behaviors among childbearing age women in the United States, developed countries, and developing countries identified six major thematic areas: frequency of alcohol intake prior and during pregnancy, glycemic control/diabetes management, physical activity before and during pregnancy, pregnancy planning behavior, cystic fibrosis carrier screening, and other risk factors [22]. In UK, women from different geographical regions have only modest knowledge [23]. Overall, participants in USA demonstrated low to moderate knowledge of issues related to preconception health [24]. The proportion of women having knowledge about PCC varied from

7% to 85% in different countries like Nepal, Zambia, Nigeria, United States, Ethiopia and Nepal [9,10,12,13,25,26]. Usually most of the women have positive attitude towards seeking PCC as demonstrated in studies conducted in countries like Malaysia, Iraq [12,14,21,27]. About one third men and 60% women strongly agreed that parental health may have serious effects on health of expectant baby in Jordan [28]. In a study in South Ethiopia, about 20% of the women who just delivered were found to have good knowledge about PCC. In a study in Colorado, United States it was observed that young women demonstrated greater motivation for pregnancy prevention and contraception rather than promoting preconception health. In another study among predominantly low-income Mexican American population in the United States, participants agreed about improving preconception health and most of them desired to get information from obstetricians [13]. There was not only lack of knowledge about PCC among women with diabetes mellitus, hypertension and obesity but there was also lack on intent for pre-conception health promotion and pregnancy planning among women in Hershey, United States [16]. About 15% women were aware about preconception folic acid supplementation in North-western Ethiopia [29]. Highest knowledge was in the area of RCH risk factors had and lowest about health promotion [26]. Most women had average knowledge of PCC including effects of verbal, physical and sexual abuse [13].

Irrespective of knowledge and attitudes, only about 32% to 50% women sought PCC in countries like Nepal, Nigeria, Malaysia and Iraq [9,11,12,26].

Barriers include lack of social support, lack of awareness, objectives may be promoting healthy baby rather than preventing unhealthy baby [30].

Knowledge on PCC is usually found to be associated with education, age of the woman, number of children, family planning measures, receipt of information, chronic health problems and monthly income in Zambia, Northwest Ethiopia and Nepal [10,25,29,31].

Comprehensive PCC is comparatively new area in India. Women consulting obstetricians may receive some information and services. Federation of Obstetrics and Gynaecological Societies of India has come out with document giving recommending actions for their members indicating strength of recommendation and extent of evidence in 2016, however few private practitioners provide PCC in a comprehensive manner [32].

The study has a few limitations. Even though mother in law and husbands influence the decision on first pregnancy in newly married women, they were not included in the study. Further, preconception health in man is not included in the intervention as well as impact assessment study as it was felt that men's involvement in PCC, though very critical, will be challenging. Further, as the study was implemented in rural and tribal settings, the findings may not be representative to the urban areas or for the state of Maharashtra. In a few FGDs, all members did not participate, which may result in bias.

Conclusions

It was observed that women of reproductive age group desiring to conceive within one year had some knowledge about ante-natal care. About 50% of the pregnancy was planned but they had very little knowledge about PCC, preconception health promotion as well as service utilization were rare. It was observed that women did not have any knowledge about high risk status before conception. Although the topic of medical advice before pregnancy was discussed, none of these participants knew about specific health conditions which needed treatment before conception. Participants knew about the tobacco and alcohol consumption and its adverse impact on the health of the new-born. Overall, participants did not have high levels of addiction to tobacco and alcohol and men in the family had, but husband's behaviour of smoking and alcohol use was not considered as a risk for pregnancy. Thus there is an urgent need to educate community about PCC, carry out health promotion activities before conception and provide PCC services for promoting maternal and new-born health and preventing maternal and new-born mortality in Maharashtra and in India.

Abbreviations

ANM: Auxiliary Nurse Midwife; ASHA: Accredited Social Health Activist; BMI: Body Mass Index; BP: Blood Pressure; FGDs: Focus Group Discussions; GOI: Government of India; Hb: haemoglobin; PCC: Preconception care; STI: Sexually Transmitted Infection; UK: United Kingdom; UNICEF: United Nations Children's Fund; USA: United States of America; WHO: World Health Organization.

Declarations

Ethics approval and consent to participate

The project was approved by institutional ethics committee vide reference number, BVDUMC/IEC/11 Dated; 30-04-2018.

Consent to participate

The written consent from the women was obtained for participation and audio recording. and use for publication.

Consent for publication

The written consent from the women was obtained for use for publication also.

Availability of data and materials

The data used in this study was obtained from participants who took part in the FGDs and can be made publicly available.

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Competing interests

Staff and consultants of UNICEF were involved in the designing of the study as well as editing the manuscript. All other authors declare that they have no competing interests.

Authors' contributions

PPD, JSG, PDP, SHP, AVP, ~~AVD~~, MVK, ANS, KKB designed the concept of assessment of the PCC programme in Nashik District. PPD, JSG, PDP, SHP, APC conducted the FGDs. AVD and MVK helped to assemble women. PPD, JSG and APC performed data analysis. PPD wrote the first draft of the manuscript. JSB and KKB revised the manuscript extensively. All authors approved the final version for publication. All authors have the appropriate permissions and rights to the reported data.

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Tables

Table 1 Blocks and villages in study area, Nashik District, India, 2018

S. No.	Block	Female literacy rate % (Census 2011)	Villages	Selected villages for FGDs	Village population
1	Peint (T)	53.34	145	Bhaygaon, Gonde	1,447 1,276
2	Sinnar	48.93	131	Kundewadi, Datli	1,959 2,356
3	Trimbakeshwar (T)	63.93	126	Torangan, Shirasgaon	1,984 1,795
4	Niphad (R)	66.34	137	Chitegaon, Kothure	4,616 5,022
Total		61.19	539	8	20,455

T=Tribal, R=Rural

Table 2 Age of the women participating in FGD, Nashik, India, 2018

Age group (years)	Number	%
15-19	5	6.58
20-24	42	55.26
25-29	21	27.63
30-34	7	9.21
35-39	1	1.32
Total	76	100.00

Table 3 Educational status of the woman participating in FGD, Nashik, India, 2018

Educational status	Number	%
Illiterate	3	3.95
Up to primary (1 st -7 th std.)	12	15.79
Up to secondary- SSC (10 th)	35	46.05
Up to HSC (12 th)	17	22.37
Up to graduation	9	11.84
Total	76	100.00

Figures

Fig. 1



Selected blocks in Nashik District, India, 2018

Figure 1

Selected blocks in Nashik District, India, 2018 (source: <https://nashik.com/nashik-district/>).