



Maternal Health Survey

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Maternal Health Survey, Kerala, India

Ver: Final

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A survey carried out by Birth for Change Foundation in partnership with the Network for Information and Digital Access (NIDA) and Hardie Wren Development Initiative (HWDI), 2017



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Introduction

A survey was carried out from April to May 2017 by Birth for Change Foundation Midwives and Nurses in partnership with Network for Information and Digital Access (NIDA) and Hardy Wren Development Initiative (HWDI), with an aim to gain an understanding of the situation of women in a South Indian urban slum. The findings of the survey aim to inform and enhance focus on improving maternal health literacy in disadvantaged communities. The survey will be followed by initiation of health classes and a clinic with a subsequent impact evaluation.

Following completion of the survey and initial reporting of findings, correlations were considered which explored the relationship between the results from important survey topics. The conclusions of these correlations are now incorporated in the text.

Background

Maternal health literacy can be defined as the cognitive and social skills that determine the motivation and ability of women to understand and gain access to information, in ways that will promote and maintain their own health and that of their families (Nutbeam 1998, 2006). Beliefs that a health literate community has the best chance of understanding, shaping and improving their lives on a day to day basis are well documented (Kickbusch, 2001).

The ability of women to gain access to resources and make independent decisions about their health, fertility and healthcare has an impact on maternal mortality, which was at a rate of 174 deaths per 100,000 live births in India in 2015 (WHO et al). In places such as India, where women and girls may be confined to a low social status, their education and health needs are often neglected. UNICEF (2012) has identified the root cause of women's disadvantaged position in many countries and cultures, as the lack of attention to and accountability for women's rights such as education.

The urban population in India is one of the largest in the world, with a large section of the population living in poverty in overcrowded city slums (Hazarika, 2010). Slums are characterised by deteriorated or poorly structured housing, crowding, poor water supplies and sanitation. Poor drainage with open sewers, uncollected waste and limited lighting or electricity.

According to Agrawal (2007), for women in slums there is poorer utilisation of the reproductive and child health services when they are provided by the government, a lack of general health knowledge, trust in services, awareness about child spacing and very low use of contraceptives, all of which leads to poor outcomes and could be largely prevented by access to reproductive health services and education.

A previous survey on health behaviour in India (Nandan and Misra, 2006) reported that rather than seeking a physician, most women will discuss their health problems with mothers, sisters or other women in their community, passing on acquired knowledge from woman to woman. Health beliefs related to pregnancy and childbirth exist in various cultures globally (M'soka et al, 2015). In India, they can vary from state to state and often from community to community (Worthington and Gogne, 2011).

It is reported by the Ministry of Home Affairs, Government of India that 40% of women in India have never been to school (2001). However, the census of 2011 claimed that the state of Kerala has surpassed this to become the most literate state in India with a literacy rate of 93.91%, (male literacy 96.02%; female literacy 93.91%). This shows an improvement from the previous census in 2001 in which literacy rates were 90.86% in total. Even with this increase, the lower rate of female literacy has the potential to have a significant impact on the health of women, their children and on family planning, family nutrition and on higher rates of maternal and infant mortality (Census of India, 2011).

Health researchers and health care professionals have long been aware about the link between inadequate education and health (Evans, 1994) Reports from around the world for many years have highlighted the positive impact of education on health and in particular women's health, birth outcomes, and the health of their children (Nussbaum, 2000 and Johri et al, 2015). Poor maternal health literacy has been associated with child nutritional deficiencies (Johti, 2016) and low incidence of breastfeeding (Ickes, 2015).

The World Health Organisation (WHO, 2015) recommends that no more than 10 -15% of women around the world have caesarean sections around the world, including India, yet in the past decade numbers have risen so that in Kerala 41% of births are by caesarean section (ICMR school of public health, 2017). Private hospitals are not required to report their caesarean section rate but reports have suggested numbers of 50% and above of births by caesarean section in some hospitals (Singh and Gupta, 2013).

In India, childbirth has become a money-making industry with reports of medical practitioners encouraging and scaremongering healthy low-risk mothers to have invasive procedures and surgery rather than a focus on access to dignified, appropriate care (Birth India,2017), with practices falling far short of evidence-based and resulting in poor treatment of women (Nagpal et al, 2015) The lack of knowledge or understanding that women have when accessing services means they are 'done to' without any insight into what is proposed, since it is installed in them that 'doctor knows best' from an early age. Because of this people do not take responsibility for their health care and leave decisions to the doctor. Education and health literacy are a key element to improving maternal choice, experience and overall healthcare outcomes.

This health literacy research will aim to explore further avenues such as empowerment processes, survey design for health literacy, assessment of different population groups and outcome measures of health promotion interventions.

Objectives of the survey

To gain a snapshot of the situation affecting maternal health in the slum, regarding:

- Family background
- Living standards
- Education
- Menstruation
- Contraception
- Pregnancies, births and breastfeeding
- Nutrition
- Alcohol and Smoking
- Income and expenditure

Methodology

The survey was developed by Birth for Change Foundation midwives in partnership with NIDA and HWDI. The survey was completed for women between the ages of 18 and 60 years old which was within a reproductive age range and therefore more focused on areas of interest. A random sample of the first 100 women in the first 82 households visited by the researchers were included. The researcher-led survey was conducted from door to door in two slum colonies named Udaya and PNT in the city centre of Kochi. The survey was directed in the Keralan state language of Malayalam, with responses translated by the researcher and entered onto the pre-developed Survey Gismo (www.surveygismo.com) online questionnaire in English. Participant numbers were allocated to protect confidentiality and identifying details were stored in a secure case with the research midwife within the secure setting of the birth centre, as for health records.

Results

Family background

Each age group was well represented within the sample (Fig 1). Women reported that they were married in 91% of the responses (Fig. 2). It is worth bearing in mind that marriage and having children within wedlock is the cultural norm in India, therefore it is possible that women would not have answered otherwise, even if they were not married. Women in the sample had lived in the slum colony between 0 and 40 years, with 28% having lived there for over 30 years (Table 1). The most common reason given (38%) for moving to the slum was for marriage and family reasons. Only 2 respondents were born in the slum (Fig. 3).

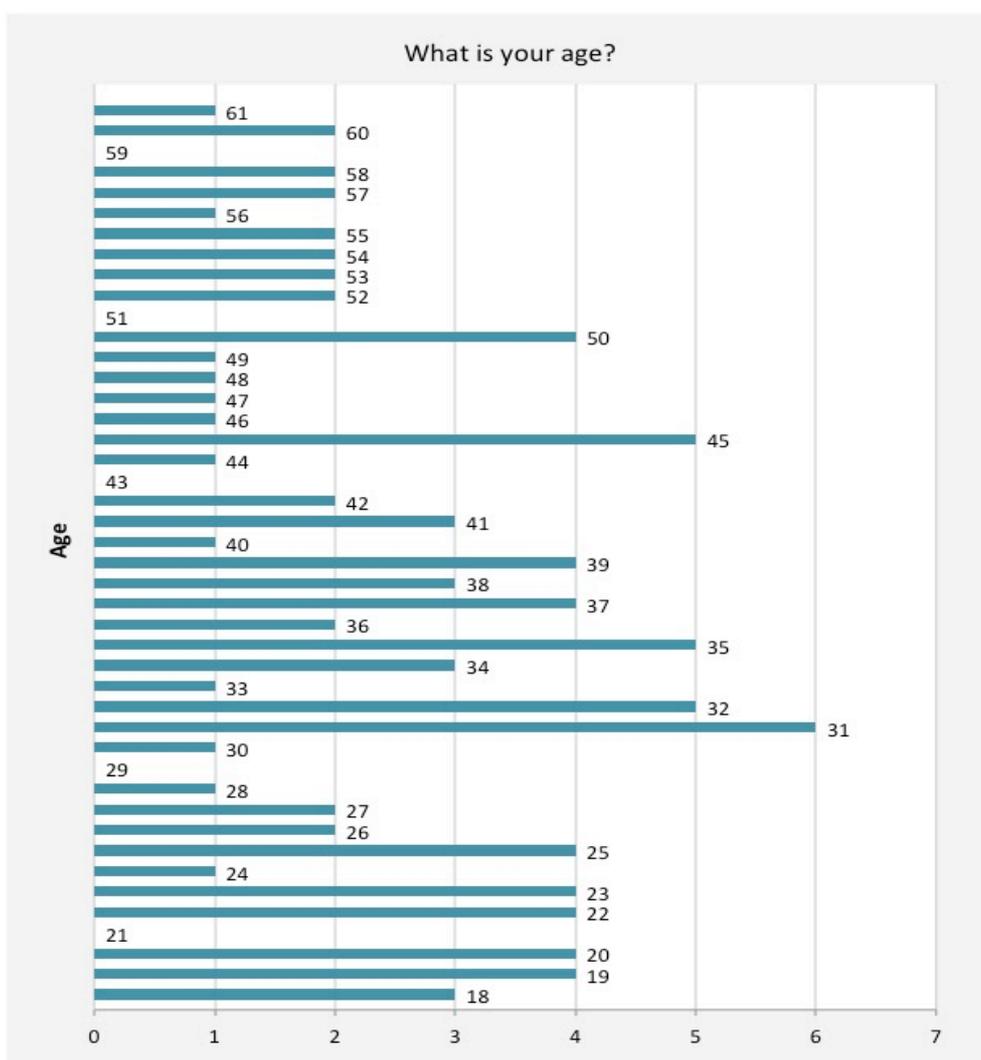


Fig. 1: Ages of survey respondents



Fig. 2: Relationship status

Years	Number of responses	% Responses	% Respondents
<1	2	2.02%	99.00%
1-5	14	14.14%	
6-10	11	11.11%	
11-15	12	12.12%	
16-20	12	12.12%	
21-25	11	11.11%	
26-30	9	9.09%	
31-35	13	13.13%	
36-40	13	13.13%	
40+	2	2.02%	
Total responses	99	100.00%	
Did not answer question	1		1.00%
Total	100		100.00%

Table 1: How long have you lived here in slum?

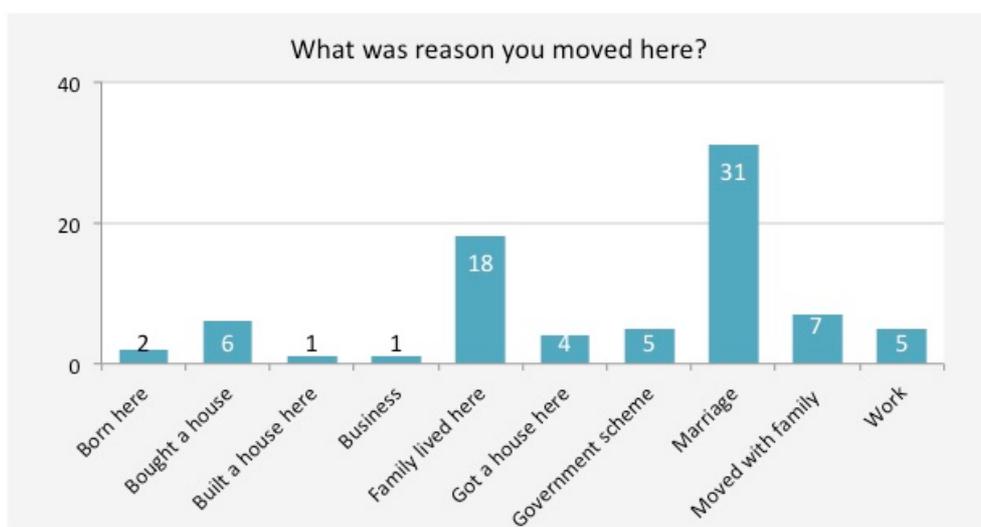


Fig. 3: Reason for moving to slum

83% of respondents reported they had been pregnant (Fig. 4). 39.6% of these women had suffered from miscarriage, pregnancy loss or loss of a child (Table 2). 63% of those who had provided commentary in response to the question about pregnancy loss (Fig. 5). Overall, 28.2% of those responding had suffered from a miscarriage. This is a somewhat higher rate than that for a general population of women which is reported to occur in around 15-20% of pregnancies (Poorolajal et al, 2014) However, when compared to a study by Patki and Chauhan (2015) Indian women appear more likely than other ethnicities to miscarry with 32% of the population in their study suffering from a spontaneous miscarriage. Globally, miscarriage has been presumed to be around 10% (Regan, 2000) 8% of the women sampled were pregnant at the time the survey was completed (Fig. 6). The 22 'unknown' relates to the addition of the question to the survey at a slightly later date than other questions.

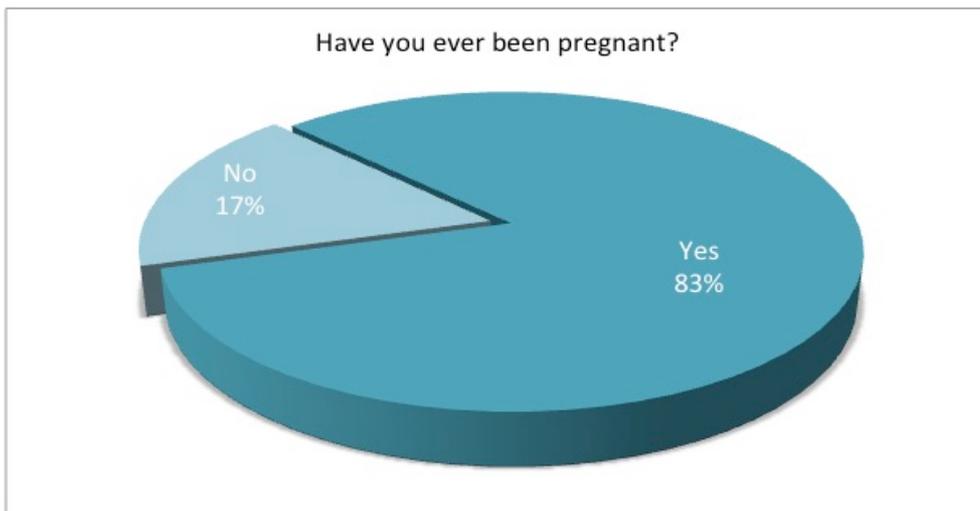


Fig. 4: Pregnancy history

	Number of responses	% Responses	% Respondents
Yes	25	39.68%	63.00%
No	38	60.32%	
Total responses	63	100%	
Did not answer question	15		15.00%
Unknown	22		22.00%
Total	100		100.00%

Table 2: Have you ever had a miscarriage/pregnancy loss/loss of a child?

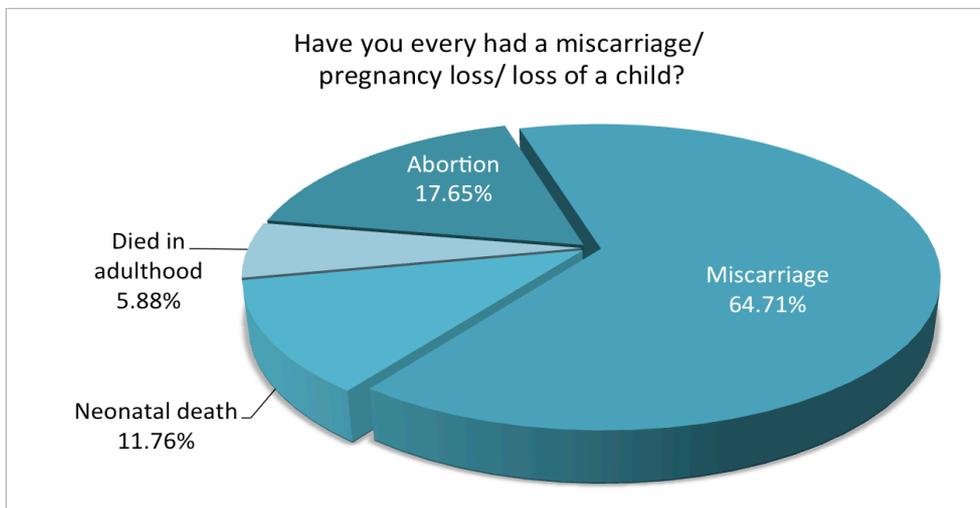


Fig. 5: Loss of child/children

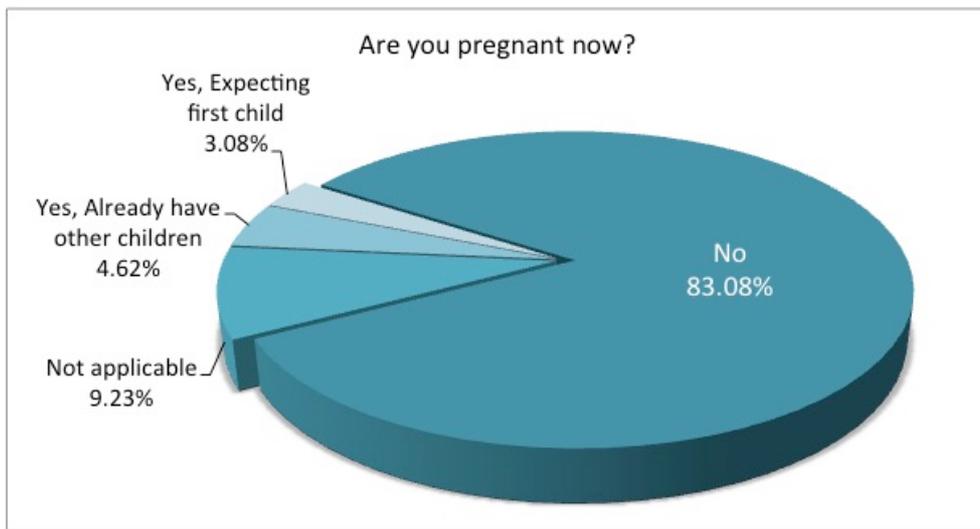


Fig. 6: Currently pregnant

The average family size of respondents was between 1 and 3 children. 19 respondents had no children, 24 respondents had 1 child, 29 respondents had 2 children, 22 had 3 children but only 1 family had 4 children. No families had more than 4 children (Fig. 7). These figures correlate with the national average of 2.45 children per woman (2016), compared with 1960 when the reported average family size in India was 5.9, in 1980 when it was 4.8 and in 2000 when it was 3.3. Family size appears to have decreased significantly over the years suggesting that family planning is more prevalent.

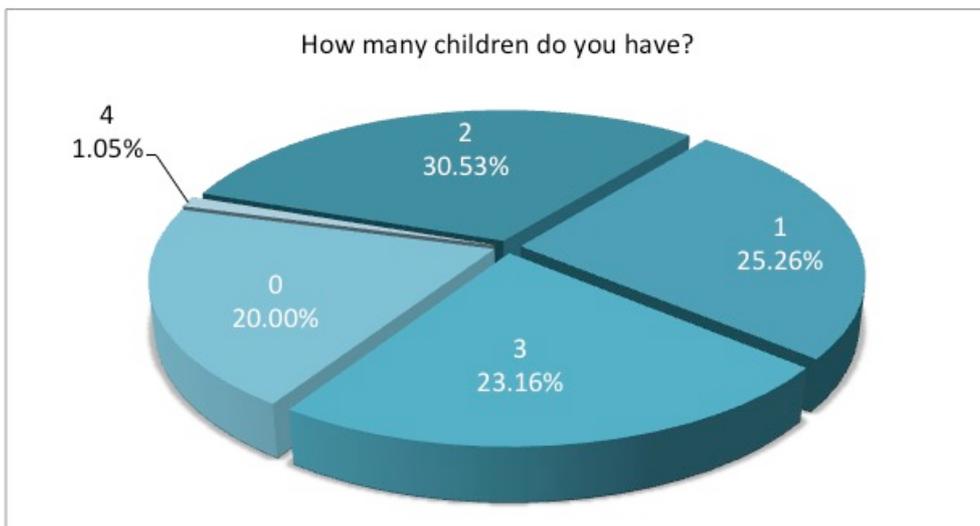


Fig. 7: Number of children

The gender ratio of children was near to equal with 49.3% of children being female and 50.6% being male (Fig. 8). Discovery of gender during pregnancy was made illegal in India in 1994 due to the increase in female feticide due to the prevailing preference for male children. Prior to this Indian census data suggested a positive correlation between abnormal gender ratio and socioeconomic status and literacy. This may have been associated with the dowry system in India which is costly for the family of females.

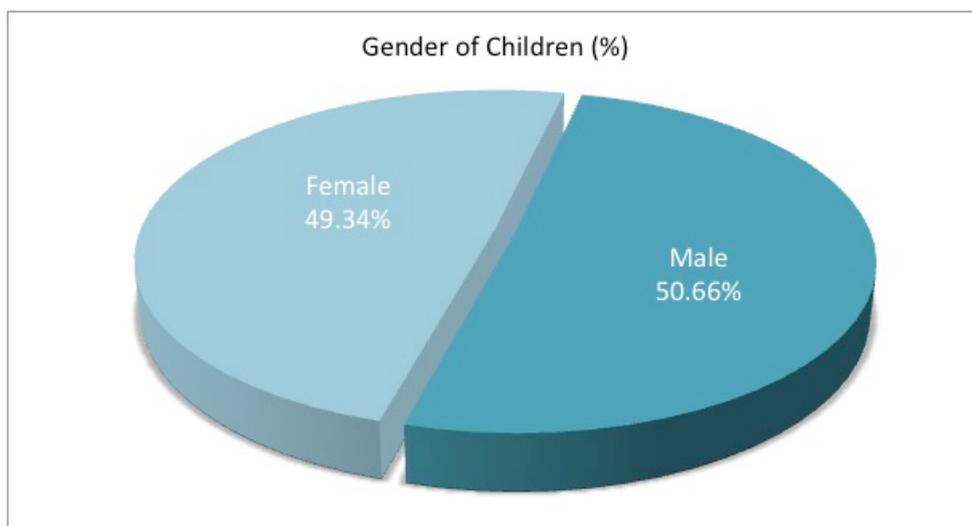


Fig. 8: Gender of children

62% of children in the slum colony were born in government hospitals and 33% in private hospitals (Fig. 9). The public health system in India is composed of state owned health care facilities which are funded by the government of India. Fees vary but are generally substantially less than their private counterparts. People below the poverty line are exempt from hospital fees. Below poverty line is an economic benchmark used by the Indian government to indicate severe economic disadvantage so that government assistance can be offered. This usually means an income of less than 121.52 INR per person (1.90USD/1.46GBP). Standards of government hospitals vary but would also be considered suboptimal in many instances in India, compared with private hospitals. Resources are limited, as are staffing numbers per patient which are reported to be a ratio of 1 doctor per 11528 people (Bagcchi, 2015). However, as care is given without charges in mind it is accepted that, in general, unnecessary interventions may be less common than in a privately financed hospital. The frequency of costly caesarean section rates is reported to be 3 higher in private hospitals across Kerala when compared to government hospitals, according to a National family health survey carried out by the International institute for Population Sciences, India (2013). The fees charged for normal childbirth in government hospitals in urban areas of India are 2117 Indian rupees (INR) on average (33.18USD/25.42GBP) whereas the average price of childbirth in an urban private hospital is 20328 INR (USD318.62/ 244.14GBP).

Only 4.41% of respondents' babies were born at home in the slum to (Fig. 9). Of these respondents the older women of the sample, who were over the age of 35 had the home births. During data collection, Women told stories of a dais who had served the slum colony. A dais is a traditional Indian birth attendant who would attend the births of babies in the slum for a payment of a piece of clothing or food. The women reported no other traditional birth attendants since her death in the 1980s, which may have contributed to the increase in hospital births among this population, along with the government push for birth in hospitals in India.

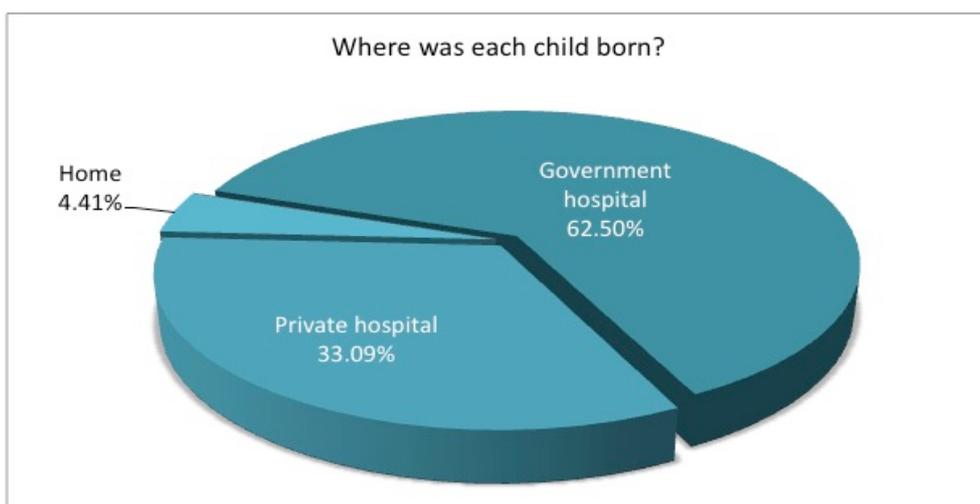


Fig. 9: Birthplace of child/children

In 68.2% of cases, respondents reported having a normal birth. 31.79% were caesarean (Table 3). Compared with the WHO recommendation of 10-15% caesarean section rate this is a raised incidence. No women reported having a ventouse or forceps instrumental delivery. Instrumental delivery rates in the U.K account for around 13% of births, this figure varies around Europe between 0.5% and 16.4% (Macfarlane, 2016). A record of the rate of instrumental deliveries in India is not available. According to WHO and UN agencies assisted vaginal delivery (instrumental delivery) is one of the six critical functions of basic emergency care, it is therefore unlikely that none of these women would have undergone this birth intervention. Hospitals in Cochin are equipped to carry out this intervention, with obstetricians having had the training to perform it if necessary. The absence of this information from the respondents could be due to a lack of understanding given to women about birth in India in the antenatal period: antenatal classes are very rare and this may mean a woman would class a vaginal birth as a normal birth whether there was use of instruments or not. A reported lack of consent for procedures and minimal information about procedures given to women after the event should also be considered. Families are not allowed to attend births or come into the birthing room, on the whole. Therefore, women often report having limited knowledge of what happened to them during their birthing process.

	Number of responses	% Responses	% Respondents
Normal birth	103	68.21%	93.75%
Instrumental- ventouse/forceps	0	0.00%	
Caesarean section	48	31.79%	
Total births	151	100%	
Total responses	75		
Did not answer question	5		6.25%
Total	80		100.00%

Table 3: How was each child born?

42% of respondents gave birth between the ages of 21 and 25 (Fig. 10). The youngest age of birth was 14 years old and the oldest 37 years old. This is slightly older than the average age of women in India which is 19.90 (United Nations, 2013). The general trend across the world is that mothers in more socially liberal countries have their children later while those in poorer countries have children at a younger age.

Correlations of data suggest that the percentage of women having vaginal births in recent years is decreasing in younger women of childbearing age and that caesarean section rates are rising. Women between the ages of 26-35 years old in this sample had the most caesarean sections. 48.8% of the women in this age range had a caesarean section. Just 15.5% of the women in the age range 46-60 reported having a caesarean section (84.4% vaginal birth rate). There is a clear growth in the number of caesarean sections from the older to the and younger women. Reasons for this are not clear but are in line with increasing rates of medical intervention in childbirth worldwide (Betran, 2016 and The Royal College of Midwives, 2016).

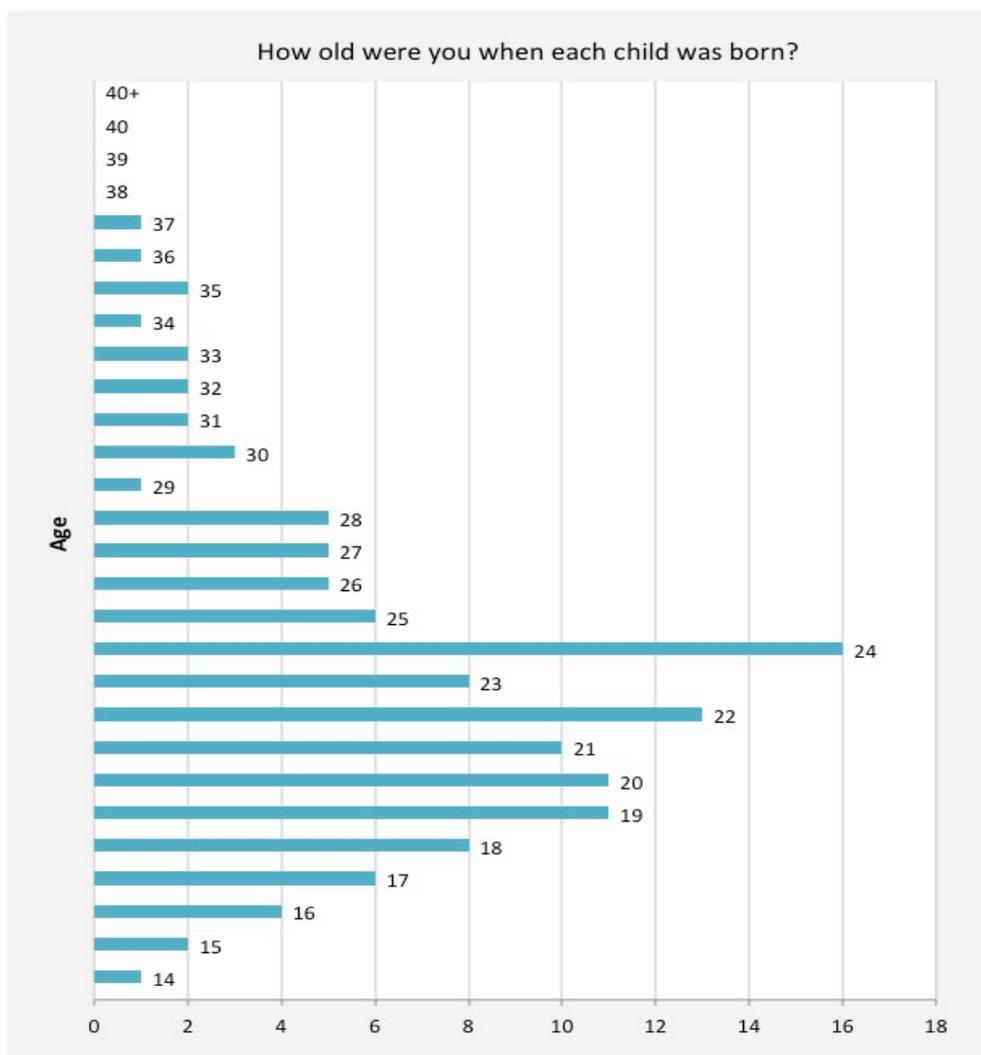


Fig. 10: Age at childbirth

Of the respondents, women who could neither read or write were more likely to give birth in government hospitals, with 80% choosing government hospitals and 20% choosing a private hospital. Of those who could read and write, 55% chose government hospitals and 45% chose private hospital care (Fig. 11). This difference in use of the two types of care between illiterate and literate women may be due to access to information reinforcing the belief that private hospital care will be an improvement on government hospital care.

Of the illiterate respondents, 82.76% reported having a vaginal birth. Literate women reported a vaginal birth in 56% of cases. 96% of women who had no education had a vaginal birth and 61% of educated women, 38% of educated women had a caesarean section but only 3.5% of uneducated women did, suggesting that literacy and access current information and education may influence mode of birth and lead to lower outcomes of 'normal' vaginal birth.

In addition, the correlation of type of birth and where each child was born shows a stark contrast between private and government hospital outcomes. Of the respondents who chose a government hospital for their birth, 80.6% had a vaginal birth, compared to 17% at a private hospital, while, 68% of women had a caesarean section at private hospitals compared to 31.7% at government hospitals. It is possible to conclude that more illiterate women are attending government hospitals, which is in turn the cause of the higher number of vaginal birth amongst them.

However, although birthing in a government hospital appears to mean more vaginal births this does not necessarily suggest that the overall birth experience for women was better, since normal birth practices and human rights in childbirth in India are widely held to be severely lacking (Birth India, 2017). Quality of care in both private and government hospitals is an issue for further exploration.

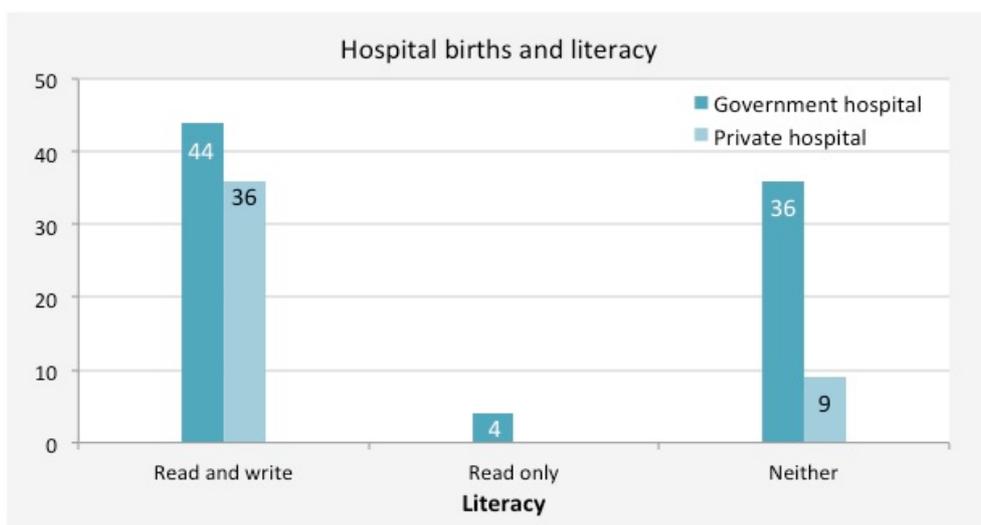


Fig. 11: Hospital births and literacy

Of the educated women in the sample, 41% chose a private hospital for their birth, compared to just 4% in the uneducated women (Table 4). This could be assumed to be due to educated women having better jobs and therefore more money to pay for private care. However, our findings from a small sample suggest that a mother’s income does not impact their decision on place of birth, with women from all ranges of income choosing both private and government hospital care (Table 5). Our findings suggest that women are saving money to pay for private health care and consequently experiencing high rates of caesarean section.

In 2017, a petition asking the Women and Child Development ministry to issue an advisory to the Medical Council of India was commenced, making it mandatory for hospitals to declare their caesarean section statistic rates to the public so that women have a choice and to safeguard the health and rights of women and children (Ghosh, 2017).

Have you ever had any education?							
	Yes	%	No	%	Number of responses	% Responses	% Respondents
Gov. hospital	63	58.88%	21	95.45%	84	65.12%	86.25%
Private hospital	33	41.12%	1	4.55%	45	34.88%	
	107	100.00%	22	100.00%	129	100.00%	
Total responses					69		
Did not answer question					11		13.75%
Total					80		100.00%

Table 4: Hospital births and education

	Gov. hospital	%	Private hospital	%	Home	%	Number of responses	% Responses	% Respondents
<100	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
100-499	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
500 - 999	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
1,000 -1,999	3	12.50%	0	0.00%	0	0.00%	3	7.50%	
2,000 -2,999	1	4.17%	2	13.33%	0	0.00%	3	7.50%	
3,000 - 3,999	4	16.67%	0	0.00%	1	100.00%	5	12.50%	
4,000 - 4,999	6	25.00%	5	33.33%	0	0.00%	11	27.50%	
5,000 - 9,999	4	16.67%	5	33.33%	0	0.00%	9	22.50%	77.42%
10,000 - 11,999	5	20.83%	0	0.00%	0	0.00%	5	12.50%	
12,000 -14,999	1	4.17%	2	13.33%	0	0.00%	3	7.50%	
15,000 - 20,000	0	0.00%	1	6.67%	0	0.00%	1	2.50%	
>20,000	0	0.00%	0	0.00%	0	0.00%	0	0.00%	
	24	100.00%	15	100.00%	1	100.00%		100.00%	
Total births							40		
Total responses							24		
Did not answer question							7		22.58%
Total							31		100.00%

Table 5: Birth place of children and amount of joint income

87.33% of respondents' breast fed their babies, with 78% of women continuing to breastfeed their child up to some point between 1 and 5 years of age (Fig. 12). Figures from the WHO Global Data Bank on Infant Feeding and Young Child feeding (2005-2006) suggest that 97.4% of women breastfeed their baby at some point in Kerala. However, the median time for which a mother breastfeeds exclusively is 3 months. Although the rate of breastfeeding is lower in the findings of our survey (Table 6), the average length of time women breastfeed for is significantly higher. This may suggest that relative poverty and necessity have a positive outcome on length of breastfeeding time. Women gave a normal range of reasons for stopping breastfeeding including weaning, breastfeeding issues and medical issues (Table 7).

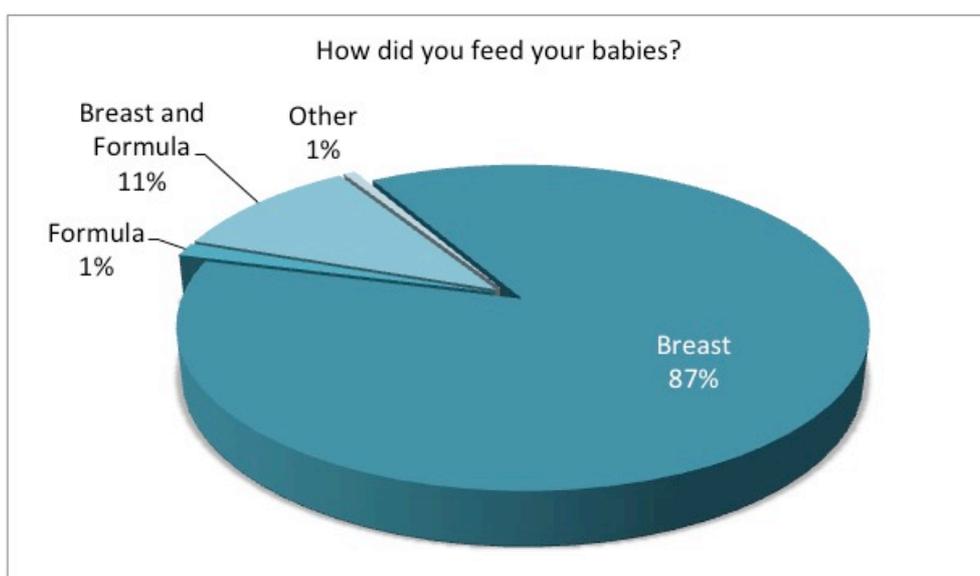


Fig. 12: Method of feeding babies

	Number of responses	% Responses	% Respondents
Up to 1 month	1	0.67%	98.67%
Up to 6 months	11	7.33%	
Up to 1 year	21	14.00%	
1 to 2 years	61	40.67%	
2 to 5 years	54	36.00%	
> 5 years	2	1.33%	
Total feeding methods	150	100%	
Total responses	74		
Did not answer question	1		1.33%
Total	75		100.00%

Table 6: If you breastfed, how long for?

Reason	Number of responses	% Responses	% Respondents
Age	2	6.45%	30.88%
Child stopped on their own	3	9.68%	
Cracks	3	9.68%	
Didn't know much about it	2	6.45%	
Insufficient supplies	4	12.90%	
Mastitis	1	3.23%	
Mother had chickenpox	1	3.23%	
Another pregnancy	8	25.81%	
Started solids	3	9.68%	
Started work	1	3.23%	
Surgery	1	3.23%	
Wanted to stop	2	6.45%	
Total reasons	31	100%	
Total responses question	21		
Did not answer question	47		69.12%
Total	68		100.00%

Table 7: What made you stop breastfeeding?

There was a marked difference in correlations of age and menstruation education between older and younger women. 4.76% of Women over the age of 46 had received some education about their menstruation which represented the age range in this sample least educated about menstruation (4.76% of respondents). Whereas, 53% of women in the age ranges 21-25 and 26-35 had some education about this topic and 72.7% of respondents between the ages of 18 and 20, suggesting that discussion of menstruation may be increasing over the years.

Education

63% of the women responded that they could read and write, 9% could read only, 28% of respondents could neither read or write (Fig. 13). Compared to census on Kerala state literacy (2011) this falls well below the 93% of women reported to be literate. 84% of respondents reported to have had some education (Fig. 14), of these 77% attended government school and 18% private school, 4% attended both at some time (Fig. 15). Education in India is provided by both the public sector (government) and private sector. The ratio of use of public to private schools in India is 7:5. Government schools provide free education to children between the ages of 6 and 14. However the education provided in government schools is often seen as second rate compared to that of the private schools. It is broadly recognised in India that education will lead to a better quality of life (Sreenivasulu, 2013). Therefore, parents from varying socio-economic backgrounds often spend a large majority of their income to send their children to private schools. Fees can vary between 1000 INR (15.68 USD/ 12.01 GBP) to 10,000 INR (156.80USD/120.18 GBP) per month. Reasons for stopping school attendance amongst our survey respondents included marriage and failing grades. However, the greatest number of respondents had to leave due to family financial difficulties, having to start work, ill health of a family member and increased household responsibilities (Table 8). 26.8% of women stopped going to school by the age of 15 (Fig. 16) with 16.6% having passed tenth grade (Fig. 17).

Of those responding, no women reported having no education under the age of 25, all except 1 woman below the age of 35 had some education and an increase was seen in the amount of women who had no education was seen in women above the age of 36, suggesting that it has become increasingly likely that women will have some education. 17.86% of women reported that they were illiterate despite having had some education. 81.25% of respondents were illiterate having had no education but 12.5% were literate having had no education. 6.25% could read only and not write. Age correlations show that girls who went to school until the age of 14 were 100% literate. Those who left school at 7 years or less had 12.5% literacy. Thus, a pattern does emerge from this small sample.

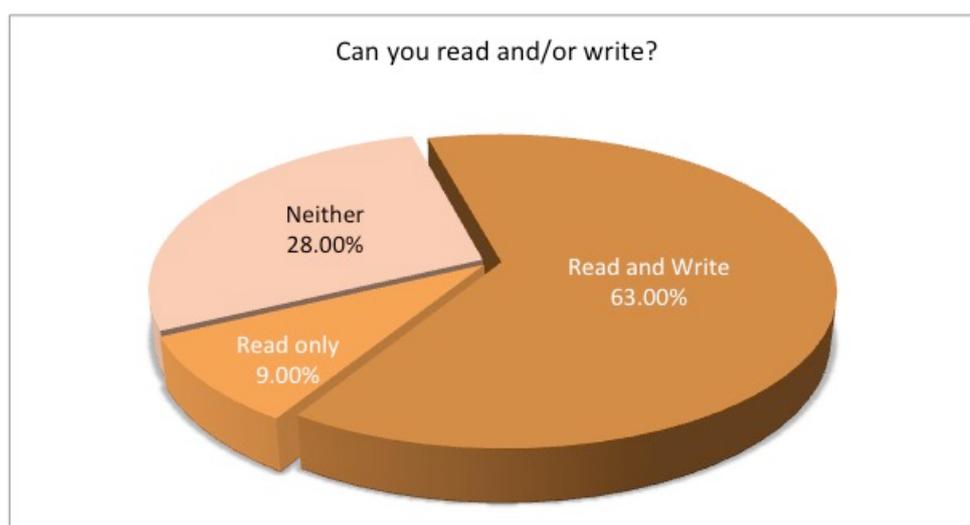


Fig. 2: Literacy

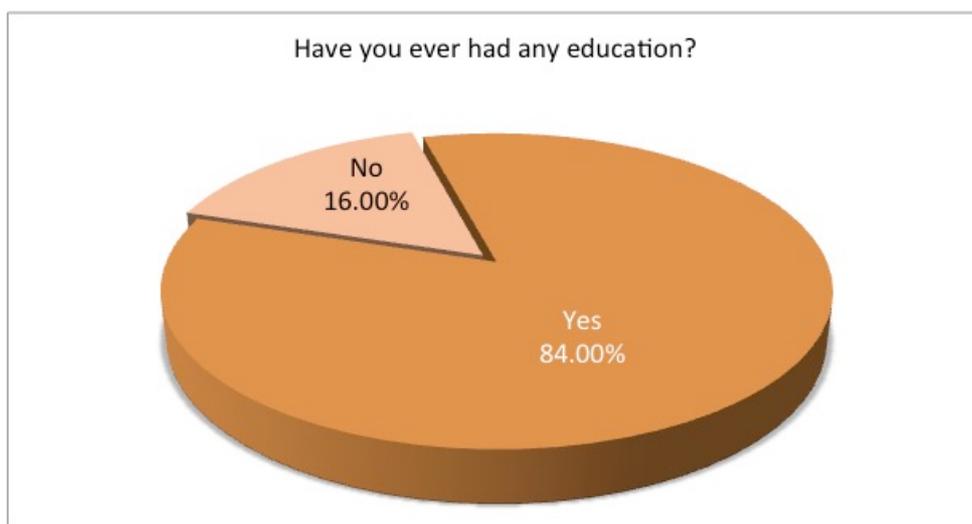


Fig. 14: Education

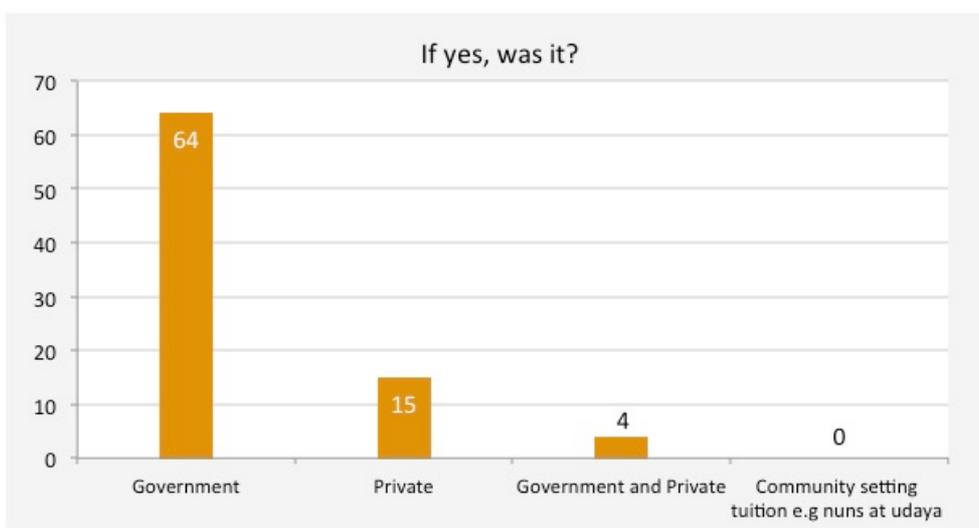


Fig. 15: Where educated

Reason	Number of responses	% Responses	% Respondents
Continuing education	9	10.71%	67.00%
Not sent to school	2	2.38%	
Not interested in studying	9	10.71%	
Failed Grade/Degree	7	8.33%	
Parents(s) Alcoholic	3	3.57%	
Death of parent(s)	3	3.57%	
Ill health of parents	4	4.76%	
Personal Illness	2	2.38%	
Financial difficulties	22	26.19%	
Household responsibilities	7	8.33%	
Marriage	3	3.57%	
Pregnancy	1	1.19%	
Started Work	3	3.57%	
Other	9	10.71%	
Total reasons	84	100%	
Total responses	67		
Did not answer question	33		33.00%
Total	100		100.00%

Table 8: Why did you stop going to school?

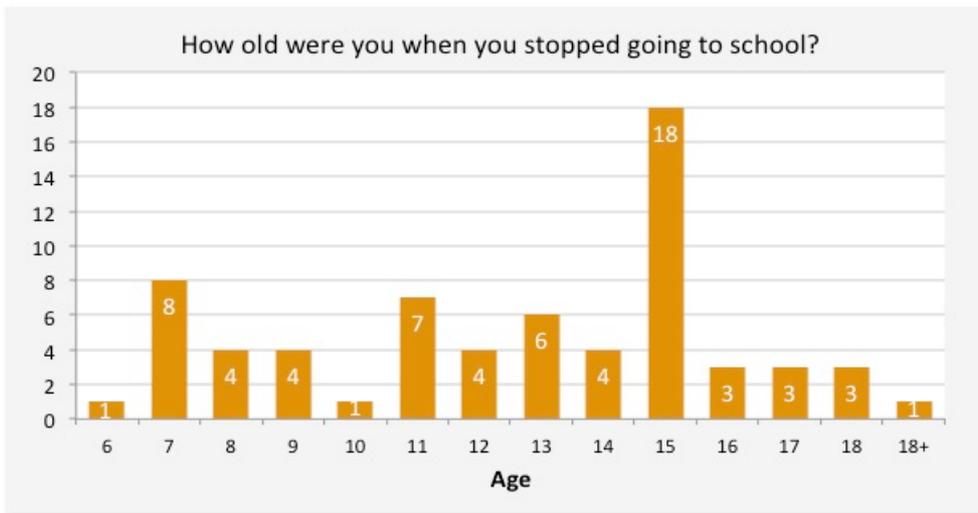


Fig. 16: School-leaving age

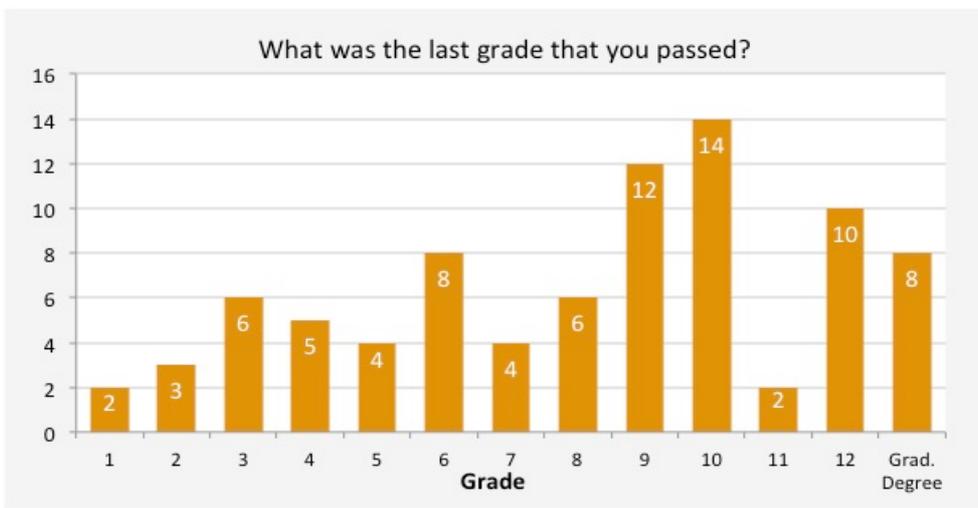


Fig. 17: Last grade achieved

Menstruation

80.6% of respondents started menstruating between the ages of 12 and 14 years old (Fig. 18), which corresponds to mean Indian age of 13.7 years old (Pathak et al, 2014). 63% of respondents had never received any education about menstruation (Fig. 19). Of the 37% who had received education, comments ranged from 5 respondents not remembering what they were taught and 11 reporting receiving information about general personal hygiene during their period. Only 1 woman reported receiving information about physical changes during her period. There were minimal reports of receiving education regarding menstruation and the effects of it on the body, fertility or reproductive health. For those who had some menstruation education, respondents reported being taught mainly by doctors who attended their school or school teachers.

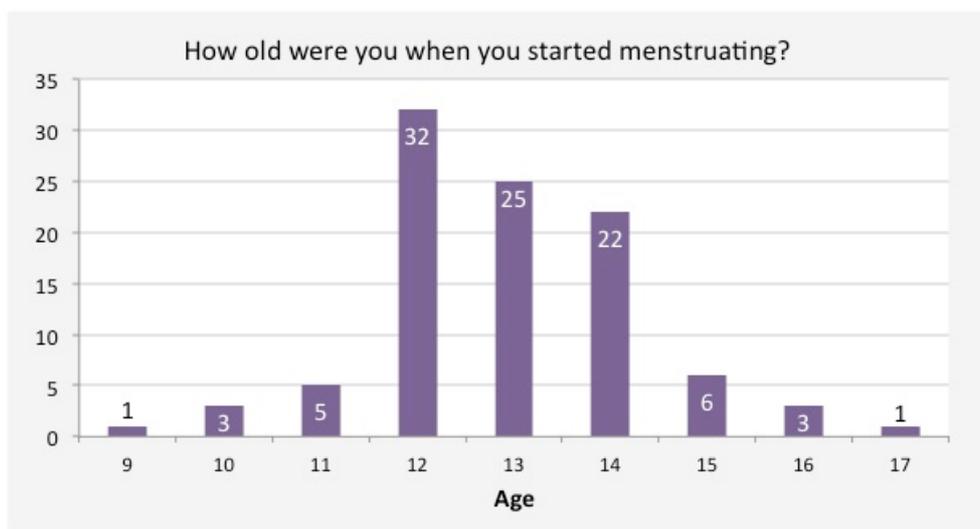


Fig. 18: Age started menstruating

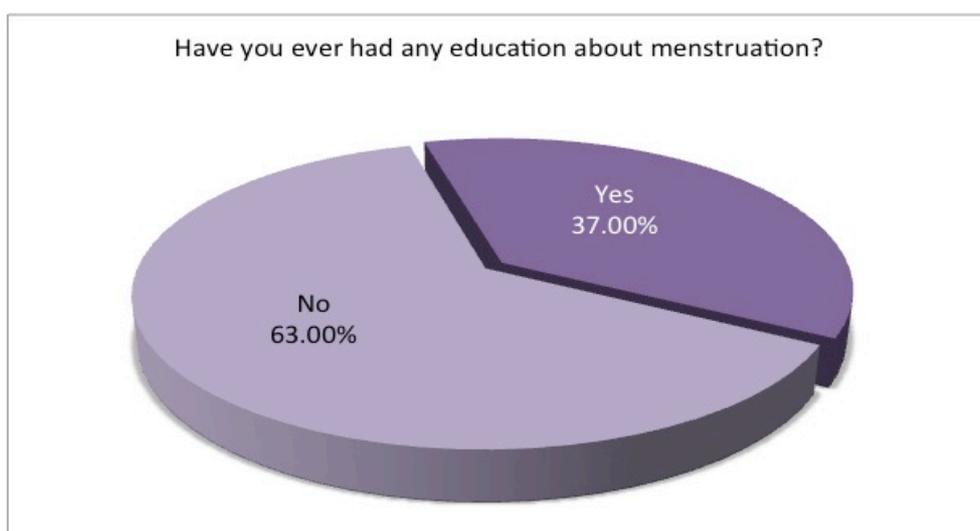


Fig. 19: Education about menstruation

57.14% of respondents had not been taught anything about their menstruation by their mothers (Fig. 20). 26 of the respondents' mothers had taught them about personal hygiene, 1 was embarrassed to talk about menstruation when asked, 1 was advised to be careful with men (Fig.21). 44.9% of mothers reported that they had taught their daughters about menstruation (Fig. 22). Again, the majority of this was reported to be about general hygiene (Fig. 23). According to Garg and Anand (2015) the mention of menstruation in India is perceived as a taboo. Due to the social and cultural influences attached to this, it appears to have had an impact on the advancement of knowledge on the subject.



Fig. 20: Taught about menstruation by mother

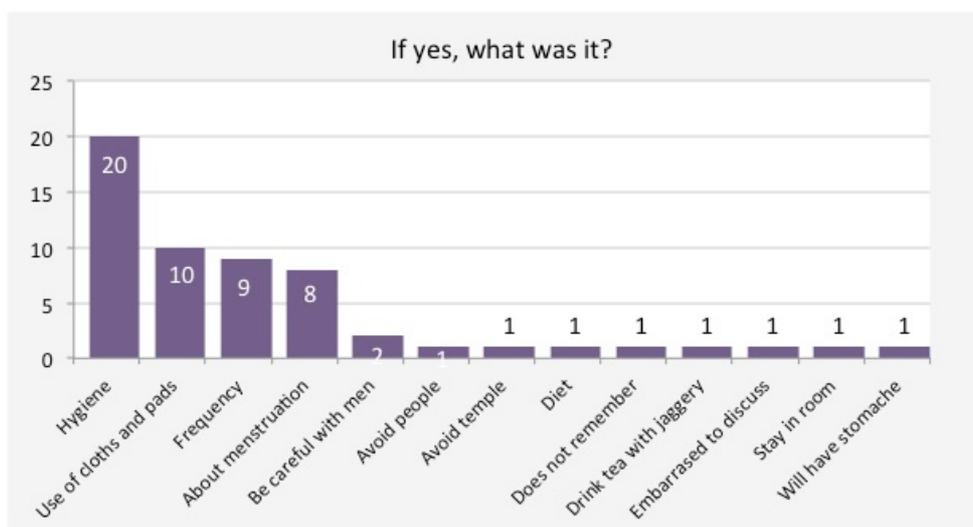


Fig. 21: Information about menstruation provided by mother



Fig. 22: Told daughter(s) about menstruation

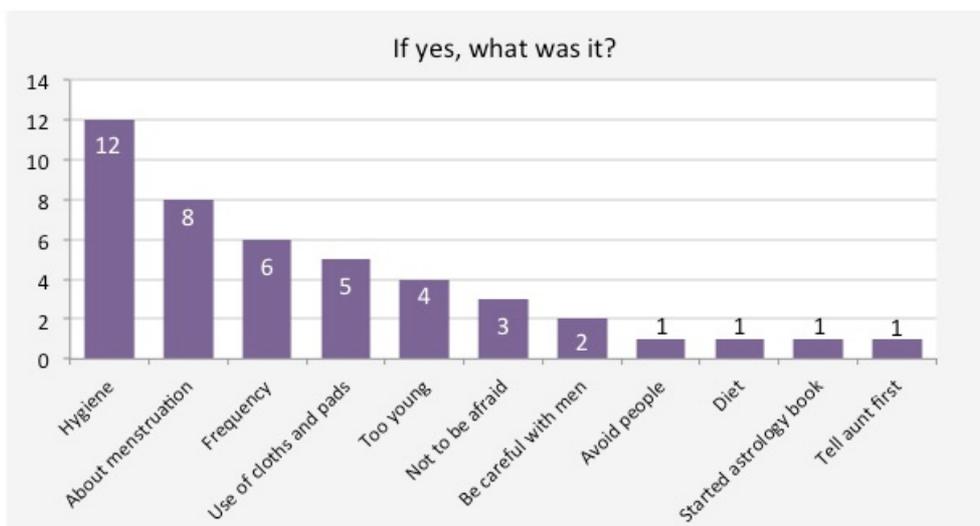


Fig. 23: Information provided to daughter(s) about menstruation

Correlation data suggests that literacy did not increase the number of mothers who taught their daughters about menstruation (Table 9). 39% of literate mothers had taught their daughter but 59% had not, whereas 48% of illiterate mothers had taught their daughters something about menstruation. This could indicate that literate mothers are relying on schools to teach their daughters. Interestingly, women who left school at an earlier age of 7 years old or below appear to have been more likely to teach their daughters about menstruation than those who stayed at school for longer (Fig. 24). The numbers of those who had and had not taught their daughter about menstruation and left school at age of 15 were equal. The very small sample numbers generated by this correlation require validation through a larger sample.

Has told daughter(s) about menstruation							
	Yes	%	No	%	Number of responses	% Responses	% Respondents
Read and write	16	39.02%	19	59.38%	35	39.02%	86.25%
Read only	5	12.20%	2	6.25%	7	9.59%	
Neither	20	48.78%	11	34.38%	31	42.47%	
Total responses					73		
Did not answer					2		13.75%
Total					75		100.00%

Table 9: Literacy and has informed daughter(s) about menstruation

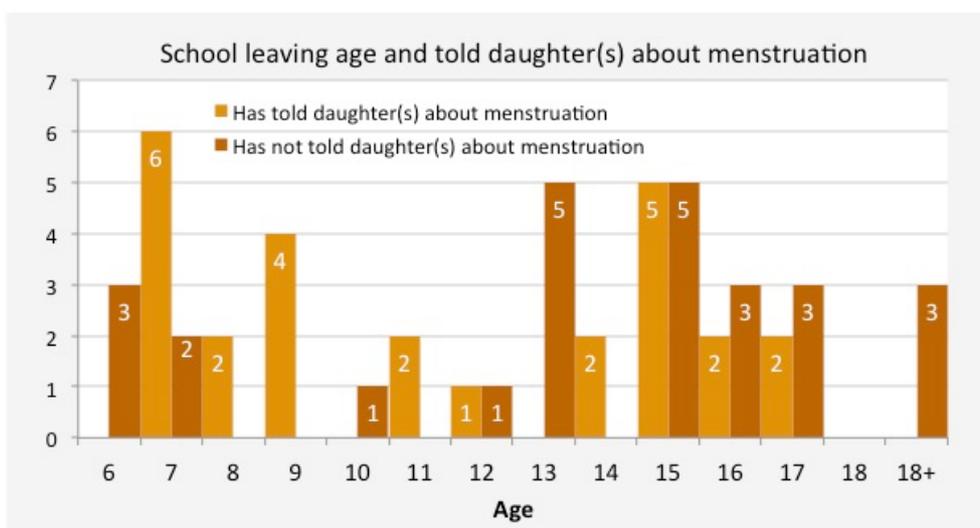


Fig. 24: School leaving age and has informed daughter(s) about menstruation

58.5% of respondents used disposable pads to manage their menstruation, 23.40% used cloth (which is usually unwanted fabric that is washed after use and reused), a traditional practice in India. In recent years, an emphasis has been placed on the need to wash and dry the reused fabric in the sun and not inside the home, so that bacteria are killed efficiently and therefore less infections are caused. Women have previously tended to dry their cloth inside to avoid embarrassment being caused by people seeing the cloth.

11.7% of respondents used a mixture of disposable pad and cloth. No respondents reported using tampons, which corresponds to general use in India, with tampons being the least popular method of period management according to an Indian Feminine hygiene market overview (2016). Women over the age of 35 appeared to use cloth more, while younger women used disposable pads (Table 10). A higher number of women below 26 years old, reported sole use of disposable pads. A decline of usage of cloth was shown in women between the ages of 26-35 and 36- 40 years old, suggesting that disposable pads have become more popular over the last 20 years. A mixture of cloth and disposable pads was used in 81.82% of women who did have education about their menstruation. No women who reported menstruation education used cloth only and all women who did use cloth had no education about menstruation. 38.1% of women who had been taught about menstruation by their mothers used a mixture of cloth and disposable pads.

	Number of responses	% Responses	% Respondents
Disposable pads	53	56.38%	94.00%
Reusable pads	0	0.00%	
Cloth	22	23.40%	
Cloth and Disposable pads	13	13.83%	
Tampon	0	0.00%	
Other	1	1.06%	
Not applicable	5	5.32%	
Total responses	94	100.00%	
Did not answer question	6		6.00%
Total	100		100.00%

Table 10: How do you manage your period?

Women were taught a variety of traditions and beliefs surrounding menstruation, including hygiene, taking regular oil baths, not touching religious items or attending religious places, staying in another room away from others and changes in diet (Fig. 25). Of the traditions and beliefs they had been taught, when asked if they felt the information they had received was true, partly true, untrue or if they were not sure, more respondents believed that the information was true when compared to any of the other categories (Fig. 25). In some parts of Asia isolation to an outhouse during menstruation is still a tradition: this practice is thought to be more prevalent in North India.

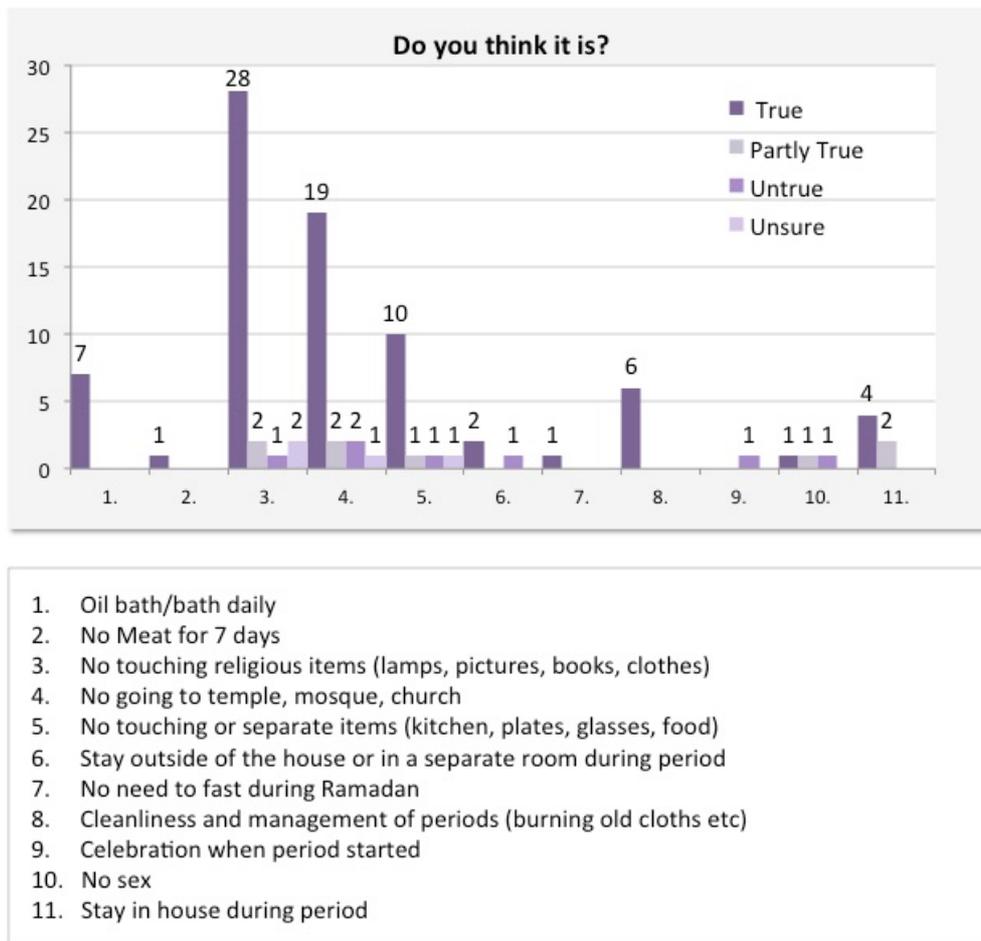


Fig. 25: Traditions and beliefs about menstruation

Contraception

Of the respondents 82.2% of women were aware of some form of contraception that was available to them (Fig. 26). However, 63% of respondents reported using no contraception, not including those responding, 'not applicable' (women who were no longer fertile) (Fig. 27). Therefore 84% of respondents to whom it was applicable used no contraception. An explanation for this could be the widespread use of tubal ligation, which is an irreversible surgical procedure where a woman's fallopian tubes are blocked, tied or cut to make them infertile (Table 11). Tubal ligation has become a common occurrence in India, with more than 4 million of the operations being performed between 2013-2014. However, questions regarding informed consent for the procedure have arisen following the initiation of a government run mass sterilisation camp in 2012 as part of a programme to control India's population, in which a number of women died and more became seriously unwell (Pulla, 2014). It is evident that family size has decreased over the years, but even so reported use of contraception in women of childbearing age appears to be in minimal use. Further investigation into women's feelings and understanding of contraception may shed some more light on the cause(s) of this.



Fig. 26: Contraceptive awareness

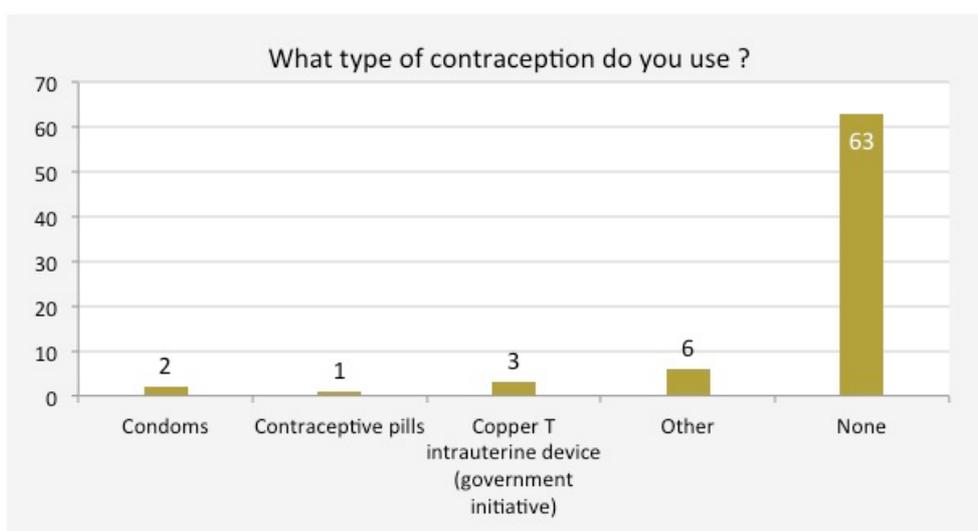


Fig. 27: Contraceptive use

	Number of responses	% Responses	% Respondents
Yes	10	10.00%	100.00%
No	63	63.00%	
Not applicable	27	27.00%	
Total responses	100	100.00%	
Did not answer question	0		0.00%
Total	100		100.00%

Table 11: Have you ever used a different type of contraception?

Minimal contraception was used in all age ranges but those who left school at the age of 15 were more aware of their options. Those who could read and write were more aware of Copper T, contraceptive pills and condoms. Of the respondents who were illiterate, condoms and Copper T were heard the most, but less commonly than those who were literate. Overall, those who were literate and educated knew more about the available contraception than those who were not. (Fig. 28 and Fig. 29).

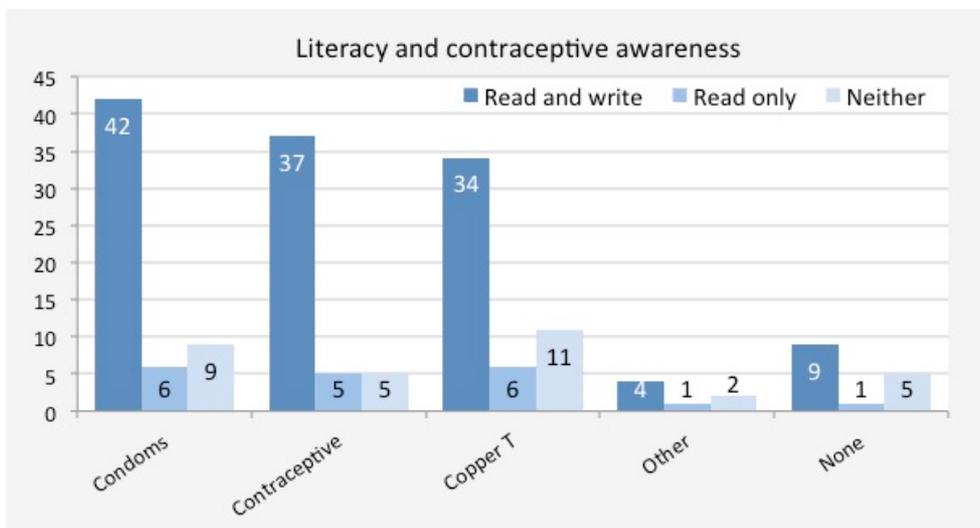


Fig. 28: Literacy and contraceptive awareness

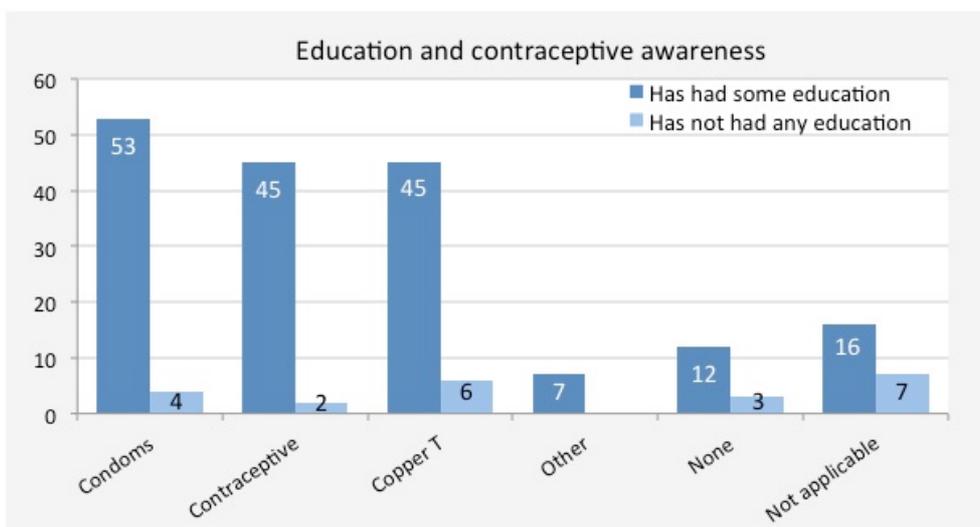


Fig. 29: Education and contraceptive awareness

Pregnancy

Women were asked whether they were aware of pregnancy symptoms to gain an insight into their understanding of their bodies during pregnancy. Of the respondents, 96.43% of women realised they were pregnant because of one or more pregnancy symptoms, indicating a good level of awareness (Fig. 30). Pregnancy symptoms reported by women were a normal range of symptoms from nausea and vomiting, tiredness, food aversions and missed periods (Fig. 31). 1 woman reported that her neighbour was the first to tell her she was pregnant. 91.95% of women knew they were pregnant within the first 12 weeks of pregnancy (first trimester) which is when women most commonly realise they are pregnant (Fig 32).

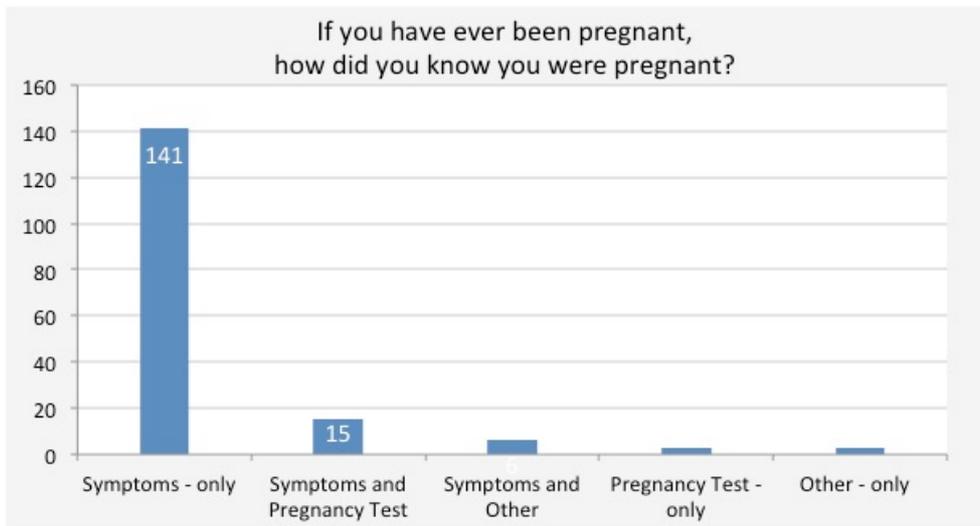


Fig. 30: Awareness of pregnancy

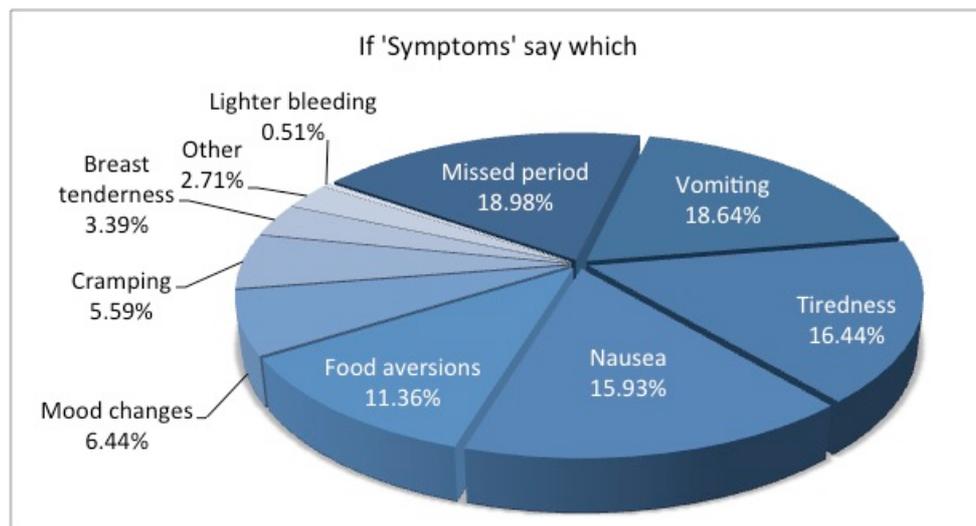


Fig. 31: Symptoms of pregnancy



Fig. 32: When aware pregnancy

39% of women reported changing their diet and/or lifestyle when they knew they were pregnant (Fig 33). 17.1% of these respondents reported increasing their fruit and vegetable intake, 28.5% reported taking more rest or complete bed rest for the pregnancy, 25.7% reported loss of appetite or eating less, 14.2% of respondents took a pregnancy vitamin supplement, 8.5% reported eating more. Only 2.8% reported staying active and exercising. Health advice for pregnancy varies from country to country. However, overall a healthy balanced diet, maintaining activity and taking pregnancy vitamin supplements are seen as positive pregnancy activities. There is no evidence to suggest that bed rest in a healthy pregnancy has benefits but evidence does suggest that it does not help prevent or treat most pregnancy complications (Maloni 2011, Bigelow et al 2011) Even so, the historical practice of bed rest is commonly adopted by women in pregnancy in India. The range of lifestyle or diet changes made by the respondents suggests that there is no uniform advice or access to information regarding pregnancy in this community.

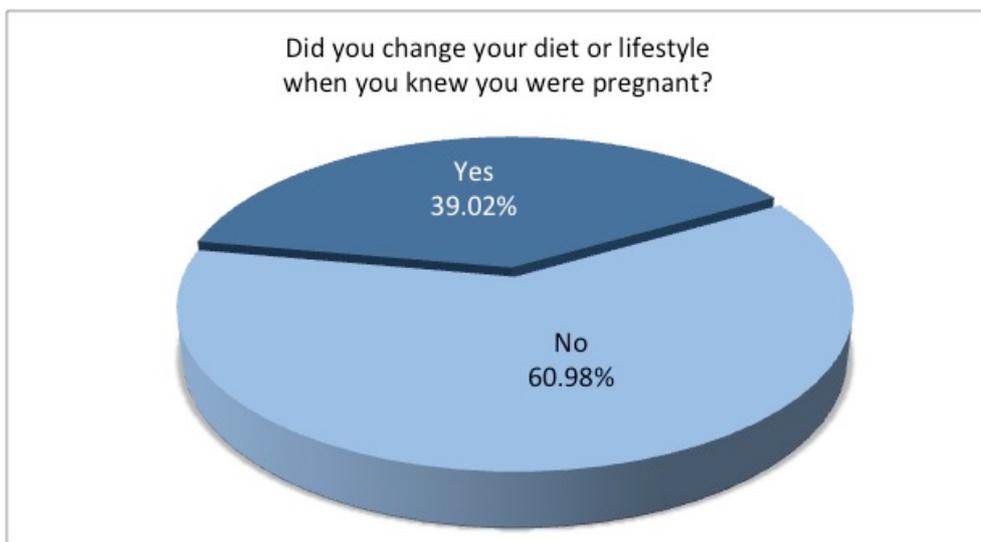


Fig. 33: Changes to diet/lifestyle during pregnancy

47.9% of respondents who could read and write reported changing their lifestyle in pregnancy, whilst 82% of women who were illiterate made no health changes when pregnant. Women who had no education were less likely to change their lifestyle in their pregnancy. However slightly fewer women who were literate also reported making changes to their lifestyle than those who did not (32 versus 36 women). Therefore, while education does appear to have a positive impact on pregnancy lifestyle, literacy alone does not appear to be the conclusive factor (Fig. 34). 56.2% of women who had some education about diet reported changing their pregnancy lifestyle, suggesting that having some information specifically about diet is likely to bring about some change.

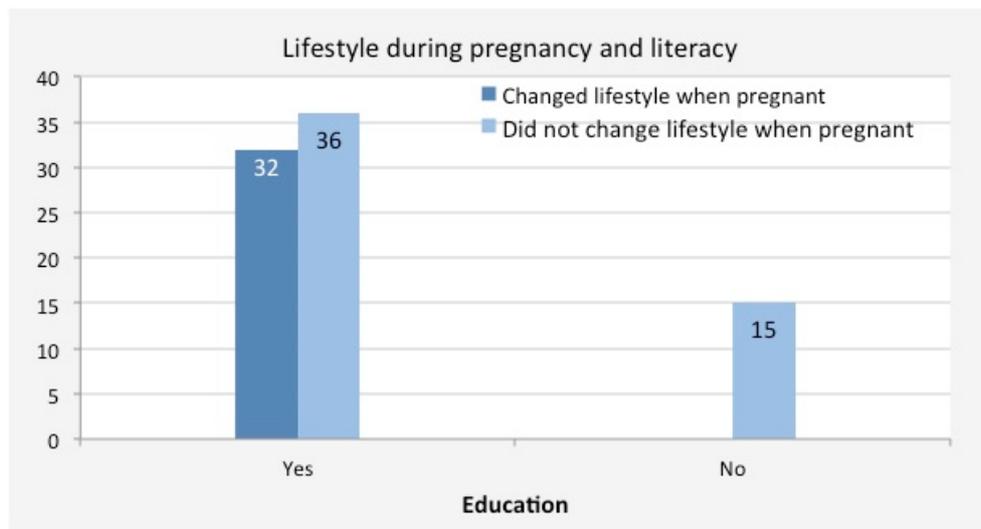


Fig. 34: Lifestyle during pregnancy and literacy

Nutrition

Contrary to initial information about diet in the slum colonies, results from the survey suggest a mainly varied diet including vegetables, meats, fish, lentils and rice. 41% of women did report eating occasional fast food and 56% reported eating chips and cookies (Fig. 35). Of those who ate fast foods the age range peaked between 31-40 years old. Women of 20 years and younger and women over 50 ate the least amounts of fast foods (Fig. 36). 1 respondent only ate rice and 2 ate only rice and vegetables: they did not comment on the reason for this. 48% of women had some education about diet, usually in a school environment.

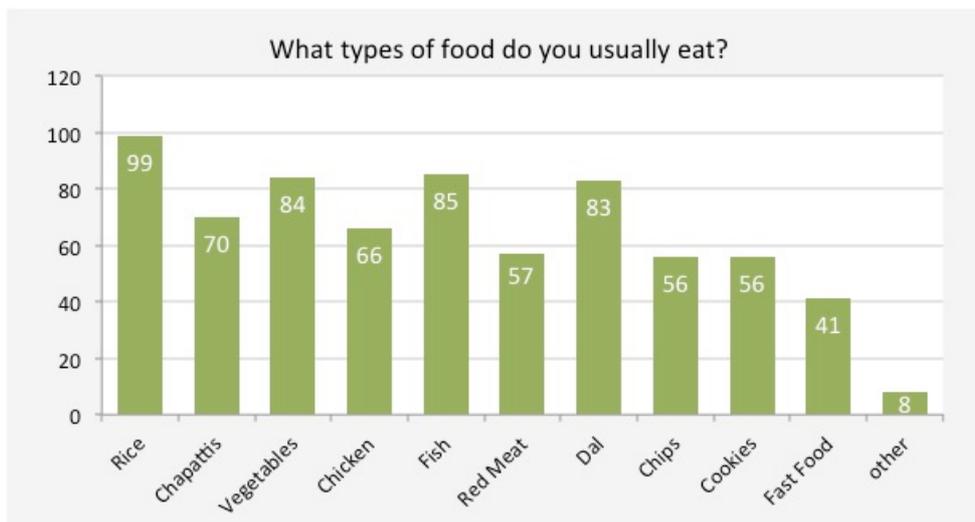


Fig.35: Diet of respondents

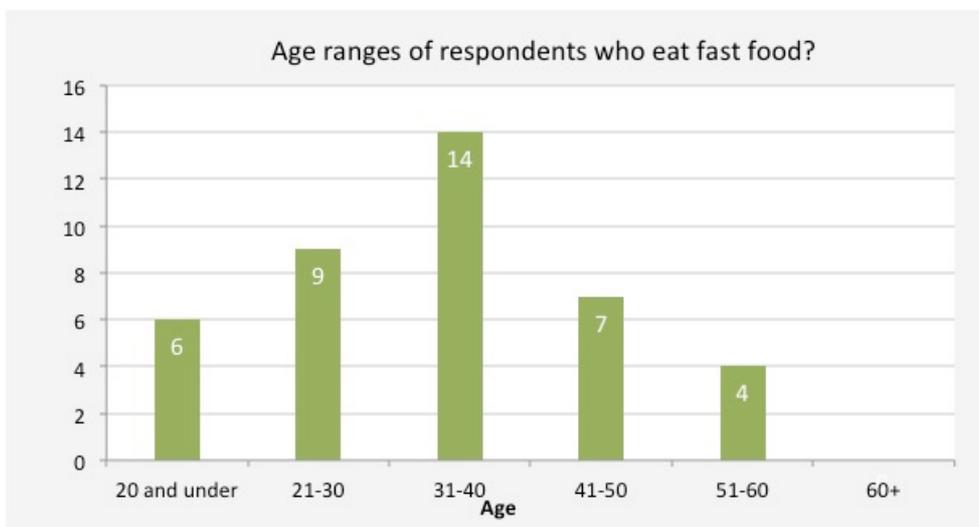


Fig.36: Ages of respondents eating fast food

Alcohol and smoking

92 of the 100 respondents reported that they did not drink alcohol (Fig. 37). Amongst the women who did drink 3 drank beer, 1 drank wine and 4 drank liquor (spirits). 2 of the respondents drank around or above the weekly government advice. 50% of women who did drink were in the age range between 31 to 40 years old (Fig. 38) It is worth mentioning that a few very intoxicated women may not have been approached at the time of the survey due to safety concerns. It is necessary to be aware that unlike the west, in Indian culture women drinking to excess or to become intoxicated is not the social norm.

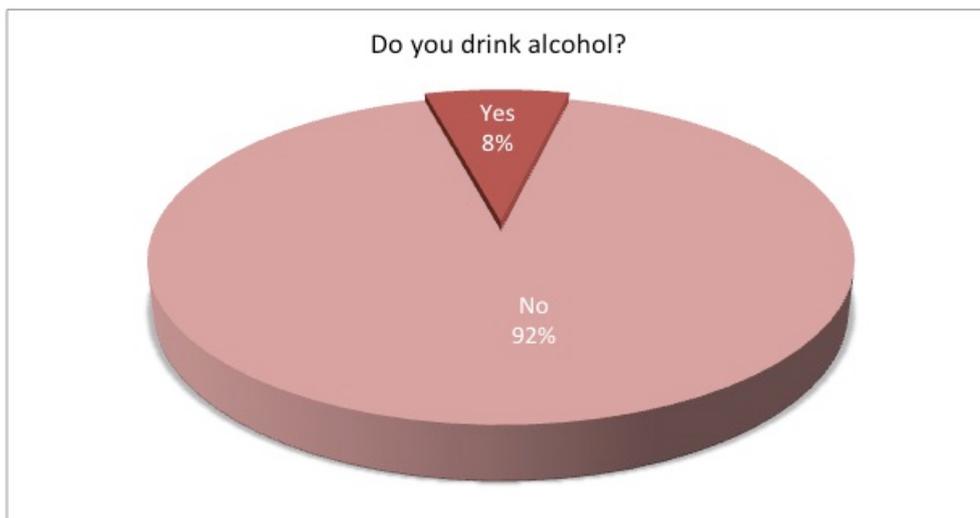


Fig.37: Respondents alcohol consumption

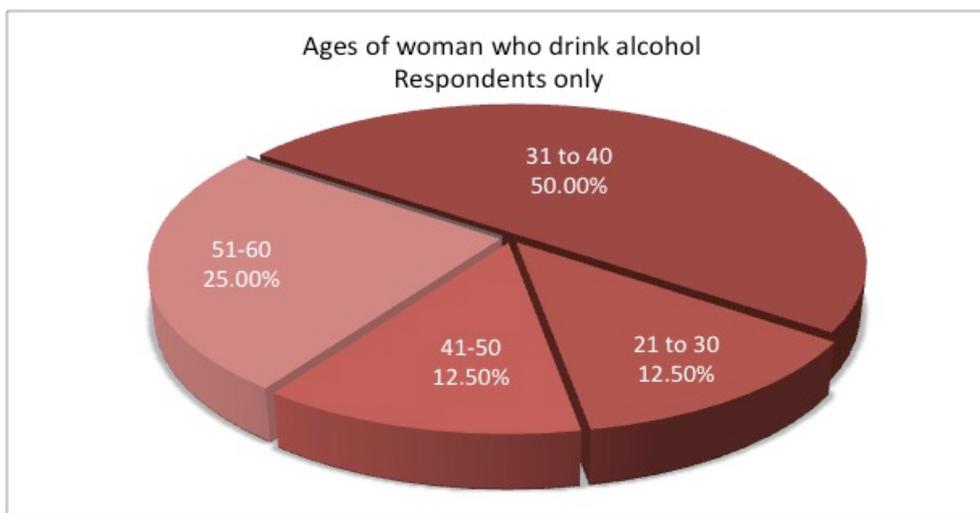


Fig.38: Ages of respondents who consume alcohol

55% of respondents communicated that someone else in their household drank alcohol (Fig. 39). The number of family members who drank in each household were either none (43%) or 1 (48%) of respondents (Fig. 40). Of the drinkers in households, 62.3% were the woman's husband and 18.3% were their father, indicating that on the whole men tend to be the drinkers in the slum colony (Table 12).

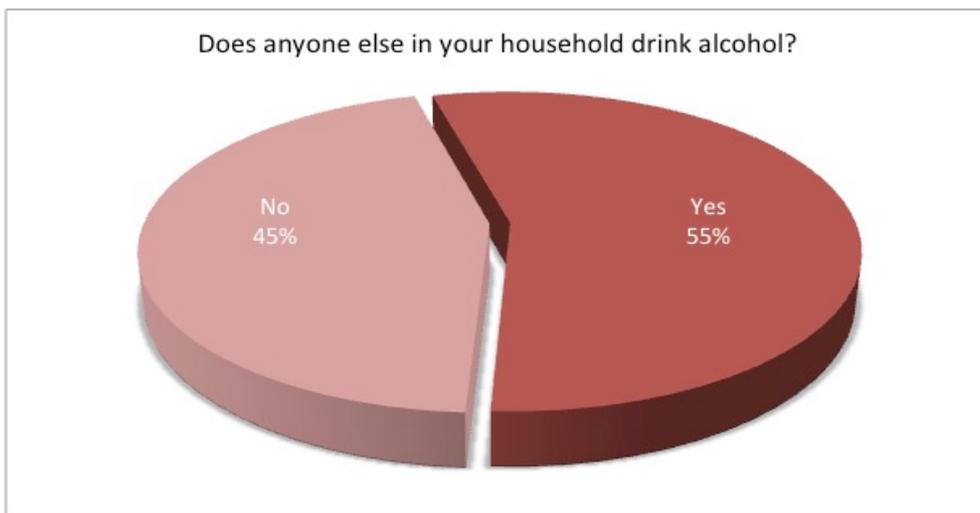


Fig.39: Household alcohol consumption

	Number of responses	% Responses	% Respondents
Husband	38	62.30%	100%
Child 1	3	4.92%	
Child 2	3	4.92%	
Child 3	1	1.64%	
Child 4	0	0.00%	
Male parent	11	18.03%	
Female parent	3	4.92%	
Other	2	3.28%	
Total number who drink alcohol	61		
Total responses	55	100.00%	
Did not answer question	0		0.00%
Total	55		100.00%

Table 12: Does anyone else in your household drink alcohol?

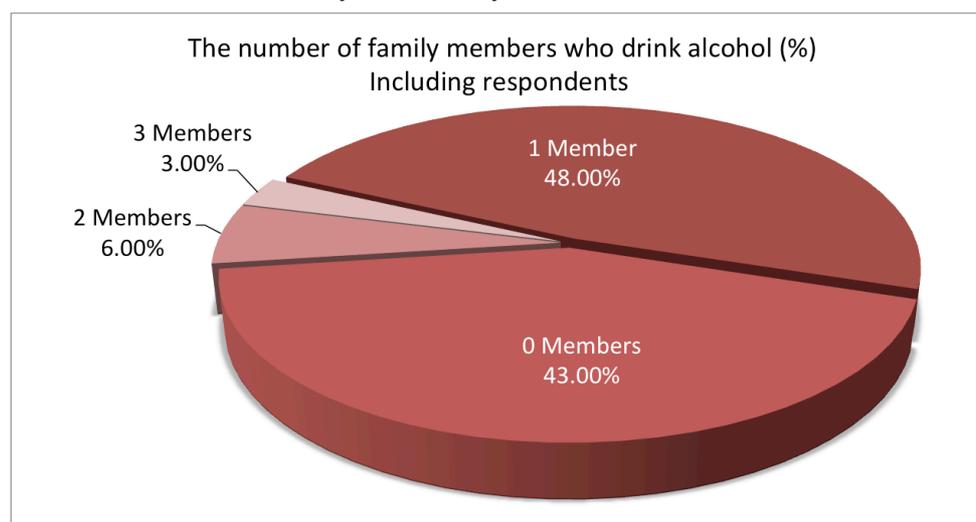


Fig. 40: Number of family members who consume alcohol

Smoking amongst women did not appear to be a problem, with only 8% of respondents saying that they did smoke (Fig. 41). 6 of the 8 respondents who smoked were in the age ranges of 30-40 and 40-50 (Fig. 42). Of those who did smoke, 66.6% smoked 10 or fewer cigarettes or beedi cigarettes per day (Fig. 43). Beedi cigarettes are commonly smoked in India and are a thinly rolled cigarette of tobacco flake and sometimes some herbs or spices, which are rolled in leaf which is tied with string. 3 respondents chewed paan or tobacco. Paan is a preparation of areca nut and sometimes tobacco wrapped in a betel leaf, it is chewed for its stimulant and psychoactive effects, after chewing it is either spat out or swallowed. No respondents disclosed any use of cannabis. This may have been due to the illegal nature of the activity and fear of punishment if disclosed, despite the researchers' assurance of confidentiality. 49% of respondents lived with someone who smoked (Fig. 44), of these 61.5% were their husbands and 15.38% were their fathers (Fig. 45), again indicating that men tend to smoke more than women in the slum colony. It will be interesting to correlate these findings with the miscarriage rate in the slum colonies (to follow). Passive smoking has been found to increase the miscarriage rate by 11% (Pineles et al, 2013).

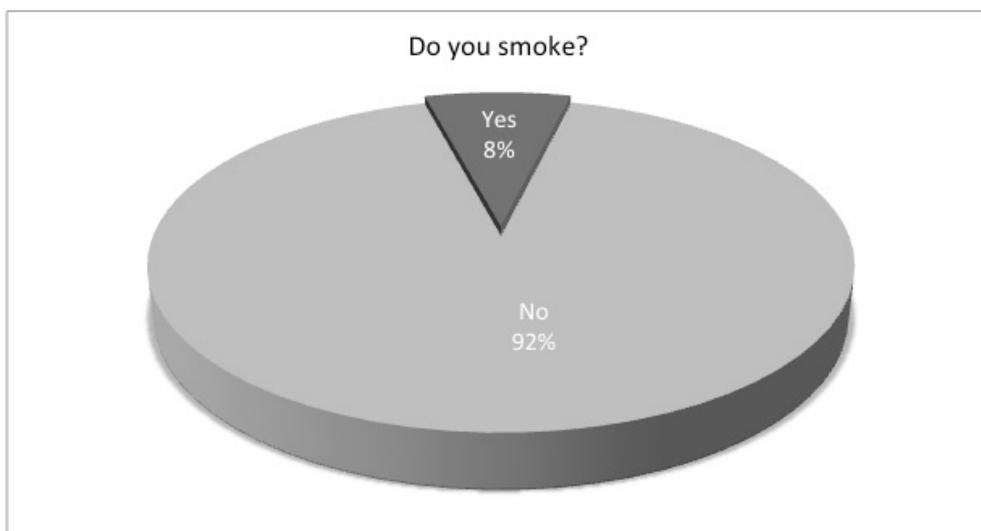


Fig.41: Smoking

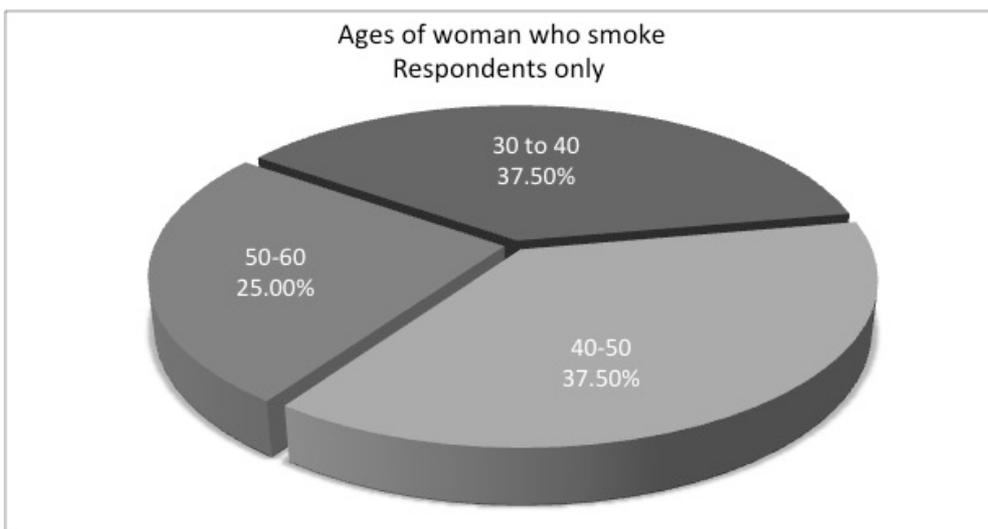


Fig.42: Age range of respondents who smoke

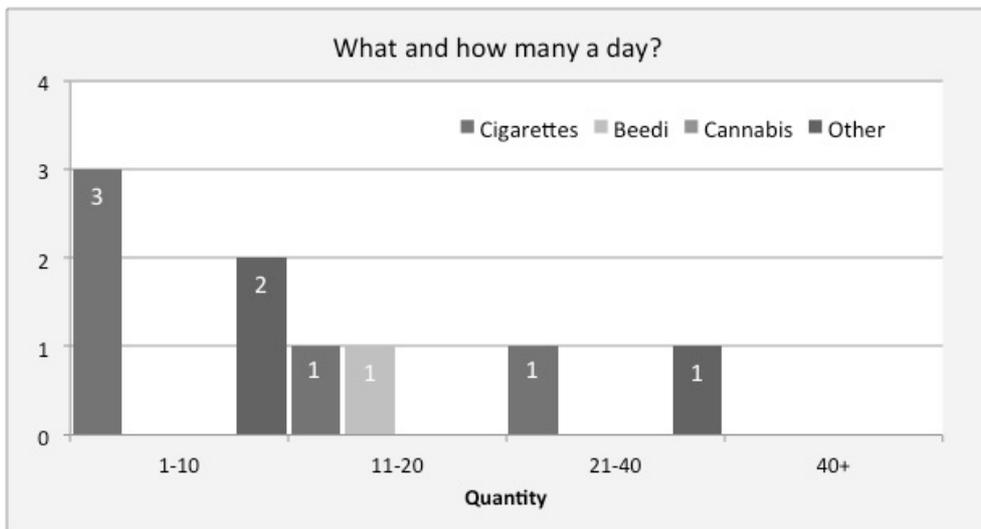


Fig.43: Quantity smoked

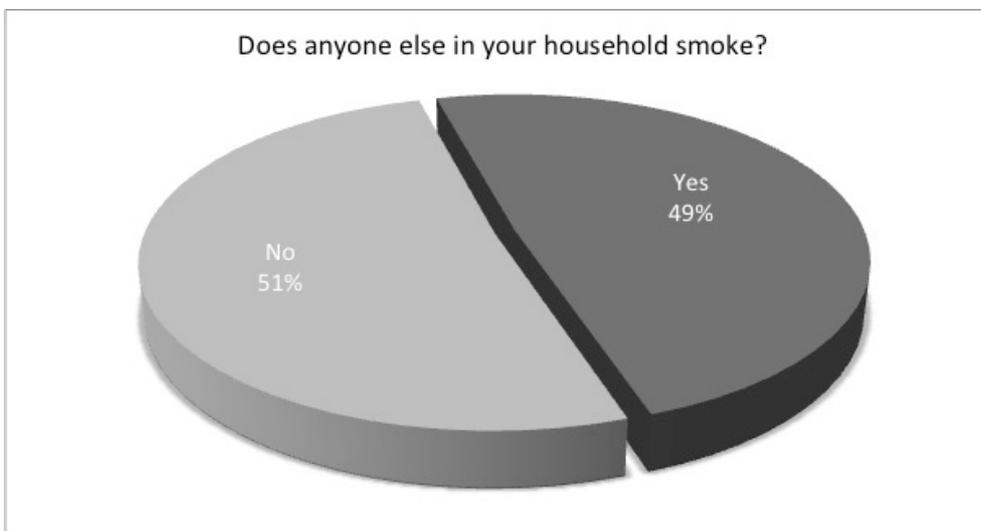


Fig.44: Other Household members smoke who smoke

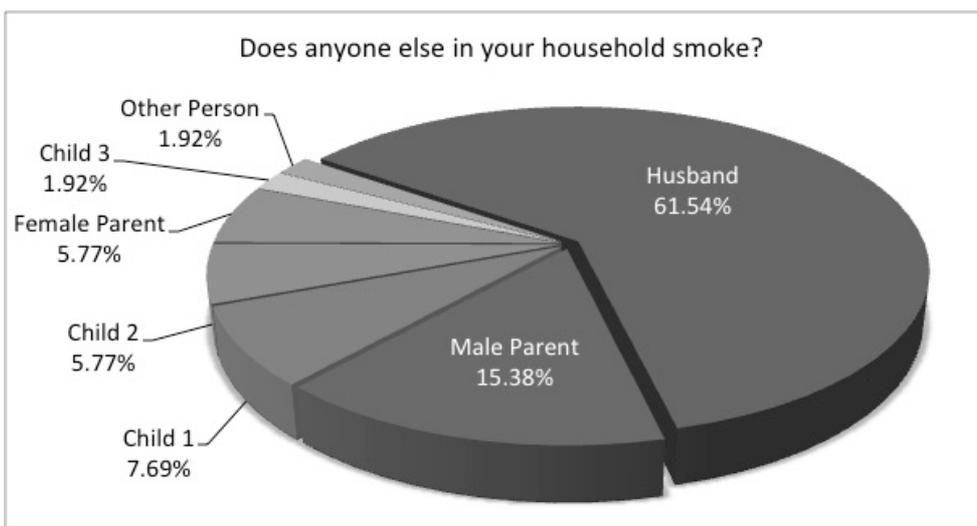


Fig. 45: Household members who smoke

Income and expenditure

Paid work was common amongst the respondents with 51.5% of women reporting having a job (Fig. 46). Most commonly women worked as maids (35.8%) or in waste collection (20.7%). Other paid work consisted of working in a shop, being a tailor and being a lottery ticket vendor (Fig. 47). 55% of women reported having a joint income with their husbands in the household (Table 13), although 31% of women were not aware of how much their husband earned, suggesting that men may be working but women do not see or use the money or lack control over how it is used. 31% of women and their husbands were jointly paid between 5000-9999 INR (78.54- 157.08 USD/ 59.27- 118.5 GBP). The lowest reported joint income was between 1000- 1999 INR (15.70- 31.40 USD/ 11.85- 23.69 GBP). 1 family had a joint income of 20000 INR or more (314.21 USD/ 237.33 GBP). This suggests a varied income within the slum community. Husbands' jobs varied, from 12 waste collection workers, 10 auto rickshaw drivers, 5 coolie workers (daily wage labour worker) (Table 14). Women appear to be earning similar wages to men, as well as doing housework and bringing up children, which is the traditional role of the woman in Indian culture.

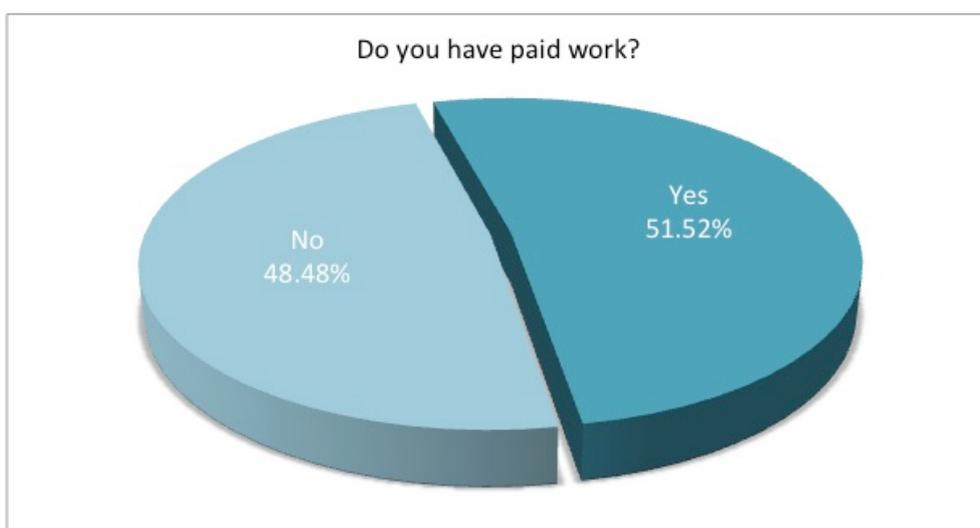


Fig.46: Paid work

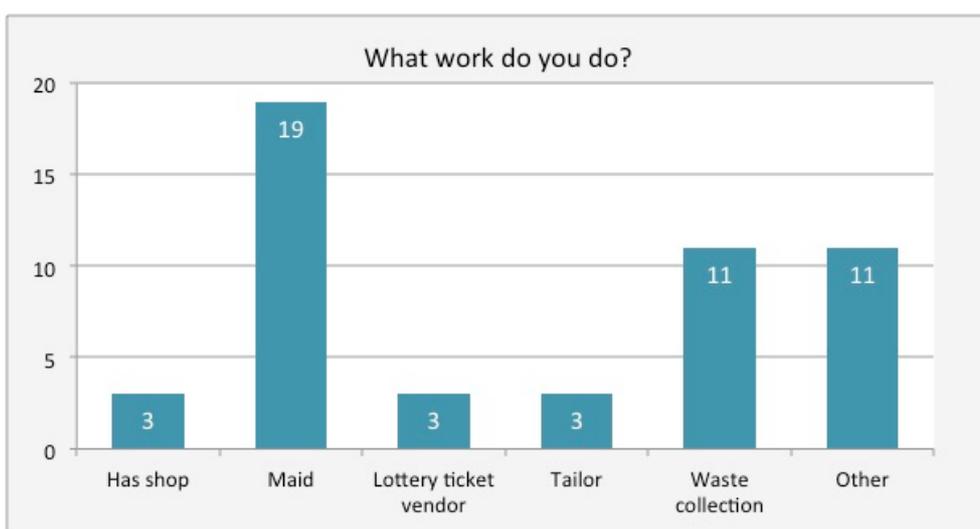


Fig.47: Type of work

	Number of responses	% Responses	% Respondents
Yes	29	55.77%	98.11%
No	23	44.23%	
Total responses	52	100.00%	
Did not answer question	1		1.89%
Total	53		100.00%

Table 13: Do you have a joint income?

Type of work	Number of responses	% Responses	% Respondents
Accountant	2	3.13%	100.00%
Auto rickshaw driver	10	15.63%	
Coolie work	5	7.81%	
Driver	5	7.81%	
Loading	3	4.69%	
Painter	2	3.13%	
Lottery ticket vendor	8	12.50%	
Stone mason	2	3.13%	
Waste Collection	12	18.75%	
Watchman	2	3.13%	
Other	13	20.31%	
Total responses	64	100.00%	
Did not answer question	0		0.00%
Total	64		100.00%

Table 14: What work does your husband do?

Women reported spending the greatest amounts of their monthly earnings on food (26%), loans (29%) and 'other' (43.7%), of which they described as utility bills (50%), private education for their children (26%), hospital bills (10%) and medicines (10%). Private education was not an expected expenditure for women in the slum colony and may express the importance that women feel education now has for their children (Table 15).

Expenditure	Number of responses	% Responses	% Respondents
Food	93	26.04%	96.00%
Rent	26	8.33%	
Alcohol	24	2.08%	
Smoking	30	0.00%	
Transport	33	1.04%	
Clothing	48	1.04%	
Loans	63	29.17%	
Other	42	32.29%	
Total types of expenditure	359	100.00%	
Total responses	96		
Did not answer question	4		4.00%
Total	100		100.00%

Table 15: What is the item that you spend the greatest amount of your income on?

Limitations

This was the first time the Birth For Change team had carried out a survey of this kind and, although considerable thought and testing went into it, in the preliminary stages there may have been some minor anomalies in data collection. It is not considered that they are of high significance. The role of and involvement of the local team in this project are vital to the sustainability of the ongoing project and input to this community. Such surveys should take a flexible approach and it is expected that some variations will be necessary as a result of learning during the process.

Conclusion

This survey provides a baseline snapshot into some of the aspects of a women's background in this south Indian slum community. Some striking findings are the lack of education around menstruation in this community, not only in formal settings but also from mother to daughter, possibly due to the discussion of women's bodily functions not being seen as culturally or socially acceptable. When menstruation is discussed, the main focus is on personal hygiene and not on the fertility and reproductive meaning of the menstrual cycle. If mothers have not received education around this then it will not be possible for them to pass information on to future generations.

Women appear to be aware of available contraception but figures show that they are not using it. It would be of interest to find out why this is and how family size numbers appear to be less when this is the case, taking into account the use of tubal ligation.

Diet was found to be more varied and healthy than initially assumed. Breastfeeding rates were positive, with very few women choosing to artificially feed their babies. This carries the likelihood of improving the health of the children of the slum colony from their birth. More information about children's health in this population in relation to breastfeeding and childhood diseases would be constructive.

Alcohol and smoking amongst women in this population appears to be minimal. The survey suggests that men tend to drink alcohol and smoke more than women. It would be of interest to look further into the effects of household smokers and drinkers on the wellbeing of women and their children.

It is encouraging to see that diet and general education in such an impoverished population is exceeding expectations. However, the knowledge and understanding behind life style choices would appear to need further improvement. Women appear to have limited knowledge or understanding about diet and lifestyle changes for a healthy pregnancy, their births and the processes involved in giving birth. Which in turn, may add to a lack of choice and control in the birthing environment and the rising rates of caesarean section in Cochin.

The survey has highlighted the importance of information gathering about each population, initial findings during preliminary talks at the beginning of this project appear to have been partly inaccurate. Findings of this survey allows us to move forward with a more focused view for this population of women. Empowering these women through education and an increase in their role in decision making about their own health is vital to positive changes in women's health in India.

Key recommendations

- Following findings of this survey, health classes and a health clinic have been commenced within the slum colony with the aim of addressing the health care and education access needs and improving the health literacy for day to day use for the women in the slum colonies.
- Specific focus should be paid to providing information about menstruation, contraception, pregnancy, birth processes and procedure which appear to be the main areas in which information and education are lacking.

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