DISCUSSION

The present study was undertaken among married women residing in the areas of three PHCs namely Kinaye, Handignur and Vantamuri, which are the rural field practice areas of Community Medicine Department, J. N. Medical College, Belgaum. The study population consisted of 2266 married women.

Profile of Married women

In our study out of 2266 MW, 160 MW (7.06%) were infecund (2.07% primary and 4.99% secondary sterility), 55.70% were using contraceptives, 19.86% were fecund but non users of contraceptives, 17.39% were pregnant and amenorrhoic (Table1).

As the fertility intention of MW with primary and secondary sterility would not contribute to the demography, they were not included in further analysis. Hence for further analysis 2106 Married women were included in the study.

In our study, about 58% of MW were between 20-29 years, 3% were teenagers and least were (2.75%) above 45 years. 91.74% were Hindus, 7.74% were Muslims least were Christians (0.57). Similar to our study, a cross sectional study conducted in Nepal showed that maximum number (97.3%) of MW were Hindus and remaining were Muslims, there was no representation from Christian community. In contrast to our results, study done in urban slums of Trivendrum, Hindus were 69.3%, Muslims 24.40% and Christians 9.30%. In a cross sectional study done in Gwalior district, 59.03% were Hindus, 29.03% were Muslims, 11.34% were Sikh and remaining belonged to other religion. This could be because people from many areas migrate to urban area in search of work and settle in slums or also due to regional differences in the distribution of religion. In our study 87.60% of MW lived > 3kms
from PHC, but 86.08% of MW lived within 3kms distance from sub centre. In a study done in Uttar Pradesh, only 59% of MW stayed within 3 kms of any Government health care facility\textsuperscript{70} (Table 2,3,4 & 5).

In our study, 20.37% of MW were illiterates, among literates 41.26% had studied up to secondary level, least were graduates (1.90%). 14.48% of MW’s husbands were illiterates, 40.46% had secondary education and 5.51% were graduates. In a cross sectional study done in Nepal, 57.1% of MW were illiterates, 13% had studied up to secondary and 29.9% up to primary level. 33.6% of husbands of MW were illiterates, illiteracy was high compared to our study\textsuperscript{14}. This difference could be because Nepal being less developed country compared to India. In a study done in slum area of Trivendrum 100% of MW and their husbands were literates, out of which, 12.40% of MW and 6% of their husbands had studied up to SSLC and above\textsuperscript{72}. This study showed high literacy status because in Kerala literacy status is very high. In our study 75.78 % of MW were house wives, 46.48 % of MW’s husbands were working on daily wages. Similar to our study, in a study done in urban slum of Karad, Maharashtra and Gwalior, 71.2% and 84.23% of MW were housewives respectively\textsuperscript{61,73}. In a study done in Dhaka 40.8% of husbands of MW were daily wage labourers, which was similar to our study\textsuperscript{74}. In our study, about 63% MW belonged to class III and below according to modified B.G.Prasad’s socio economic classification. 2.80% of MW belonged to class I and 13.11 % to class II. In contrast to our study, 42.03% of MW belonged to class III and below in a study done in Gwalior\textsuperscript{72}. This difference was because this study included both urban and rural population. In our study, maximum number of MW (58.50%) belonged to nuclear family. Similar findings were seen in Nepal study where 54.6% of MW belonged to nuclear family\textsuperscript{14}. In contrast to our study, Trivendrum study showed that 45.1% of
MW belonged to nuclear family, this could be because of cultural practices in that area\(^{71}\) (Table 6,7,8,&9).

In our study, about 98% of women attained menarche between 11-17 years, mean age at marriage was 18.7 \(\pm\) 2.38, about 68% got married between the age of 18\,-\,21 years, 21.89% got married before the legal age for marriage, i.e., 18 years. In contrast to our study a cross sectional study done in Nepal showed that 80.80% of MW got married before 18 years\(^{15}\), the difference could be due to cultural practices. In our study, duration of married life ranged from < 1 year to > 26 years, maximum were between 1-5 years, least were in < 1 year group (1.38%). About 66% became pregnant for the first time between 18-21 years, the reason could be as maximum (68.62%) MW got married between 18-21 years (Table 10 A, 10 B & 11).

Our study showed that, 42.45% of MW had 2 children, 23.08% had 3 children, 5.46 % had 4 and more than 4 children and 9.40% did not have children (Table 12 A). In contrast to our study, a study done in Nepal showed that maximum i.e., 27.9% had 3 children, followed by 22.6% who had 4 children and more than 4 children, 13.7% did not have children at the time of survey\(^{15}\). This could be because of more number of illiterate MW in their study compared to our study and also fertility rate is high in Nepal. Similar to Nepal study, Kolkota study showed that, 23% had two children, 24.5% had three children, 44.5% had 4 or more children, and 8% had one child\(^{75}\). Our study showed that all MW who were aged less than 19 years had 2 or less children, 96% who were 20-24 years had 2 or less than 2 children, 72% among 25-29 years had 2 or less children, almost equal number of MW between 30-34 years had either 2 or less than 2 children or 3 or more children (51% and 49% respectively).
More number of MW (53% to 63%) aged 35 and above had 3 or more than 3 children. This showed that older women had larger family size (Table 12B).

Comparison of Profile of contraceptive users and non users

In our study, 60.53% of MW who were non users of FP were less than 24 years as compared 13.54% of users. As the age advanced the number of MW using contraception increased. This difference was statistically significant, with p < 0.001. In a study done in rural area of Dakshina Kannada district about 20% of MW who were not using FP method were less than 24 years as compared to 4% among users, older women were more in FP acceptors group, difference in age between contraceptive users and non users was statistically significant in this study, with p< 0.001.89, similar findings were observed in other studies.27,76 Most of the MW (> 90 %) belonged to Hindu community irrespective of their contraceptive use in our study, about 7% were Muslims in both the groups, least were Christians, due to lesser representation by other than Hindu religion, it becomes difficult to comment on the association. Similarly study done in Orissa did not show any association between religion and contraceptive use (p > 0.1).77 In contrast, in Dakshina Kannada study, acceptance of FP method was more among Hindus compared to Muslims and this difference was statistically significant with p<0.0001.89 In our study 84.12 % of MW who were non users of FP stayed within 3 kilometers (kms) from Government health centre as compared to 87.40 % of users. This difference was statistically significant with p = 0.033. This showed that those MW who stayed nearer the Government Health centre had better FP services, which in turn had an effect on reduction of UMN for FP. In contrast to our study, a study done in Uttar Pradesh showed that 59% of MW (both users and non users) lived within 3 kms. from Government health post and
there was no effect of distance of health centre from residence for use of contraceptives.

In our study illiterates were 18.83% and 21.39% among non users and users respectively, maximum number in both the groups had secondary level education followed by primary education, in both the groups percentage of graduates or post graduates was less in our study. Education of husbands of contraceptive users and non users did not differ much; hence education of both MW and their husbands did not have any influence on use of FP method. Dakshina Kannada study also showed that education of MW was not associated with use of FP method (p>0.05). In contrast Delhi study showed that more number of illiterates used FP methods compared to literates, but they did not find the statistical significance. A study done in Amhara region of Ethiopia, showed that more number of literate women used contraceptives compared to illiterates, this difference was statistically significant (p<0.001). In our study about 63% of MW in both the groups belonged to Class IV and V but 13.27% of non users belonged to class I and II as compared to 17.67% of users. This differences were statistically significant with p = 0.038, showing that higher the socioeconomic class more will be the use of contraception.. Similarly Dakshina Kannada study also showed association between SE class and FP use, similar findings were seen in Delhi, Goa and Kerala, Orissa study (p<0.05). In our study 54.50 % of non users of FP were living in joint family as compared to 32.80% of users. In Dakshina Kannada study 80% of non acceptors lived in joint family as compared to 19% of users. This difference was statistically significant with p < 0.0001 (Table13).
In our study, age at marriage was similar among contraceptive users and non-users, maximum got married between 18-21 years, there was no association between age at marriage and contraceptive use (p=0.575). Study done in Goa showed positive association between age at marriage for above 25 years and contraceptive use, with p<0.01, Orissa study also showed that age at marriage >20 years was associated with use of contraception\textsuperscript{76}, but in Kerala study there was no association (p=0.10)\textsuperscript{36}. Duration of married life was less than 5 years in about 60% of non-users as compared to 16% of users in our study. As the duration of married life increased the number of contraceptive users also increased. This difference was statistically significant with p < 0.001. Delhi study showed that as duration of ML increased acceptance of FP method also increased\textsuperscript{27}. A study done at Orissa showed that irrespective of number of children as the duration of ML increased use of contraception also increased with p< 0.001\textsuperscript{76}. In our study maximum number of MW (> 65%) became pregnant between 18 -21 years, 4.27% of non users had not yet experienced pregnancy as compared to 0.55% of users, this difference was statistically significant with p<0.001. In our study 22.39% of non users of FP did not have children; whereas only 0.71% of users did not have children. The percentage of non users having one child was 36.74, which was 9.75% among users. The percentage of users having 2 or more children was more as compared to non users. This difference was statistically significant with p < 0.001. Similar findings were found in Dakshina Kannada study where more number of non acceptors did not have children and also acceptors had more number of children as compared to non acceptors, this difference was significant with p < 0.0001\textsuperscript{40}. Similar findings were reported in study done in Amhara Region, Ethiopia\textsuperscript{76}, but Nigerian study did not show association between number of children and use of contraception (p=0.263)\textsuperscript{92}. A multivariate analysis showed that MW with
age above 30 years, having more than 3 children, educated up to secondary level, belonging to Protestants & Buddha religion was associated with higher use of contraceptives\(^7\) (Table 14).

In our study, among 62.92% and 71.47% of non users and users of contraceptives, husband and mother in Law decided the family size, about 17% in both the groups husband and wife together decided the family size, 4.74% of non users and 0.32% of users had not yet discussed with anybody about the family size. This difference was statistically significant with \( p < 0.001 \). The study also showed that, 56.34% of users and 39.45% of non users got information about contraceptives from health staff, 15.93% of users and 8.41% of non users from mass media and other source, about 10% in both the groups from television, where as 2.46% of users said they had not heard about contraceptives, this could be because they were shy or wanted to hide from others that they are using contraceptives, 12.44% of non users said they had not heard from any one. This difference was statistically significant (Table 15 & 16A & 16 B). In a study done in rural area of Rajasthan, popular source to get information on FP methods was interpersonal communication, followed by mass media (radio, television) and print media\(^3\). This study suggested emphasis to be given on IEC activities and counselling by health worker.

In our study knowledge of contraceptives was asked first without prompting the names of contraceptives, after collecting this data names of the contraceptives was prompted to know whether they know any particular method. Even without prompting knowledge of tubectomy was better among both contraceptive users and non users compared to temporary methods. Knowledge of contraceptive users was better compared to non users regarding OCP, Condom, CuT and Tubectomy, the difference
was significant with $p < 0.05$. Knowledge about vasectomy was very poor in both the groups (Table 17, 18, 19, 20 & 21). On prompting 99.60% of users knew about at least one method of contraception, where as 91.13% of non users also knew at least one method of contraception. This showed that just knowing the names of contraceptives would not assure its use. In a cross sectional study done in Arcot District of Tamil Nadu showed that, 97% of the respondents in rural area knew about tubectomy, laparoscopy and vasectomy, this knowledge was 100% for urban rich and 76%, 63.8% and 63.5% knew about condoms, IUCD and OCP respectively\(^{37}\). This could be because of emphasis given on FP by the Government of Tamil Nadu. In a cross sectional study done in rural Haryana, 70% of users knew about 3 spacing methods, where as only 35% of non users knew 3 methods\(^{30}\). Temporary method use was also as popular as permanent method, which could be due to the cafeteria approach by the health workers while motivating women, because 27% had opted for permanent method, where as 13.3% were using CuT, 9.1% condom and 2.6% OCP. A study done in urban slum of Delhi in 1997, showed that contraceptive use increased among MW as the knowledge of number of contraceptives increased. None of the MW used contraceptives who had heard about one method, but more than 50% of MW who knew 3 or more methods used contraceptives\(^{31}\). In a study done in Nwewi, Nigeria knowledge of contraceptives was better among women who had used contraceptives compared to those who had not used with $p < 0.005\(^{55}\)\. In a hospital based study done in New Delhi among acceptors of vasectomy, found that about 90% had used contraceptives in the past. About 70% of men underwent vasectomy due to their own wish and before opting for this method many had used temporary contraceptive methods also. This study emphasized cafeteria approach as well as male involvement in FP \(^{32}\). In a study done in three areas of Manipur state, Knowledge of
CuT and sterilization was better as compared to knowledge of OCP and condom. This study also showed that use of CuT was also more compared to other FP methods. Not knowing about FP services ranged from 23% in Sora, 46.9% in Kikching and 62.7% in Irengband. More than 87% of MW felt that husband and wife should decide the family size, more than 93% felt television and radio are good sources of information about FP methods. Only 31% of MW discussed with their husbands about contraceptives in Sora village, it was 80% in Irengband and 94% in Kakching. This study throws light on the programmatic factors acting as hurdle in increasing contraceptive use.

Comparison of profile of Married women with and without unmet need for Family planning

In our study, 55.69% of MW were using contraceptives, 7.06% were infecund (2.07% Primary and 4.99% secondary sterility). Prevalence of overall Unmet need for family planning in our study was 16.63%, for spacing 9.62% and for limiting 7.01% (Table 22 A & 22 B). In contrast to our study, in a study done in Dar Assalam of Sudan, only 21.3% were using contraceptives, 11.9% were infecund and total UMN was 30.7% that too it was only for spacing none had UMN for limiting. This could be due to cultural factors forbidding the use of temporary contraceptives. Similar to our findings in a cross sectional study done in Trivendrum, prevalence of UMN was 17 %, out of it 10.8% was for spacing and 6.2% was for limiting. In a study done in Gwalior prevalence of UMN was 21.70%, it was high compared to our study. In a study done in Nepal in the year 2006 showed the prevalence of unmet need was 25%, out of it 9.5% was for spacing and 15.5% was for limiting. This study showed that to achieve replacement fertility, unmet need issue has to be addressed on war footings.
**Discussion**

A cross sectional study done in rural areas of Empowered action group (EAG) states of India, showed that in Jharkhand, Bihar, Uttar Pradesh and parts of Rajasthan UMN for FP was more than 30%\(^7\). The reason for high UMN being these states are less developed compared to Karnataka. Higher prevalence of UMN for FP was observed in other studies\(^7,12,13,52,53,57,66,67,82\). Higher prevalence was due to either less use of contraceptives, illiteracy or custom and religion. A study done in rural areas of Iran showed that UMN for FP was 11.05\(^5\) and similar findings among Egyptian women according to a cross sectional study\(^89\). Lower prevalence was observed in some studies done in Bangladesh and Zimbabwe\(^48,53\). In our study, 15.92% of MW with UMN had health risk UMN as far as age was concerned, 17.51% of MW with UMN had more than 3 children and 46.42% of MW with UMN had last child aged less than 1.5 years (Table 22C). These women among UMN group were considered as having health risk UMN because unplanned pregnancy in them would cause complications during pregnancy and child birth leading to maternal and child mortality and morbidity. In a study done in Bangladesh in the year 2000 showed that apart from women with UMN for FP that was 15.3%, about 0.7% of MW who were having 3 or more children but were not using contraception and wanted some more children, 5.5% had pregnancy interval less than 15 months were non users of contraceptives and wanted children soon and 4% of MW who were less than 18 years and 0.9% who were more than 35 years were not using contraception and were considered to be having health risk UMN\(^48\).

According to National Family Health Survey 3, prevalence of UMN in Karnataka (rural area) was 10.1%, the reason for low prevalence was that, they did not include pregnant and lactating women with UMN in their survey. According to WHO definition pregnant and lactating women whose pregnancy or recent birth if
unplanned then they should be included in UMN group, as they would need contraception in near future and their fertility as well return back soon. Demographic Health Survey (DHS) done all over the World include pregnant and amenorrhoic women while assessing prevalence of UMN for FP\textsuperscript{5}. According to DLHS (District level household survey), Karnataka, UMN in Karnataka was 14.8\%, for Belgaum 14.6\%, even in these surveys pregnant and amenorrhoic women were excluded\textsuperscript{46}. By excluding pregnant and lactating women, prevalence in our study comes to 11.78\%, this was less compared to prevalence in rural India as per NFHS III and in Karnataka and Belgaum DLHS 3 data, but more compared to NFHS III data for Karnataka.

Association between socio demographic & obstetric variables and UMN for FP

Our study showed that about 50\% of MW with UMN were below 24 years as compared to 27\% of MW without UMN. 20.16\% and 44\% of MW with and without UMN were above 30 years respectively. Hence more number of elder women were in the group that did not have UMN for FP and this difference was statistically significant with p<0.001 (Table 23). Similarly study done in Karad of Maharashtra, Gwalior of Madhya Pradesh and Nepal showed that 45\% of MW with UMN were below 24 years, in these studies age of MW was strongly associated with UMN with p<0.001\textsuperscript{15,61, 72}. In contrast to our study a cross sectional study done in Ethiopia did not show any age difference between women with and without UMN for FP, with p = 0.62\textsuperscript{7} and similar findings were seen in South East Nigerian study done at Nnewi with p>0.22\textsuperscript{55}.

There was no association between religion and UMN in our study where p = 0.226 (Table 24), this could be due to less representation of other community compared to Hindu community, hence comment on association could have some bias.
Similar finding in a study done in Trivendrum ($p > 0.05$) and South East Nigerian study ($p > 0.09$)\(^{55}\). In contrast to our study, Nepal study showed association between religion and UMN ($p = 0.023$)\(^{15}\). The reason could be better representation of other religion in their study. In our study there was no association between distance from PHC and UMN, because as tubectomy being popular method of contraception, many women opted for tubectomy after desired fertility irrespective of the distance from PHC (Table 25). In our study, more number of MW without UMN lived near the sub centre as compared to MW with UMN, this difference was statistically significant with $p = 0.017$ (Table 26). This shows that contraceptive needs of MW staying nearer to the SC were better addressed than MW staying away. A study done in Uttar Pradesh in 1999 showed no association between distance of Health Centre from residence and UMN for FP\(^{71}\). Literacy status of MW did not have any association with UMN for FP in our study (Table 27). Similar findings observed in a study done at Nepal, where adjusted odds ratio did not show any significance (for illiterates $p = 0.950$ and for primary education $= 0.897$)\(^{15}\) similar findings in other study done in Nnewi of Nigeria\(^{55}\). This shows that irrespective of educational status women do not have their say as far as fertility was concerned. In contrast Trivendrum study showed association between women’s education and UMN with $p < 0.001$\(^{71}\). As this study was done in Kerala where women are better empowered compared to Karnataka. In our study, less number of husbands of MW without UMN were illiterates and more number were graduates and Post graduates compared to husbands of MW with UMN. This difference was statistically significant with $p < 0.001$ (Table 28). Similarly Trivendrum study also showed positive association with $p < 0.001$\(^{72}\). Better education of husbands was associated with low prevalence of UMN, as educated husbands do consider their wives opinion and children’s health and have less gender bias. In
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contrast Nepal study showed no such association with p = 0.916. This could be due to more illiteracy in Nepal and high fertility is preferred in their community. In our study about 69% and 55% of MW with and without UMN belonged to class IV and class V of modified B.G.Prasad’s SES, and about 11% and 16% of them belonged to class I and II respectively. Better socio economic status was associated with low UMN for FP, this difference was statistically significant with p < 0.002 (Table 29). In contrast to our study, in Gwalior study maximum percentage of MW belonged to Class I, followed by class II, III, IV and least were in class V which showed better SES than our study. In our study 58.5% of MW with unmet need lived in joint family as compared to 38.52% of MW without UMN; this difference was statistically significant with p< 0.001 (Table 30). Trivendrum study also showed more percentage of MW (57%) belonged to joint family (p<0.001). In both our and Trivendrum study MW living in joint family experienced more UMN for FP. The reason could be suppression of freedom to use contraception in joint families or opposition to use contraceptives for various reasons.

In our study more than 66% got married at the age of 18-21 years in both the groups, 27.57% and 20.65% of MW with and without UMN got married before 18 years respectively, this difference was statistically significant with p = 0.004 (Table 31). Similarly age at 1st pregnancy was maximum (> 66%) between 18-21 years followed by (>18%) 22-25 years, (> 8%) before 18 years in both groups, hence there was no association with p <0.184 (Table 33). In an Ethiopian study 31.8% of MW with UMN got married before 15 years and 20.2% got married after 15 years, but more number of MW without UMN got married after the age of 15 years, this difference was statistically significant with p < 0.000. Same study showed that about 50% of MW in both with and without UMN became pregnant 1st time before the age
of 15 years, 64.4% of MW without UMN became pregnant 1st time between 15-19 years as compared to 35.6% of MW with UMN and 86.8% of MW without UMN became pregnant for the first time after the age of 20 years which was 13.2% among MW with UMN, this difference was statistically significant with \( p < 0.0001 \). In a study conducted in Eastern Nepal, about 28% of MW got married before 15 years and about 81% before 18 years, only 19% got married after 18 years, age at marriage was associated with UMN with \( p < 0.001 \). This could be due to prevailing cultural practice. The Ethiopian study, our study and Nepal study showed that younger age at marriage is associated with UMN for FP but Ethiopian study also showed that higher age at 1st pregnancy was associated with lesser prevalence of UMN for FP. In our study duration of married life was more among women without UMN as compared to women with UMN. Similarly UMN for FP was more within 10 years of ML, this difference was statistically significant with \( p < 0.001 \) (Table 32). In our study about 40% of MW both with and without UMN had 2 children, 12.47% of MW with UMN had 3 children compared to 25.39% of MW without UMN, 6.90% of MW with UMN and 9.95% without UMN did not have children. This difference was statistically significant with \( p < 0.001 \) (Table 34). In contrast to this Ethiopian study showed that maximum number of MW irrespective of their UMN status had 1-4 children. But 9.6% of MW with UMN and 14.4% of MW without UMN did not have children, this difference was not statistically significant (\( p = 0.173 \)). A study done in South Eastern Nigeria in Nnewi, showed that, MW with 2-4 children had UMN for FP compared to MW with less than 2 children, more the children more was the UMN for FP, this difference was statistically significant with \( p < 0.0045 \). This study also showed that UMN for limiting was more than UMN for spacing hence more number of MW with more children had UMN compared to MW with less number of children. In our study
46% of MW without UMN and 47% of MW with UMN had 1 male child, but 30% of MW without UMN and 15% of MW with UMN had 2 or more male children, about 15% of MW without UMN and 31% of MW with UMN did not have male children, as the number of male children increased UMN for FP decreased, this was statistically significant with p < 0.001 (Table 35). In our study, total number of female children was not associated with UMN for FP with p=0.122, this shows that fertility of MW depends on the male children than female children.

Our study showed that, 35% of MW with UMN had last child aged less than 1 years as compared to 14% of MW without UMN and 18% MW with UMN had last child aged 3 or more years compared to 51% of MW without UMN, this difference was statistically significant with p < 0.001. This shows that younger the age of last child more will be UMN for FP (Table 36).

Our study showed no difference between numbers of years of spacing between children among MW with and without UMN for FP with p > 0.05. This shows that couple protection rate of 56% in our study was mainly because of use of permanent method rather than temporary method (Table 37).

In our study, adverse pregnancy outcome was almost similar among MW with and without UMN for FP with p = 0.194. Though abortions and other adverse pregnancy outcomes were more among pregnant, postnatal amenorrhoic women with UMN and among non users of contraceptives without UMN but it was not statistically significant (Table 38A & 38B). In contrast, a study done in Dehradun District, showed that lesser the experience of child loss more was the use of contraceptives, with p< 0.001$, as increased contraceptive use reduces the child loss and also decreases UMN, hence child loss has an impact on UMN for FP.
In our study, fertility intentions of both MW with and without UMN were same, most of MW irrespective of UMN for FP said ideal number of children per women as two and about 3 years of spacing between two children, more than 65% of MW both with and without UMN said ideally women should have at least one male child. 30% of MW with UMN and 27% of MW without UMN felt that male child is not a must in the family. This difference was not statistically significant with \( p = 0.467 \). This shows that fertility intentions of MW with and without UMN being same, but they failed to control their actual fertility by using contraceptives. In our study more number of MW without UMN for FP had more number of children than they desired compared to MW with UMN for FP (Table 39). This itself shows that as tubectomy being popular and terminal method women opting for it will have at least one additional child than they desire.

In our study, 1.3% of MW with UMN and 2.26 % of MW without UMN had not yet discussed about the family size with anybody and in 37.7% and 43.9 % of MW with and without UMN, husband was the decision maker, in 7.43% of MW with UMN and 4.92% of MW without UMN it was mother in law and 4.24% of MW with UMN and 3.12% of MW without UMN could decide themselves, only in 14.06% of MW with UMN and 18.05% of MW without UMN total number of children in the family was decided by both husband and herself. Overall role of husband in deciding family size was 76.92% in MW with UMN and 81.31% in MW without UMN. This difference was statistically significant with \( p = 0.016 \) (Table 40).

In our study, 10.08% of MW with UMN had not heard about FP methods, where as 5.67% of MW without UMN had not heard about FP methods, more number of MW without UMN (55.22%) came to know about FP methods from health
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personnel and husbands compared to 45.89% of MW with UMN. This difference was statistically significant with $p < 0.001$ (Table 41). Role of mass media in disseminating information about contraceptives was significant in the group without UMN for FP. In a study done at Dar Assalam 48.6% of MW came to know about FP methods from relatives, followed by health visitor, 10.8% from mass media, which was similar to our study (about 12%) \(^{54}\). In our study, about 55% of MW with UMN and 68% of MW without UMN discussed about FP with their husbands, about 11% MW with UMN and 19% of MW without UMN discussed with husband and health personnel, 26% of MW with UMN and 13% of MW without UMN did not discuss with anyone this difference was statistically significant with $p < 0.001$ (Table42). This shows importance of discussion about contraceptives with husband and health personnel which helps in the reduction of UMN. A study done in Gwalior showed that, more number of MW with UMN did not discuss about FP with their husbands compared to MW without UMN with odds ratio of 2.27, and 95% Confidence interval \(^{73}\). In a cross sectional study done Ethiopia also showed that lack of discussion with spouse, extension worker and lack of source of information about FP methods were positively associated with UMN with $p<0.008$ and 0.001 respectively\(^7\). In contrast to our study, a study done in Trivendrum did not show association between advice on FP and UMN among MW with and without UMN for FP with $p > 0.05$\(^{72}\), the difference could be because this study was done in urban slum and the reasons for UMN could be different from rural area like lack of accessibility and cost of contraceptives could have been the reason for non use of contraception by MW.

In our study, knowledge about oral contraceptives, condom, Copper T (CuT) was better among MW without UMN but the difference was not statistically significant with $p > 0.05$. But the knowledge about Vasectomy was very poor in both
the groups. This shows less emphasis given to male involvement in FP programmes. 44.30% of MW with UMN had not heard about tubectomy as compared to 25.68% of MW without UMN, the study also showed that, 16.98% of MW with UMN and 8.68% of MW without UMN could name the method only, 34.22% of MW with UMN and 56.74% without UMN could name the method and also name the place of availability, 4.50% of MW with UMN and 8.91% without UMN could tell the name of method, place of availability and side effects of the method correctly. This difference was statistically significant with p < 0.001 (Table 43). This could be because of more number of tubectomy acceptors (whose need for contraception was met) were in the group that did not have UMN for FP. In a study conducted in an urban slum of Delhi, found that about 65.4% of married women were using contraceptives, 47% knew about 2 to 3 methods of contraception, out of them only 61% knew about their source and 25.6% knew about the side effects. In spite of 65.5% of married women using the methods, most of them did not know about all the 3 aspects of contraceptives that is naming, knowing the place of availability and knowing the side effect. In another study conducted in Andhra Pradesh showed that about 81% knew about contraceptives, but only 41.3% were using contraceptives. This study showed that though the study population was tribal, the knowledge regarding contraception was good. In a study done in Iran showed that better knowledge of contraceptives was associated with their use hence reduces the UMN for FP with p < 0.0001. In a study conducted by ICMR showed that almost all the women seeking abortion knew something about tubectomy, 86% about vasectomy, more than 90% about oral pills, CuT and condoms. But none of them knew 100% about tubectomy and vasectomy. 3% and 6% knew about all the three aspects of knowledge for CuT and Condoms respectively. In a study by Sule ST and others in
Zaire, Nigeria showed that 95% of women knew about tubectomy, 90% oral pills, 37% about condoms and only 8% about CuT. None of them knew about Vasectomy. Knowledge about CuT was very less compared to other studies. There was no association between parity and knowledge of contraception\textsuperscript{92}. In contrast to most of the studies a study done at Manipur state showed that knowledge of women in reproductive age regarding temporary methods (ranged from 25 – 76 %) was better than permanent method (ranged from 15 – 60%) \textsuperscript{38}. All these studies tried to know the knowledge of MW regarding FP methods, but did not try to find the knowledge of contraceptives among MW with and without UMN for FP.

Our study showed various reasons for non use of contraceptives, 23.61% of MW said they were unaware of the methods, 16 % said objection from family members, 9.81% said family members wanted more children, 9.55% said recent awareness of methods, 6.90% said fear of side effects, about 5% said they have natural gap between children, some said that they were waiting for menses, use of traditional methods. Remaining said they never thought of it, or waiting to undergo tubectomy, customs etc (Table 44). In a cross sectional study conducted in Delhi in 1999, the reasons for UMN being opposition from husbands/ families and male child preference (19.8%), 18.2% had health concern about contraceptives and side effects, 8.2% and 5.8% felt difficulty to access and quality of FP services as the reason for non use of contraceptives respectively and also 9.1% felt little perceived risk of pregnancy as the reason for non use\textsuperscript{69}. In a study done in Maharashtra showed that 57% of women among unmet group said lack of information about FP methods was the main reason for non use, followed by opposition from husband, family or community (19%), health concerns (10%), inconvenience or unsatisfactory services and other reasons 7% each\textsuperscript{61}. Opposition to use contraception was the main reason for
UMN among 45% of MW in Sub Saharan Africa and 54% in South Asia, Health concern 37% in South Asia and 39% in Sub Saharan Africa, lack of knowledge 5% in South Asia and 14% in Sub Saharan Africa, others said too much cost 4% in South Asia and 1.2% in Sub Saharan Africa and lack of access by 0.4%44.

In our study method related reasons were the main cause for non use of contraceptives, especially temporary methods among MW with UMN for FP, there was no association between age of MW, education of MW and number of children with different category of reasons for non use of contraceptives. More number of MW with 2 or less children faced method related reasons to use contraceptives compared to MW with 3 or more children, hence this being the strong reason for non acceptance of FP methods (Table 45, 46 & 47).

In our study, 38.46% MW with UMN said they would like to opt for permanent method of contraception, 17.77% temporary method, 1.86% said they would use contraception provided they get male child, 34.22% said they have no intention of using any contraceptive method (Table 48A & 48 B). More than 1/3rd of MW with UMN did not intend to use contraceptives, which shows presence of some strong reasons which makes them not to use contraceptives in spite of strong desire to control their fertility. In Bangladesh 31% of MW with UMN who had not used contraception in the past had intention to use contraceptives and 11% did not want to use. 50% of MW with UMN who had used contraception in the past had intention to use contraception but 8% did not agree. In a study done in Awassa community of Southern Ethiopia in 2003 showed that 47% of MW with UMN thought that they would get approval from husbands to use contraceptives to postpone or avoid future child birth10. An analysis of DHS data of 2005 showed that, intention to use
contraceptives in future among post partum women was 58.1% in Sub Saharan Africa, 76.1% in Middle East, 66.7% in Asia and 77.8% in Latin America\textsuperscript{81}.

In our study Multivariate logistic regression revealed that the factors responsible for UMN for FP were, age 15 – 19 years (odds ratio 2.89, 95% CI 1.04 – 8.0, \( p = 0.041 \)), age 20-24 years (odds ratio 3.78, 95% CI 1.6 – 9.01, \( p = 0.002 \)), distance from sub centre (odds ratio 0.69, 95% CI 0.522 – 0.94, \( p = 0.017 \)). Education of husband (odds ratio 4.67, 95% CI 1.96 – 11.11, \( p < 0.001 \)). Socio economic status (odds ratio 3.372, 1.31- 8.71, \( p = 0.012 \)). Type of family (odds ratio 0.51, 95% CI 0.412 – 0.64, \( p < 0.001 \)). Duration of Married life for 5-10 years (odds ratio 3.54 , 95% CI 2.17 – 5.81, \( p < 0.001 \)), for ML 10-20 years (odds ratio 1.77, 95% CI 1.07 – 2.95, \( p = 0.027 \)). Number of children for having 3 children (odds ratio 0.32, 95% CI 0.15 – 0.69, \( p = 0.004 \)), for having 4 or more children (odds ratio 0.25, 95% CI 0.09 – 0.69, \( p = 0.007 \)), source of information regarding contraceptives for television (odds ratio 2.08, 95% CI 1.22 – 3.57, \( p = 0.007 \), for health worker (odds ratio 2.11, 95% CI 1.4 – 3.18, \( p < 0.001 \)) for husband (odds ratio 3.17, 95% CI 1.53 – 6.58, \( p = 0.002 \)), for mass media and others (odds ratio 1.94, 95% CI 0.19 – 3.16, \( p = 0.007 \)). Discussion regarding FP, for discussion with husband (odds ratio 2.22, 95% CI 1.66 – 2.96, \( p < 0.001 \)), for discussion between husband and wife (odds ratio 3.37, 95% CI 1.12 – 2.31, \( p < 0.001 \)), for discussion with health worker and Anganwadi worker with odds ratio 1.61, 95% CI 1.12 – 2.31, \( p = 0.01 \) (Table 49).

A study conducted in Kenya showed that the odds of experiencing UMN differed in 1998 and in 2003, in 1998 as the age advanced the odds of experiencing UMN increased from 1.894 for women of 25-29 years to 25 for women of 45- 49 years but in the year 2003 age did not have any association with UMN for FP.
Discussion

Husband’s disapproval for use of contraception had an effect on UMN both in 1998 and 2003, for women’s education odds of experiencing UMN was more for those who had incompletely primary education with odds ratio of 2.447 in 2003, as the number of children increased the odds of experiencing UMN increased from 7.596 for those with 3-5 children to 19.684 for those with 6 and more children in 2003\(^7\).

A cross sectional study done at Zimbabwe in 2005 - 06 showed that, odds of experiencing UMN age of MW, education, socio economic status, current employment, number of living children, had association between UMN for FP. However residence, religion, exposure to FP from media, contact with FP services did not have any association with UMN for FP\(^5\).

In a cross sectional study done in Amhara region of South Ethiopia, logistic regression analysis showed that as the number of children increase the level of UMN for FP also increases with odds ratio of 0.308 for no children, 0.604 for less than 4 children and \(p = 0.002\) and 0.048 respectively. Spousal communication was associated with decreased level of UMN for FP with odds ratio 0.470 and \(p < 0.001\). Discussion with health extension worker was associated with decreased level of UMN for FP with odds ratio 0.563 and \(p = 0.028\). They did not find association with women’s education with \(p = 0.643\)^7.

In a study done in Awassa community of Southern Ethiopia showed that more the number of children more was the level of UMN, odds of experiencing UMN was 0.44 (95% CI : 0.23 – 0.86) for women with 1 to 4 children compared to women with 10 and above children. Women who have no knowledge of FP were 27 times more likely to have UMN for FP (95% CI 12.5 – 58.8). Women who did not discuss about FP with their husbands were 5 times more likely to have UMN for FP (95% CI
This study also showed that religion, education of women, number of living children, desired number of children were not associated with UMN for FP\textsuperscript{10}.

Profile of Limiter and Spacers of Unmet need for Family planning

In our study total unmet need for FP was 16.63\%, out of it 9.62 \% was for spacing and 7.01 \% was for limiting (Table 22B). In a study done in Trivendrum slum area total UMN was 17.0\% out of it, 10.8\% was for spacing and 6.2\% was for limiting\textsuperscript{72}. Total UMN was very high in urban slum area of Dhaka (41.1\%) of which 19.6\% was for spacing and 21.5\% for limiting, UMN for limiting was more than spacing in this study\textsuperscript{80}. Similar findings in other studies conducted in Patiala, Dar Assalam and Karad (Maharashtra)\textsuperscript{24,54,61}. Similar to our study, UMN for spacing was more compared to limiting according to NFHS 3 of Karnataka and West African study\textsuperscript{5,26}. In a study done in Kenya UMN for spacing and limiting were almost similar (10.7\% and 10.6 \% respectively)\textsuperscript{67}. Depending on the reasons for non use of contraceptives, cultural factors and availability of health services, UMN for spacing and limiting differ in different geographical areas.

In our study about 75\% of MW who had UMN for spacing were less than 25 years, and about 25\% with UMN for limiting were less than 25 years. About 45\% of MW with UMN for limiting were above 30 years, but it was only about 3 \% in MW with UMN for spacing. This difference was statistically significant with \( p < 0.001 \) (Table 50). Younger women had UMN for spacing and older women had UMN for limiting. Similar to our study, in a Philippines study, 48.6\% of MW with UMN with UMN for spacing were less than 25 years and 12.8 \% MW with UMN for limiting were less than 25 years\textsuperscript{83}. Similar findings were observed in other studies\textsuperscript{5,10,71,84,85}. In contrast a study done in urban slum of Karad Maharashtra state, there was no
significant difference between age of spacers and limiters with \( p = 0.05 \). This could be due to small sample size\(^{61}\).

In our study, more number of Hindus had UMN for spacing compared to Muslims, and more number of Muslims had UMN for limiting compared to Hindus. This difference was statistically significant with \( p = 0.039 \) (Table 51). In a study done in rural areas of EAG states also showed that UMN for limiting was more in Muslims compared to Hindus and this difference was statistically significant with \( p < 0.001\)\(^{79}\). In contrast to our study, a study done in Maharashtra showed no significant difference between spacers and limiters as far as religion was concerned with \( p > 0.05 \)\(^{61}\). This could be due to cultural practices prevailing in those areas.

Distance of PHC and SC from the residence of MW with UMN for spacing and limiting did not have any significance with \( p = 0.813 \) and 0.374 respectively (Table 52 & 53). As there were other reasons for UMN among spacers and limiters, hence distance from Government health centre did not have any association. Similar to our study, a cross sectional study done in rural area of EAG states also showed no association between distance from health facility and the residence of MW with UMN for spacing and limiting\(^{79}\).

More number of MW with UMN for limiting were illiterates compared to spacers, literacy status of spacers was better compared to limiters, this difference was statistically significant with \( p < 0.001 \) (Table 54). Better literacy status of MW makes them think of using temporary FP methods also. In contrast to our study, a study done in Southern Ethiopia in 2005 showed that, there was association between literacy status of MW and UMN for spacing which reduced as the literacy status improved with \( p = 0.037 \) but there was no association for limiting the births with \( p = 0.119\)\(^{85}\), the
reason could be preference for more children in that region. Literacy status of husbands of spacers and limiters did not have any statistical significance with p = 0.265 (Table 55). Because men are not involved in FP programmes actively, hence poor knowledge of contraceptives holds them back in supporting their wives to use them. In a study done among MW residing in urban slum of Maharashtra, UMN for spacing increased with increasing education whereas UMN for limiting was more among less educated MW which was similar to our study. Better literacy of husband was associated with decreased level of UMN for both spacing and limiting but better literacy of MW was associated with UMN for limiting and not for spacing in a study done in rural areas of EAG states of India.

Socio economic status also was almost similar among spacers and limiters, maximum in both the groups belonged to class IV. Our study showed no association between UMN for spacing and limiting with the socioeconomic status of MW with p > 0.194 (Table 56). A study done in Maharashtra also showed no positive association between productive work (earning) and UMN for FP with p > 0.05.

More number of MW with UMN for spacing lived in joint family compared to limiters, the reason could be opposition from family members to use temporary methods of contraception and whereas more number of limiters lived in nuclear family, the reason for not opting permanent method could be lack of support from family members to look after the children and the household (Table 57). In contrast to our study a study done in rural area of Haryana in 2005-06 showed that there was no association between type of family and UMN for spacing and limiting with p = 0.575.
Discussion

In our study age at marriage was less than 18 years among 32.70% MW with UMN for limiting and 23.85% among MW with UMN for spacing. In both the groups 60.38% of limiters & 70.64% of spacers got married between 18-21 years. But this difference was not statistically significant with p = 0.112. In a study done in Southern Ethiopia showed that, age at marriage less than 18 years was associated with UMN for spacing and not for limiting. In our study age at first pregnancy did not have any association with UMN for spacing and limiting (p=0.469), as maximum number in both the groups became pregnant between 18 – 21 years. Duration of married life was also not much different in both the groups, the reason could be, the age at marriage was less than 18 years among 32.70% of limiters compared to 23.85% of spacers, these women complete their family much earlier and have unmet need for limiting (Table 58, 59 & 60).

In our study MW with UMN for limiting had more number of children compared to spacers, 11.93% of spacers did not have children, 57.34% of spacers had one child, whereas 2.52% of limiters had one child, about 30% and 97% of MW with UMN for spacing and limiting had 2 or more children respectively. This difference was statistically significant with p < 0.001 (Table 61). Similar to our study, a study done in Benin, West Africa showed that limiters had more children compared to spacers, 13% of spacers had no children whereas none of the limiters were childless, 28% of spacers had 2 or less children, only 1% for limiters had 2 or less children. 28% of limiters and 9% of spacers had 6 or more children. In a study done in 25 countries, it is observed that only after having desired number of children only women prefer to opt for permanent method of contraception, 42.3% of spacers and 7.9% of limiters had 2 or less than 2 children whereas 11.4% of spacers and 52.2% of limiters had more than 2 children. Similar findings were observed in other studies. In
our study 43% and 52% of spacers and limiters had one male child, 4% and 30% of spacers and limiters had 2 male children, 51% and 17% of spacers and limiters did not have male children respectively. This difference was statistically significant with $p < 0.001$ (Table 62A). Unless women have male children they do not think of opting for permanent FP methods. In our study about 47% of MW with UMN for spacing had last child aged less than 1 year and 39% of limiters had last child aged 3 or more years. The difference was statistically significant with $p < 0.001$ (Table 62B). This shows the need for temporary methods of FP. Among MW with UMN for spacing 7.80% experienced abortion, 2.75% had child loss and other adverse pregnancy outcome, whereas among MW with UMN for limiting 8.81% had experienced abortion, 11.95% child loss of other adverse pregnancy outcome. This difference was statistically significant with $p < 0.001$ (Table 62C). This shows that MW who experienced adverse pregnancy outcome probably were scared of bearing such child again and hence wanted to limit the family.

In our study, about 32% of MW with UMN for spacing said as they were unaware of FP methods they did not use them, 17% said the family members wanted child, 16% did not use due to opposition to use contraceptives, about 10% said they came to know about contraceptives very recently. In our study, about 18% of MW with UMN for limiting gave the reason as objection from husband and family members as the reason for non-use, fear of side effect was told by 7% of MW with UMN for limiting. About 13% of MW said they were unaware of the method which made them not to use contraceptives and another 13% said family members and husband wanted more children (Table 63). In a study done in selected countries in South Asia showed that 47.1% spacers and 9.4% of limiters said because they wanted children so they did not use contraception, 7.7% of spacers and 6.3% of limiters said
as they were breast feeding, hence they did not use FP method, 6.8% of spacers and 23.5% of limiters said due to fear of side effects they did not use it. In a study conducted to know UMN for contraception in Asian countries found that, 47% of spacers and 9% of limiters did not use contraception for want of children, 6.8% of spacers and 23.5% of limiters said fear of side effects made them not to use contraceptives, about 10% in both the groups said infrequent sex was the reason for non use and about 6% said lack of knowledge and source of FP method as reason for non use of contraceptives. In a study done in Ethiopia in 2000, 36% of spacers and 13.2% of limiters quoted fertility related factors as reason for non use of FP methods, about 27% of them had to face opposition from husband or other family members for using contraceptives, about 15% had lack of knowledge, 18% of spacers and 35% of limiters had method related issues which prevented them from using contraceptives.

In our study, about 48% of MW who were fecund (non pregnant and non amenorrhoic) had UMN for spacing and 52% had UMN for limiting. Among pregnant women with UMN 80% had UMN for spacing and remaining for limiting. Among MW who were post natal amenorrhie with UMN for FP, 75% had UMN for spacing and 25% for limiting (Table 64). This shows that there are many births which are unintended; if this issue is addressed automatically birth spacing also increases. In contrast to our study, a study done in rural area of Patiala District in Panjab State, showed that, more number of fecund MW with UMN had UMN for limiting than spacing and among pregnant it was almost similar. This could be due to demand for more children by the husband or family members as against the fertility desire of MW.
In our study, about 30% of spacers and 4% of limiters had intention to use temporary contraceptive methods, 21% of spacers and 58% of limiters intended to use permanent method, 38% of spacers and 28% of limiters said they don’t have intention to use contraceptives in future and 5% of spacers and 9% limiters did not know whether they would use contraception in near future (Table 65). Similar to our study, in a study done in Mali, West Africa 56% of spacers and 48% of limiters had an intention to use contraception to avoid future pregnancy. Out of them 41% wanted injectable contraceptive, 41% pills and 5 % norplant. In contrast, a study done in Nepal in the year 1996 showed that 81% of spacers and 71% of limiters had intention to use contraceptives in the future. Such type of analysis helps in using method mix of contraceptives to satisfy the clients. In a study done in selected countries in SEAR 75% of MW both spacers and limiters had an intention to use contraceptives in India, Nepal and Bangladesh but in Pakistan only 25% of MW with UMN had an intention to use contraceptives in future.

Profile of Married women with 2 or more children without having UMN for FP

Maximum number of MW were between 25-29 years (49.5%) followed by 20-24 years (24.8 %), 30- 34 years (20.8%). In our study, 17.8% of MW and 9.9% of their husbands were illiterates. Maximum number of MW and their husbands had studied up to secondary level. Followed by primary level (28.7% and 30.7% respectively). About 62% lived in nuclear family and 50 % belonged to class IV of modified B.G. Prasad Socio economic classification. About 66 % had two children, rest all had more than 2 children. About 43 % had at least one male child, 37% had no male children (Table 66).
MW with two or more than 2 children differed from MW with UMN who were younger comparatively, this difference was statistically significant with $p < 0.001$. Literacy status of MW did not differ from that of MW who were contraceptive users and also MW with UMN for FP ($p = 0.100$). Husbands of MW with 2 or more children were less illiterates, but college level education was less compared to other two groups. This difference was statistically significant with $p = 0.006$. More number of MW with 2 or more children without UMN lived in nuclear family compared to MW with UMN this was statistically significant with $p < 0.001$. Socio economic status did not differ in these 3 groups ($p = 0.088$). As far as total number of children was concerned, MW with UMN had less number of children, this difference was statistically significant with $p < 0.001$. Number of male children among MW $\geq 2$ children was less compared to MW who were users of contraceptives this difference was also statistically significant with $p < 0.001$ (Table 67).

It is said that meeting the unmet need for modern family planning methods (Condom, OCP, CuT etc) and maternal and newborn health care would reduce maternal deaths by about two-thirds—from 2,87,00,029 to 1,05,000. In sub-Saharan Africa alone, maternal deaths would drop by 69 per cent and newborn deaths would fall by 57 percent.

If all women wanting to avoid pregnancy, used modern family planning methods, unintended pregnancies would decline sharply by 71% from 75 million to 22 million per year. This approach would help in achieving Millennium developmental goals and also would reduce the health care expenditure on maternal and child health problems.