

# A Community Based Study of Prepregnancy Awareness of Safe Maternity Amongst Rural Tribal Women

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## Abstract

### Background

Every pregnant woman faces risk of complications during pregnancy, birth, not only due to pregnancy, birth related problems but preexisting disorders which get exaggerated during pregnancy. Prepregnancy awareness of various prepregnancy, peripregnancy factors for safe maternity is essential.

### Objective:

Community based study was to know awareness about prepregnancy issues for safe maternity.

### Material methods

Study was conducted in tribal communities of remote forestry hilly region. Randomly from each village 20 married women of 15-40 yr in whom pregnancy was possible, 2400 became study subjects in 100 villages around village with health facility.

### Results

Of 2400 study subjects, 1396 (58.2%) had scatchy awareness, 30.3% right age for pregnancy, 34.2% possibility of diseases running in family, 35.5% essentiality of knowing last menstruation date (LMD), 935 (35.10%) necessity of good health, 45.6% stress free life, 24.4% avoidance of heavy work and 30% need of care for good health during pregnancy. Only 1247 (52%) were aware of prepregnancy anaemia, (27% said it was due to lack of food, 73% lack of supplements), 51.7% knew about need of extra micronutrients, (41.7% by blood improving tablets, 58.3% extra energy providing diet), 1039 (43.3%) were aware of need of prepregnancy prevention / treatment, of anaemia for preventing complications, (34.6% giddiness, 29.4% legs swelling, nausea, 36.0% dangers of bleeding), 1164 (48.5%) were aware of genital hygiene, (38.0% said prevented genital infection, 62.0% urinary infection, retention).

### Conclusion

Many women lacked awareness of appropriate interval, preexisting medical disorders, medication, environment, health care before / during pregnancy hygiene. Age, economic status, education, occupation opportunities of meeting others affected awareness.

**Key words:** prepregnancy awareness disorders; anaemia; micronutrients; hygiene; effects

## Introduction

Every pregnant woman faces risk of complications during pregnancy, and birth which can lead to severe illnesses, even death of the mother and / or the baby. However many women and new-borns also die due to disorders which are present before pregnancy. Such disorders affect pregnancy and also get exaggerated during pregnancy and add risk to a woman's and her baby's life. Prepregnancy awareness about safe maternity is essential, for safe pregnancy,

safe birth and safe future of the mother as well as the baby. It is opined that it remains unclear whether awareness translates into appropriate actions, but awareness should lead to better outcome. Women need to know about right age for having pregnancy, right interval between two pregnancies and many other issues which need to be taken care pre-conception and also during pregnancy. For all this prepregnancy care (PPC) is essential so that detection, treatment or counselling of pre-existing disorders and environmental,

social conditions that may come in the way of safe maternity. Dangers of exposure to harmful practices, medication during early pregnancy and general health are all essential. It also includes encouraging behavioural change allowing early identification of risk factors and try prevention before pregnancy. So prepregnancy period has been proposed for improving pregnancy outcome. While results from studies have been encouraging, not much is known about women of rural remote regions.

**Objective:**

Community based study was carried out to know about awareness of prepregnancy issues for safe maternity amongst tribal women in rural remote region.

**Study Setting**

Community based study was conducted in rural tribal communities of remote forestry hilly region in 100 villages near the village having health facility.

**Study design**

Descriptive research with predesigned tool.

**Study period – one year**

Study sample - 2400 sample calculated by descriptive study formula 1

**Inclusion exclusion criteria**

Women of 15-40 years in whom pregnancy was possible were included. Women age <15years, >40years those in whom pregnancy was not possible, cases of hysterectomy, total ligation, menopausal etc and not willing, though there were none, were excluded.

**Results**

The study revealed that, of 2400 study subjects, only 1396 (58.2%) had some scatchy awareness, [423 (30.3%) said they knew about right age for pregnancy, 477 (34.2%) possibility of diseases running in family and 496 (35.5%) essentiality of knowing the last menstrual date (LMD)]. Relationship of awareness with different variables like age, education, profession, economic status and previous birth is in table I (Table I). There was significant difference in number of women with awareness between illiterate and secondary school educated (p-value <0.00001), women of upper and lower economic class (p-value <0.001) and whatever they knew also differed. Also there was significant difference between number of women with awareness with no previous birth and those with more births (p-value <0.001). of 2400 study subjects, 935 (35.10%) were aware of necessity of good health before and during pregnancy, [426 (45.6%) talked of stress free life, 228 (24.4%) avoidance of heavy work during pregnancy and 281 (30%) need of regular check up during pregnancy for good health]. The relation of awareness of need of good health before and during pregnancy with age, education, economic status, profession and parity is depicted in

table II (Table II). There was significant difference between number of women knowing the need of prepregnancy good health with age (p-value <0.001), with primary and secondary school education (p-value <0.0001) and between lower and upper economic class (p-value <0.00001).of 2400 study subjects, 1247 (52%) were aware of anaemia, [337 (27%) said it was due to lack of food and 910 (73%) because of lack of supplements]. Significantly less elder women than younger women knew about anaemia and its obvious reasons (p-value <0.001). The relation of age, education, work they did, economic status and number of births is in table III (Table III). Also there was significant difference in numbers of illiterate and even primary school educated women (p-value <0.001), between home makers and even casual labourers who met other women more often (p-value <0.001), women who belonged to lower and upper economic class (p-value <0.001), between women with one and more births (p-value <0.001). Overall of 2400 study subjects, 1240 (51.7%) were aware of need of extra micronutrients during pregnancy, [517 (41.7%) by blood improving tablets and 723 (58.3%) by extra energy providing diet]. Relation of awareness with age, education, profession, economic status, and number of births is in table IV (Table IV). Also there was significant difference with better education in women knowing need of extra micronutrient during pregnancy (p-value <0.001). Significantly more home makers than casual labourers (p-value <0.0001). Further there was significant difference in women between lower and upper economic class (p-value <0.001), between those with one birth and more births (p-value <0.001). Over all of 2400 study subjects, only 1039 (43.3%) were aware of need of prepregnancy prevention and treatment of anaemia and said that it prevented some complications during pregnancy, [360 (34.6%) giddiness, 305 (29.4%) swelling over legs and nausea, and 374 (36.0%) dangers of bleeding]. Details of relationship between different variables age, education, profession, economic status, previous births and awareness of need of prevention and treatment of anaemia are in table V (Table V). There was significant difference in number of younger and older women (p-value <0.001), with better education (p-value <0.00001). More women who went for work to near by villages or townships knew about need of prevention, treatment of anaemia and its effects than those who remained at home (p-value <0.001) and also significantly less women of low economic class knew than those from upper economic class (p-value <0.00001).Of 2400 study subjects, 1164 (48.5%) were aware of importance of genital and urinary hygiene during pregnancy, [442 (38.0%) said it helped in prevention of genital infection and 722 (62.0%) prevention of urinary retention and infection]. The relationship of awareness of hygiene with age, education, profession, economic status, prevention of birth is in in table VI (Table VI). With better education significantly more women knew about hygiene and how it helped pregnant women (p-value <0.001), significantly more women who went out knew than those who were home makers (p-value <.0001) and also significantly less women of low economic knew class than those from upper economic class also (p-value <0.001).

Variables	Total	Prepregnancy issues							
		Yes	%	Right age for pregnancy	%	Diseases running in family	%	Last menstruation date	%
Age In Year									
15-19	336	269	80.1	99	36.8	90	33.5	80	29.7
20-29	1564	887	56.7	267	30.1	300	33.8	320	36.1
30-40	500	249	49.8	66	26.5	87	34.9	96	38.6
<b>Total</b>	<b>2400</b>	<b>1396</b>	<b>58.2</b>	<b>423</b>	<b>30.3</b>	<b>477</b>	<b>34.2</b>	<b>496</b>	<b>35.5</b>
<b>Education</b>									
Illiterate	953	457	48.0	107	23.4	180	39.4	170	37.2
Primary	850	558	65.6	168	30.1	180	32.3	210	37.6
Secondary / Higher Secondary	597	381	63.8	148	38.8	117	30.7	116	30.4
<b>Total</b>	<b>2400</b>	<b>1396</b>	<b>58.2</b>	<b>423</b>	<b>30.3</b>	<b>477</b>	<b>34.2</b>	<b>496</b>	<b>35.5</b>

<b>Profession</b>									
Home Maker	275	140	50.9	24	17.1	60	42.9	56	40.0
Agriculture Labourer	958	499	52.1	169	33.9	170	34.1	160	32.1
Casual Labourer*	468	259	55.3	92	35.5	77	29.7	90	34.7
Shop Keeper	699	498	71.2	138	27.7	170	34.1	190	38.2
<b>Total</b>	<b>2400</b>	<b>1396</b>	<b>58.2</b>	<b>423</b>	<b>30.3</b>	<b>477</b>	<b>34.2</b>	<b>496</b>	<b>35.5</b>
<b>Economic Status</b>									
Upper	147	74	50.3	14	18.9	30	40.5	30	40.5
upper middle	183	59	32.2	17	28.8	22	37.3	20	33.9
Middle	544	278	51.1	88	31.7	100	36.0	90	32.4
Upper lower	662	439	66.3	174	39.6	115	26.2	150	34.2
Lower	864	546	63.2	130	23.8	210	38.5	206	37.7
<b>Total</b>	<b>2400</b>	<b>1396</b>	<b>58.2</b>	<b>423</b>	<b>30.3</b>	<b>477</b>	<b>34.2</b>	<b>496</b>	<b>35.5</b>
<b>Parity</b>									
P0	105	35	33.3	10	28.6	15	42.9	10	28.6
P1- P2	1063	806	75.8	326	40.4	220	27.3	260	32.3
≥P3	1212	555	45.8	87	15.7	242	43.6	226	40.7
<b>Total</b>	<b>2400</b>	<b>1396</b>	<b>58.2</b>	<b>423</b>	<b>30.3</b>	<b>477</b>	<b>34.2</b>	<b>496</b>	<b>35.5</b>

**Table I: Prepregnancy Awareness About Needs for Safe Maternity**

\*Small Scale, (Food, Shoes making, Bamboo items) Industry, Welding Workshop, Brick furnace

<b>Variables</b>	<b>Total</b>	<b>During Pregnancy</b>							
		<b>Yes</b>	<b>%</b>	<b>Stress free life during pregnancy</b>	<b>%</b>	<b>Avoidance of heavy work during pregnancy</b>	<b>%</b>	<b>Health care during pregnancy</b>	<b>%</b>
<b>Age In Year</b>									
15-19	336	118	35.1	12	10.2	23	19.5	83	70.3
20-29	1564	549	35.1	340	61.9	87	15.8	122	22.2
30-40	500	268	53.6	74	27.6	118	44.0	76	28.4
<b>Total</b>	<b>2400</b>	<b>935</b>	<b>39.0</b>	<b>426</b>	<b>45.6</b>	<b>228</b>	<b>24.4</b>	<b>281</b>	<b>30.1</b>
<b>Education</b>									
Illiterate	953	404	42.4	214	53.0	76	18.8	114	28.2
Primary	850	372	43.8	148	39.8	132	35.5	92	24.7
Secondary / Higher Secondary	597	159	26.6	64	40.3	20	12.6	75	47.2
<b>Total</b>	<b>2400</b>	<b>935</b>	<b>39.0</b>	<b>426</b>	<b>45.6</b>	<b>228</b>	<b>24.4</b>	<b>281</b>	<b>30.1</b>
<b>Profession</b>									
Home Maker	275	177	64.4	159	89.8	11	6.2	7	4.0
Agriculture Labourer	958	369	38.5	125	33.9	122	33.1	122	33.1
Casual Labourer*	468	170	36.3	83	48.8	26	15.3	61	35.9
Shop Keeper	699	219	31.3	59	26.9	69	31.5	91	41.6
<b>Total</b>	<b>2400</b>	<b>935</b>	<b>39.0</b>	<b>426</b>	<b>45.6</b>	<b>228</b>	<b>24.4</b>	<b>281</b>	<b>30.1</b>
<b>Economic Status</b>									
Upper	147	102	69.4	12	11.8	17	16.7	73	71.6
upper middle	183	35	19.1	16	45.7	12	34.3	7	20.0
Middle	544	275	50.6	187	68.0	38	13.8	50	18.2
Upper lower	662	227	34.3	81	35.7	128	56.4	18	7.9
Lower	864	296	34.3	130	43.9	33	11.1	133	44.9
<b>Total</b>	<b>2400</b>	<b>935</b>	<b>39.0</b>	<b>426</b>	<b>45.6</b>	<b>228</b>	<b>24.4</b>	<b>281</b>	<b>30.1</b>
<b>Parity</b>									
P0	105	73	69.5	12	16.4	12	16.4	49	67.1
P1-P2	1083	286	26.4	199	69.6	33	11.5	54	18.9
≥P3	1212	576	47.5	215	37.3	183	31.8	178	30.9
<b>Total</b>	<b>2400</b>	<b>935</b>	<b>39.0</b>	<b>426</b>	<b>45.6</b>	<b>228</b>	<b>24.4</b>	<b>281</b>	<b>30.1</b>

\*Small Scale, (Food, Shoes making, Bamboo items) Industry, Welding Workshop, Brick furnace

**Table II: Prepregnancy Awareness of Essentialities During Pregnancy**

Variable	Total	Awareness of Anaemia and Its Causes					
		Yes	%	Lack Of Food	%	Lack Of Iron	%
Age In Years							
15-19	336	163	48.5	68	41.7	95	58.3
20-29	1564	857	54.8	220	25.7	637	74.3
30-40	500	227	45.4	49	21.6	178	78.4
<b>Total</b>	<b>2400</b>	<b>1247</b>	<b>52.0</b>	<b>337</b>	<b>27.0</b>	<b>910</b>	<b>73.0</b>
<b>Education</b>							
Illiterate	953	584	61.3	197	33.7	387	66.3
Primary	850	426	50.1	79	18.5	347	81.5
Secondary / Higher Secondary	597	237	39.7	61	25.7	176	74.3
<b>Total</b>	<b>2400</b>	<b>1247</b>	<b>52.0</b>	<b>337</b>	<b>27.0</b>	<b>910</b>	<b>73.0</b>
<b>Profession</b>							
Home Maker	275	72	26.2	41	56.9	31	43.1
Agriculture Labourer	958	556	58.0	172	30.9	384	69.1
Casual Labourer*	468	267	57.1	81	30.3	186	69.7
Shop Keeper	699	352	50.4	43	12.2	309	87.8
<b>Total</b>	<b>2400</b>	<b>1247</b>	<b>52.0</b>	<b>337</b>	<b>27.0</b>	<b>910</b>	<b>73.0</b>
<b>Economic Status</b>							
Upper	147	79	53.7	33	41.8	46	58.2
Upper Middle	183	51	27.9	28	54.9	23	45.1
Middle	544	231	42.5	69	29.9	162	70.1
Upper Lower	662	228	34.4	42	18.4	186	81.6
Lower	864	658	76.2	165	25.1	493	74.9
<b>Total</b>	<b>2400</b>	<b>1247</b>	<b>52.0</b>	<b>337</b>	<b>27.0</b>	<b>910</b>	<b>73.0</b>
<b>Parity</b>							
P0	105	77	73.3	36	46.8	41	53.2
P1 - P2	1083	465	42.9	169	36.3	296	63.7
≥P3	1212	707	58.3	132	18.7	575	81.3
<b>Total</b>	<b>2400</b>	<b>1247</b>	<b>52.0</b>	<b>337</b>	<b>27.0</b>	<b>910</b>	<b>73.0</b>

\*Small Scale, (Food, Shoes making, Bamboo items) Industry, Welding Workshop, Brick furnace

**Table III: Awareness of Prepregnancy Anaemia**

Variable	Total	Yes	%	Prevented Giddiness	%	Prevented legs Swelling, Nausea Vomiting	%	Prevents Dangers Due to Bleeding	%
Age In Years									
15-19	336	117	34.8	44	37.6	39	33.3	34	29.1
20-29	1564	724	46.3	272	37.6	221	30.5	231	31.9
30-40	500	198	39.6	47	23.7	45	22.7	16	8.1
<b>Total</b>	<b>2400</b>	<b>1039</b>	<b>43.3</b>	<b>360</b>	<b>34.6</b>	<b>305</b>	<b>29.4</b>	<b>374</b>	<b>36.0</b>
<b>Education</b>									
Illiterate	953	476	49.9	188	39.5	130	27.3	158	33.2
Primary	850	360	42.4	90	25.0	81	22.5	189	52.5

Secondary / Higher Secondary	597	203	34.0	81	39.9	94	46.3	28	13.8
<b>Total</b>	<b>2400</b>	<b>1039</b>	<b>43.3</b>	<b>360</b>	<b>34.6</b>	<b>305</b>	<b>29.4</b>	<b>374</b>	<b>36.0</b>
<b>Profession</b>									
Home Maker	275	73	26.5	29	39.7	16	21.9	28	38.4
Agriculture Labourer	958	403	42.1	109	27.0	106	26.3	188	46.7
Casual Labourer*	468	242	51.7	151	62.4	65	26.9	26	10.7
Shop Keeper	699	321	45.9	71	22.1	118	36.8	132	41.1
<b>Total</b>	<b>2400</b>	<b>1039</b>	<b>43.3</b>	<b>360</b>	<b>34.6</b>	<b>305</b>	<b>29.4</b>	<b>374</b>	<b>36.0</b>
<b>Economic Status</b>									
Upper	147	88	59.9	20	22.7	40	45.5	28	31.8
Upper Middle	183	62	33.9	16	25.8	23	37.1	23	37.1
Middle	544	158	29.0	66	41.8	49	31.0	43	27.2
Upper Lower	662	317	47.9	119	37.5	96	30.3	102	32.2
Lower	864	414	47.9	139	33.6	97	23.4	178	43.0
<b>Total</b>	<b>2400</b>	<b>1039</b>	<b>43.3</b>	<b>360</b>	<b>34.6</b>	<b>305</b>	<b>29.4</b>	<b>374</b>	<b>36.0</b>
<b>Patiry</b>									
P0	105	63	60.0	20	31.7	17	27.0	26	41.3
P1- P2	1083	557	51.4	259	46.5	113	20.3	185	33.2
≥P3	1212	419	34.6	83	19.8	174	41.5	164	39.1
<b>Total</b>	<b>2400</b>	<b>1039</b>	<b>43.3</b>	<b>360</b>	<b>34.6</b>	<b>305</b>	<b>29.4</b>	<b>374</b>	<b>36.0</b>

\*Small Scale, (Food, Shoes making, Bamboo items) Industry, Welding Workshop, Brick furnace

**Table IV:** Advantages of Prevention and Treatment of Anaemia Prepregnancy

Variable	Total	Modes of Getting Micronutrients					
		Yes	%	Blood Improving Tablets	%	Energy Providing Food	%
Age In Years							
15-19	1069	527	49.3	275	52.2	252	47.8
20-29	1164	605	52.0	223	36.9	382	63.1
30-40	167	108	64.7	19	17.6	89	82.4
<b>Total</b>	<b>2400</b>	<b>1240</b>	<b>51.7</b>	<b>517</b>	<b>41.7</b>	<b>723</b>	<b>58.3</b>
<b>Education</b>							
Illiterate	953	529	55.5	319	60.3	210	39.7
Primary	850	397	46.7	124	31.2	273	68.8
Secondary / Higher Secondary	597	314	52.6	74	23.6	240	76.4
<b>Total</b>	<b>2400</b>	<b>1240</b>	<b>51.7</b>	<b>517</b>	<b>41.7</b>	<b>723</b>	<b>58.3</b>
<b>Profession</b>							
Home Maker	275	201	73.1	93	46.3	108	53.7
Agriculture Labourer	958	538	56.2	170	31.6	368	68.4
Casual Labourer*	468	270	57.7	112	41.5	158	58.5
Shop Keeper	699	231	33.0	142	61.5	89	38.5
<b>Total</b>	<b>2400</b>	<b>1240</b>	<b>51.7</b>	<b>517</b>	<b>41.7</b>	<b>723</b>	<b>58.3</b>
<b>Economic Status</b>							
Upper	147	101	68.7	58	57.4	43	42.6
Upper Middle	183	116	63.4	12	10.3	104	89.7
Middle	544	341	62.7	158	46.3	183	53.7
Upper Lower	662	253	38.2	133	52.6	120	47.4

Lower	864	429	49.7	156	36.4	273	63.6
<b>Total</b>	<b>2400</b>	<b>1240</b>	<b>51.7</b>	<b>517</b>	<b>41.7</b>	<b>723</b>	<b>58.3</b>
<b>Parity</b>							
P0	105	63	60.0	29	46.0	34	54.0
P1- P2	1083	499	46.1	294	58.9	205	41.1
≥P3	1212	678	55.9	194	28.6	484	71.4
<b>Total</b>	<b>2400</b>	<b>1240</b>	<b>51.7</b>	<b>517</b>	<b>41.7</b>	<b>723</b>	<b>58.3</b>

\*Small Scale, (Food, Shoes making, Bamboo items) Industry, Welding Workshop, Brick furnace

**Table V: Awareness Of Extra Micronutrients In pregnancy**

Variable	Total	Advantages of good hygiene					
		Yes	%	Prevention of genital disease	%	Prevention of urinary infection	%
<b>Age In Years</b>							
15-19	336	155	46.1	58	37.4	97	62.6
20-29	1564	709	45.3	287	40.5	422	59.5
30-40	500	300	60.0	97	32.3	203	67.7
<b>Total</b>	<b>2400</b>	<b>1164</b>	<b>48.5</b>	<b>442</b>	<b>38.0</b>	<b>722</b>	<b>62.0</b>
<b>Education</b>							
Illiterate	953	372	39.0	123	33.1	249	66.9
Primary	850	546	64.2	251	46.0	295	54.0
Secondary / Higher Secondary	597	246	41.2	68	27.6	178	72.4
<b>Total</b>	<b>2400</b>	<b>1164</b>	<b>48.5</b>	<b>442</b>	<b>38.0</b>	<b>722</b>	<b>62.0</b>
<b>Profession</b>							
Home Maker	275	128	46.5	63	49.2	65	50.8
Agriculture Labourer	958	405	42.3	167	41.2	238	58.8
Casual Labourer*	468	229	48.9	81	35.4	148	64.6
Shop Keeper	699	402	57.5	131	32.6	271	67.4
<b>Total</b>	<b>2400</b>	<b>1164</b>	<b>48.5</b>	<b>442</b>	<b>38.0</b>	<b>722</b>	<b>62.0</b>
<b>Economic Status</b>							
Upper	147	100	68.0	28	28.0	72	72.0
Upper Middle	183	134	73.2	64	47.8	70	52.2
Middle	544	158	29.0	78	49.4	80	50.6
Upper Lower	662	310	46.8	131	42.3	179	57.7
Lower	864	462	53.5	141	30.5	321	69.5
<b>Total</b>	<b>2400</b>	<b>1164</b>	<b>48.5</b>	<b>442</b>	<b>38.0</b>	<b>722</b>	<b>62.0</b>
<b>Parity</b>							
P0	105	75	71.4	15	20.0	60	80.0
P1- P2	509	169	33.2	45	26.6	124	73.4
≥P3	1212	605	49.9	185	30.6	420	69.4
<b>Total</b>	<b>2400</b>	<b>1164</b>	<b>48.5</b>	<b>442</b>	<b>38.0</b>	<b>722</b>	<b>62.0</b>

\*Small Scale, (Food, Shoes making, Bamboo items) Industry, Welding Workshop, Brick furnace

**Table VI: Awareness About Hygiene During Pregnancy**

## Discussion

Preconception care (PCC) refers to things, women could do before and between pregnancies for safe pregnancy, safe birth and safe future of the mother as well as the baby. Unfortunately, millions of women in the world have no access to getting pre-pregnancy information and care and both are essential. Antenatal care is too late to reduce the harmful effects of many preexisting disorders and undesired happenings preconception, periconception and during early pregnancy. Raising awareness of women about right age of pregnancy, right interval between two pregnancies, good health at onset of pregnancy and during pregnancy and clean hygiene, all are

essential. Also protection from ill effects of pre-existing disorders and environmental issues is essential. There are modest additional requirements for energy and protein during pregnancy and women need to know. Martine [2] also reported that awareness of anaemia, a public health problem responsible for a big proportion of maternal deaths was very essential. In the present study only 1247 (52%) women were aware of essentiality of treatment of anaemia pre-pregnancy. Mason [3] opined that there was convincing evidence that health problems and nutritional problems, contributed to poor pregnancy outcome and it was essential that women were aware. Stephenson et al [4] from USA reported that despite a high level of

pregnancy planning, awareness of preconception health among women and health professionals was low. However, many women were motivated to adopt healthy behaviour preconception. Doke et al [5] also reported that very few countries including India implemented comprehensive packages of PCC. In their study, PCC was rolled out among all women, who desired to be pregnant in a year. Their study in central India revealed that only 50% pregnancies were planned. The decision about first pregnancy was influenced more by the mother-in-law. Women knew that pregnancy should not occur in teen age and inadequate weight had adverse impact on the health of new-born. Women had some knowledge about adverse effects of tobacco and alcohol use in pregnancy. Most of them did not practice behaviour or accessed services of PCC. In the present study, of 2400 study subjects, only 1396 (58.2%) had some scatchy awareness of prepregnancy issues which affected pregnancy. Of them, only 423 (17.7%) women talked about right age for having pregnancy, 477 (19.8%) talked of possibility of diseases running in family, and 496 (20.6%) women said it was essential to know LMD. No one talked of preexisting disorders in the mother, interval between two pregnancies and so many other issues. Only 549 (22.87%) women were aware of necessity of prepregnancy good health, 340 (14.16%) said stress free life was essential and only 87 (3.6%) said for remaining healthy it was essential to avoid heavy work during pregnancy. However women did not talk of protection from environmental issues or medication, specially periconception and in early pregnancy. Umar et al [6] from North-Western, Nigeria reported poor awareness but good perceptions and acceptability of PCC by women, and opined that there was a need to create awareness and it needed to be incorporated into maternal health services. Akinajo et al <sup>7</sup> reported high awareness of PCC (76%) in many, but practice was low (34.2%) before index pregnancy and reported a huge disconnect between awareness and practice in Nigeria. Ojifinni et al [8] reported that in Nigeria participants stated that there were neither defined PCC services in the health system nor guidelines. PCC services were however provided when health workers perceived a need or when clients demanded health information, treatment modification, medical check-up, screening or education and counselling. Alemu et al [9] from Ethiopia reported significantly low knowledge and utilisation of PCC. Educational status and antenatal care were shown to affect PCC knowledge. Age and sound knowledge of PCC had significant association with utilisation of PCC. It has been opined that although it remains unclear how awareness translated into appropriate actions, chances of better outcome are there. Ayelew et al <sup>10</sup> from Ethiopia reported that overall knowledge of PCC was in 27.5% women with secondary school education and more 25 to 34 years, were having knowledge of PCC than their other counterparts. In the present study also, of 850 women with primary school education, 34.4% had some scatchy awareness and of 91 with women who had higher secondary school education, 64.8% were aware, significantly more (p-value 0000.1). Of 105 women who had no birth, 73 (3.04%) were aware about essentiality of prepregnancy good health and only 12 (0.5%) talked of stress free life, 12 (0.5%) avoidance of heavy work and 49 (2.04%) talked about need of regular check up during pregnancy. Of 275 home makers, 201 (73%) were aware of need of micronutrients. Of 147 women from upper economic class, 101 (68.7%) were aware and of 864 from lower economic class, 429 (49.65%) were aware of need of micronutrients, significant difference (p value <0.0001). Total 156 (36.65%) women said blood improving tablets and 273 (63.64%) said extra energy providing diet provided micronutrients, significant difference between upper and lower economic class (p value <.00001). Of 850 primary school educated women, 360 (42.3%) were aware that prevention and treatment of anaemia prevented complications during pregnancy. Of 699 higher secondary educated women, 352 (50.4%) women were aware of anaemia. Of 828 women of 20-24 years, 388 (46.8%) were aware that pre pregnancy prevention and treatment of anaemia prevented complications during pregnancy, significant difference between primary school educated and higher secondary educated (p value <.00001). However in their own worldly way women did talk of treatment of anaemia for reducing dangers which are common in anaemic women. Abbrha et al [11] from Northern Ethiopia also reported that women's awareness of PCC was low. PCC should be key entry point to receive

nutrition advocacy, prevention, detection and treatment of anaemia, diagnosis of preexisting disorders and advocacy of other issues which affected pregnancy outcome, early diagnosis and therapy of pregnancy specific disorders, and monitoring baby's growth. The present study revealed that, of 2400 study subjects, only 1396 (58.2%) had some awareness. Amongst them also only 426 (17.75%) women said stress free life was essential during pregnancy, 228 (9.5%) said avoidance of heavy work and 281 (11.7%) need of check up at health facility for remaining healthy during pregnancy. Numbers of those who knew were small and also awareness was scatchy. However those women with scatchy awareness did talk of scientific correct knowledge of some aspects like effects of anaemia and essentiality of prevention of anaemia. Whit worth et al [12] reported that there was little evidence on the effects of prepregnancy health promotion and a lot of research was needed. Talib et al [13] reported that usage of pre-pregnancy services can be improved through health screening in reproductive-age women with positive determinant factors at the triage in integrated clinics. Shahidi et al [14] from India reported that PCC protocol implementation lead to significant increase of secondary awareness and lasting knowledge. Talib et al [15] from Malaysia also reported that many women were unaware of pre-pregnancy services. Yan Ding et al [16] from China reported that the government-led efforts proved to be effective in promoting PCC and positive lifestyle and behavioural changes in couples of childbearing age. In the present study, of 2400 study subjects, only 1247 (51.96%) were aware about anaemia prepregnancy and that it affected pregnancy. Total 910 (37.9%) women said anaemia was because of lack of iron supplement, 337 (14.04%) said anaemia was due to lack of food but only 1039 (43.29%) talked of essentiality of pre-pregnancy treatment of anemia, 374 (15.5%) said it prevented dangers due to bleeding. Total 1240 (51.50%) said additional micronutrients were needed, and 723 (30.12%) said extra energy providing food was needed, and 517 (21.54%) said blood improving tablets. Many women lacked awareness of anaemia which kills many women directly and indirectly. Only 1164 (48.50%) had awareness about hygiene during pregnancy, 722 (30%) said prevention of urinary infection was essential, and 442 (18.41%) said prevention of genital disease. So even awareness of good hygiene was lacking in more than 50% women. Also age, economic status, education, opportunities of meeting other people affected the numbers of those who were aware. Study subjects, did not talk of medical disorders which get affected by pregnancy and affect the mother as well as baby. They did not talk about medication, environment periconception, interval between pregnancies and so on.

## Summary and Conclusion

Over all it was revealed only some women had scatchy prepregnancy awareness. No one talked of appropriate interval, existing disorders, effects of environment, or medication, although the health care before pregnancy and during pregnancy was talked by some. Only 30.1% women knew disorders needed treatment before pregnancy, and 51.67 % women were aware of the extra micronutrient required in pregnancy, 48.50% women were aware about hygiene during pregnancy. Awareness was directly proportional to variables like age, literacy, economic status and occupation. Overall there seems a real need of creating prepregnancy awareness, provide PCC services for promoting maternal and new-born health and preventing maternal and new-born mortality.

## Conflict of Interest – Nil

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