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Awareness of hypertensive disorders amongst pregnant women in a remote rural region-community based study

Background

Hypertensive disorders during pregnancy (HDsP), an umbrella term for pre-existing hypertension, gestational hypertension, preeclampsia and eclampsia, complicate a big number of pregnancies, lead to preterm births, foetal growth restriction, low birth weight and contribute to significant maternal and perinatal morbidity and mortality globally, more in low middle and middle-income countries (LMIC), where maternal and perinatal mortality as such is high.[1,2] The majority of deaths of mothers and babies due to HDsP can be prevented by timely, effective, quality antenatal care, preventing severity of the disease and reducing complications. For timely appropriate treatment, awareness of women plays an important role in preventing the severity of disease and complications, but there are not many community-based studies, especially about rural pregnant women's awareness of HDsP.

Keywords: complications, awareness, pregnant women, hilly region, forestry

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Objective

Community based study was conducted to know about the awareness in context of HDsP in rural pregnant women of a low resource region.

Material and methods

After taking base institute's ethics committee's approval, information about awareness of women regarding HDsP was collected by interviews of pregnant women using a tool, with some questions for yes or no answers and others for short answers. after verbal, informed consent Women were interviewed in their own villages at the mutually convenient places after verbal, informed consent. Information was recorded on the hard tool then and there. No one was given tool to fill.

Study setting: Community based study in 140 villages around the village with health facility, which was study centre in a remote, forestry and hilly region.

Study design: Observational cross-sectional study.

Study period: One year.

Inclusion criteria: Randomly, pregnant women of 20 to 49 years of age residing in the villages around the village with health facility (study centre) and willing to undergo personal interviews were enrolled as study participants.

Exclusion criteria: Those <20 years or >49 years, nonpregnant, and also not willing to give response were planned to be excluded, however no one refused.

Sample size: Calculated sample size was rounded to 2000 with 95% confidence, and 2% absolute precision. The sample size was calculated using a free online statistical calculator (statulator).[3] Participants were selected randomly from each village using a random number table to attain 2000 participants, as some villages were small and others little bigger.

Results

Out of 2000 pregnant women, 1966 pregnant women had come in contact with some health providers and of them 83% to 99%, (variations in numbers with different variables) said, they were aware of high blood pressure during pregnancy. Only 34 pregnant women had not come in contact with any health provider, numbers too small for any comparison, but 88% of them did not know anything. Table 1 depicts relationship of having awareness with different variables (Table1). Women with less or more education and low or high economic status had statistically significant difference in numbers of women with awareness, more women of higher education and of upper economic class had awareness, but education had more impact (p value <o1). Numbers of visits for antenatal care also affected the numbers with awareness significantly (P value 0.05), ranging from 80%to 99%, with different variables. Number of women with awareness also varied with place of antenatal care sought also. Unexpected, but not really so, more women who had antenatal care at Aanganwadis, (place of health advocacy and guidance in villages), Sub centres and Primary health centres (99%) had awareness of hypertension than other places (83%) (p value <01). As interviews continued answers changed about those having awareness and amongst those who received some sort of home care, the numbers were small but numbers with awareness were less as depicted in Table 2. It was revealed that there was lack of understanding also in spite being told, what was being asked. Numbers with awareness of symptoms differed with variables as depicted in Table 3. Many women said they were aware of prevention of hypertension, but could not tell any mode of prevention as depicted in Table 4. Overall, 1711 (85.55%) pregnant women said that it was possible to prevent HDsP, but as questioning continued numbers reduced to 1152(57.6%) and also many did not talk about any modality of prevention (Table 4).

Table 1 Number of antenatal visits and awareness of hypertensive disorders of pregnancy

Variables	Total	Yes	%	1-4visits Total	Yes	%	≥5 to ≤8 Visits Total	Yes	%	>8Visits Total	Yes	%	No ANC	Yes	%
Age															
20 To 29	681	673	98.8	17	14	82.4	220	212	96.4	436	430	98.6	8	2	25.0
30 To 39	960	945	98.4	35	30	85.7	325	320	98.5	585	580	99.1	15	1	6.7
40 To 49	359	348	96.9	25	20	80.0	110	105	95.5	213	210	98.6	11	1	9.1
Total	2000	1966	98.3	77	64	83.1	655	637	97.3	1234	1220	98.9	34	4	11.8
Education															
Illiterate	778	758	97.4	25	20	80.0	301	299	99.3	432	430	99.5	20	0	0.0
Primary	615	606	98.5	37	32	86.5	200	191	95.5	369	362	98.1	9	1	11.1
Secondary/ Higher Sec.	567	562	99.1	13	10	76.9	135	130	96.3	414	412	99.5	5	3	60.0
Graduate	25	25	100.0	1	1	100.0	12	10	83.3	12	10	83.3	0	0	0.0
Post Graduate	15	15	100.0	1	1	100.0	7	7	100.0	7	6	85.7	0	0	0.0
Total	2000	1966	98.3,	77	64	83.1	655	637	97.3	1234	1220	98.9	34	4	11.8
Total with awareness		1925	97.91											11.76	
Profession															
Home Maker	620	615	99.2	40	37	92.5	210	202	96.2	365	360	98.6	5	1	20.0
Farm Laborer	850	845	99.4	26	20	76.9	300	296	98.7	519	515	99.2	5	0	0.0
Other Work Laborer	450	430	95.6	6	4	66.7	130	125	96.2	294	291	99.0	20	2	10.0
Shop Keeper	80	76	95.0	5	3	60.0	15	14	93.3	56	54	96.4	4	1	25.0
Total	2000	1966	98.3	77	64	83.1	655	637	97.3	1234	1220	98.9	34	4	11.8
Economic class															
Upper Class	17	17	100.0	1	1	100.0	7	6	85.7	9	8	88.9	0	0	0.0
Middle Upper Class	37	37	100.0	3	2	66.7	15	13	86.7	19	17	89.5	0	0	0.0
Middle Class	220	215	97.7	10	9	90.0	73	68	93.2	132	129	97.7	5	0	0.0
Middle Lower Class	524	517	98.7	22	20	90.9	115	110	95.7	380	374	98.4	7	0	0.0
Lower Class	1202	1180	98.2	41	32	78.0	445	440	98.9	694	692	99.7	22	4	18.2
Total	2000	1966	98.3	77	64	83.1	655	637	97.3	1234	1220	98.9	34	4	11.8
Parity															
P.0	485	476	98.1	16	14	87.5	218	216	99.1	242	237	97.9	9	1	11.1
P.1-2	896	882	98.4	34	29	85.3	324	320	98.8	524	521	99.4	14	3	21.4
>=P.3	619	608	98.2	27	24	88.9	113	101	89.4	468	462	98.7	11	0	0.0
Total	2000	1966	98.3	77	67	87.0	655	637	97.3	1234	1220	98.9	34	4	11.8

ANC, antenatal care.

Table 2 Place of antenatal care and awareness

Variables	Total	Yes	%	Anganwadi / SC / PHC Total	Yes	%	RH / SDH Total	Yes	%	Private Total	Yes	%	Home ANC and No ANC	Yes	%
Age															
20 To 29	681	563	82.7	538	533	99.1	18	14	77.8	7	6	85.7	118	19	16.1
30 To 39	960	636	66.3	586	581	99.1	36	31	86.1	14	11	78.6	324	37	11.4
40 To 49	359	250	69.6	214	210	98.1	26	22	84.6	10	9	90.0	109	27	24.8
Total	2000	1449	72.5	1338	1324	99.0	80	67	83.8	31	26	83.9	551	83	15.1
Education															
Illiterate	778	478	61.4	452	448	99.1	26	21	80.8	0	0	0.0	300	27	9.0
Primary	615	496	80.7	457	452	98.9	38	33	86.8	1	1	100.0	119	39	32.8
Secondary/ Higher Sec.	567	443	78.1	418	415	99.3	14	11	78.6	10	9	90.0	124	15	12.1
Graduate	25	18	72.0	8	7	87.5	1	1	100.0	9	9	100.0	7	1	14.3
Post Graduate	15	14	93.3	3	2	66.7	1	1	100.0	10	9	90.0	1	1	100.0
Total	2000	1449	72.5	1338	1324	99.0	80	67	83.8	31	26	83.9	551	83	15.1
Profession															
Home Maker	620	510	82.3	465	460	98.9	41	36	87.8	4	3	75.0	110	42	38.2
Farm Laborer	850	468	55.1	439	434	98.9	27	21	77.8	2	2	100.0	382	28	7.3
Other Work Laborer	450	405	90.0	383	381	99.5	7	6	85.7	15	13	86.7	45	8	17.8
Shop Keeper	80	66	82.5	51	49	96.1	5	4	80.0	10	9	90.0	14	5	35.7
Total	2000	1449	72.5	1338	1324	99.0	80	67	83.8	31	26	83.9	551	83	15.1
Economic class															
Upper Class	17	16	94.1	4	4	100.0	2	2	100.0	10	10	100.0	1	1	100.0
Middle Upper Class	37	30	81.1	2	1	50.0	8	7	87.5	20	16	80.0	7	3	42.9
Middle Class	220	175	79.5	144	139	96.5	30	25	83.3	1	0	0.0	45	12	26.7
Middle Lower Class	524	414	79.0	377	372	98.7	37	31	83.8	0	0	0.0	110	24	21.8
Lower Class	1202	814	67.7	811	808	99.6	3	2	66.7	0	0	0.0	388	43	11.1
Total	2000	1449	72.5	1338	1324	99.0	80	67	83.8	31	26	83.9	551	83	15.1
Parity															
P.0	485	328	67.6	303	298	98.3	17	14	82.4	8	7	87.5	157	19	12.1
P.1-2	896	600	67.0	552	549	99.5	35	30	85.7	13	10	76.9	296	37	12.5
>=P.3	619	521	84.2	483	477	98.8	28	23	82.1	10	9	90.0	98	27	27.6
Total	2000	1449	72.5	1338	1324	99.0	80	67	83.8	31	26	83.9	551	83	15.1

SC, subcentre; PHC, primary health centre; RH, rural hospital; SDH, Subdistrict hospital

Table 3 Awareness of symptoms of hypertensive disorders during pregnancy

Variables	Total	Total with Awareness	%	Headache/ Dizziness	%	High Blood Pressure	%	Blood Examination	%	Urine Examination	%	Any Other	%	Don't know	%
Age															
20 To 29	681	566	83.1	197	34.8	120	21.3	115	20.3	118	17.6	11	1.7	7	1.1
30 To 39	960	640	66.7	186	29.1	140	21.9	135	21.1	131	20.5	35	3.5	13	2.0
40 To 49	359	259	72.1	80	30.9	60	23.2	50	19.3	35	13.5	25	9.7	9	3.5
Total	2000	1465	73.3	463	31.6	320	21.8	300	20.5	277	18.9	77	5.3	28	1.9
Education															
Illiterate	778	483	62.1	150	31.1	96	19.9	92	19.0	94	19.5	36	7.5	15	3.1
Primary	610	479	79.7	121	24.7	116	24.2	111	22.7	104	21.2	29	5.9	11	1.8
Secondary/ Higher Secondary	567	452	79.7	126	22.3	101	22.3	98	21.7	74	16.4	16	2.7	12	2.1

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Table 3 Continued...

Graduate	25	25	100.0	16	64.0	5	20.0	4	16.0	3	12.0	0	0.0	1	4.0
Post Graduate	15	15	100.0	10	66.7	2	13.3	2	13.3	2	13.3	0	0.0	0	0.0
Total	2000	1465	73.3	463	31.6	320	21.8	300	20.5	277	18.9	77	5.3	28	1.9
Profession															
Home Maker	620	511	82.4	178	34.8	97	19.0	93	18.2	100	19.6	46	7.8	3	0.5
Farm Laborer	750	469	62.5	108	23.6	119	25.4	112	23.9	105	20.4	24	5.5	1	0.2
Other Work Laborer	550	415	75.5	131	31.6	100	24.1	94	22.7	70	16.9	14	3.4	14	3.4
Shop Keeper	80	70	87.5	48	68.0	4	5.0	1	1.4	2	2.5	5	7.1	10	14.3
Total	2000	1465	73.3	463	31.6	320	21.8	300	20.5	277	18.9	77	5.3	28	1.9
Economic Status															
Upper Class	17	17	100.0	8	47.1	5	29.4	5	29.4	1	5.9	3	17.6	0	0.0
Middle Upper Class	37	35	94.6	20	57.1	7	20.0	2	5.7	2	5.7	1	2.9	1	2.9
Middle Class	319	179	56.1	84	46.9	74	41.3	12	6.7	6	4.2	0	0.0	5	2.8
Middle Lower Class	614	424	69.1	118	27.8	101	23.8	95	22.4	74	17.5	29	7.0	7	1.7
Lower Class	1013	810	80.0	244	30.1	133	16.4	190	23.5	191	23.6	33	4.6	15	1.5
Total	2000	1465	73.3	474	32.4	320	21.8	300	20.5	277	18.9	66	4.5	28	1.9
Parity															
P 0	485	330	68.0	59	17.9	118	38.8	80	24.2	50	15.2	16	4.8	7	2.1
P 1-2	896	611	68.2	156	25.5	147	24.1	120	19.6	142	23.2	25	3.9	12	1.3
≥P 3	619	524	84.7	248	47.3	55	18.5	100	19.1	85	16.2	27	5.2	9	1.7
Total	2000	1465	73.3	463	31.6	320	21.8	300	20.5	277	18.9	77	5.3	28	1.9

Table 4 Awareness about prevention of hypertensive disorders during pregnancy

				Modes of prevention							
Varibles	**Total**	**Yes**	**%**	**Antenatal Care**	**%**	**Control Blood Pressure**	**%**	**OTHER**	**%**	**Don't Know**	**%**
Age											
15 to 19	472	315	66.7	35	11.1	45	14.3	112	35.6	123	39
20 to 29	1012	985	97.3	154	15.6	185	18.8	347	35.2	299	30.4
30 to 45	516	421	81.6	41	9.7	74	17.6	159	37.8	147	34.9
Total	2000	1711	86.1	230	13.4	304	17.7	618	35.9	569	33.1
Education											
Illiterate	706	685	97	116	15.9	100	14.6	329	48	140	20.4
Primary	643	503	78.2	69	13.7	69	13.7	159	3.16	206	41
Secondary/ higher secondary	612	508	83	39	7.7	126	24.8	124	24.4	219	43.1
Graduate	21	16	76.2	6	37.5	0	0	6	37.5	5	25
Post graduate	18	9	50	0	0	9	100	0	0	0	0
Total	2000	1711	86.1	230	13.4	304	17.7	618	35.9	569	33.1
Profession											
Home maker	537	421	78.4	26	6.2	87	20.7	145	34.4	163 38.7	38.7
Farm labourer	809	763	94.3	169	22.1	149	19.5	262	34.3	183 24	24
Other work labourer	615	525	85.4	28	5.3	68	13	211	40.2	218 41.5	41.5
Shop keeper	39	12	30.8	7	58.3	0	0	0	0	5	41.7
Total	2000	1711	86.1	230	13.4	304	17.7	618	35.9	569	33.1
Economic status											
Upper class	100	48	48	8	16.7	5	10.4	17	35.4	18	37.5
Middle upper class	120	85	70.8	18	21.2	12	14.1	29	34.1	26	30.6
Middle class	326	248	76.1	52	21	63	25.4	81	32.7	52	21
Middle lower class	629	509	95.2	53	8.8	149	24.9	155	25.9	242	40.4
Lowerclass	825	741	89.8	99	13.4	75	10.1	336	45.3	231	31.2
Total	2000	1711	86.1	230	13.4	304	17.7	618	35.9	569	33.1

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Table 4 Continued....

Parity											
P 0	535	421	78.7	36	8.6	74	17.6	168	39.9	143	34
P 1-2	826	736	89.1	142	19.3	105	14.3	272	37	217	29.5
≥ P 3	639	564	88.3	52	9.2	125	22.2	178	31.6	209	37.1
Total	2000	1711		230		304		618		569	

Discussion

Due to common occurrence and potential for dangerous sequel for mothers as well as baby, HDsP need prompt identification and appropriate timely management. For timely identification and therapy, it is essential that women, more so pregnant women are aware of disorder and seek timely quality care. This becomes more important for rural women, for whom getting emergency care also takes time. Berhe et al.,[4] did a study to know about awareness of HDsP among pregnant women in Ethiopia in antenatal clinics of a general hospital and reported that a high proportion of pregnant women had poor awareness about HDsP even in hospital-based study. Ouasmani et al.,[5] did a qualitative study to investigate the status of knowledge of pregnant women in Moroccan and Netherlands about happenings and overall management of HDsP and reported that half of interviewed women had not even heard of HDsP and had no knowledge of happenings or alarm signals related to HDsP, though all the women acknowledged, the importance of having knowledge of HDsP and its dangerous complications. In the present study, which is community based amongst rural women, most, 83 to 99% were aware of high blood pressure, but beyond that there was complete lack of awareness. So, some efforts can help a lot in such cases. However, those who had not come in contact of any health provider or were given some home care, most women were not aware of things beyond knowledge of hypertension occurring during pregnancy , revealing health providers role Shrestha et al.,[6] did a hospital-based study of women who reported for antenatal care or for birth at a referral hospital, to know about relation between risk factors of HDsP, self-care knowledge and practice to prevent and control hypertension with variations in numbers with different variables, and recommended that all pregnant women must have awareness and ensure the application in practices, behavioural change to prevent, control, and eliminate risks of HDsP. Women with chronic (pre-existing) hypertension have been known to have a markedly increased risk of severe adverse outcomes, vascular accidents and placental abruption, compared to normotensive women. So, it becomes imperative that they are aware about HDsP but if they do not know such things, they cannot be expected to take care of such things. The present study, which is community based reveals the ground reality. Gebremedh et al.,[7] did a population-based study in Western Australia and reported that the risk of preeclampsia increased at longer IPIs, 60 months compared to 18 months for 35 years or older and to a lesser extent for mothers of 30 to 34 years old. Compared to 18 months, the risk of preeclampsia was lower at 12 months of IPI for mothers younger than 20 years, but not for mothers who were 35 years or older. Researchers suggested that health providers should create awareness of pregnant women about HDsP in antenatal clinics and in communities about such issues. Ideally awareness should be pre pregnancy, so that during pregnancy they are aware of need of timely care. Present study was community based in villages amongst pregnant women. While many said they were aware of hypertension during pregnancy, most women did not know about symptoms and signs and modalities of prevention. Education, economic status made a difference in numbers with awareness but it was a small chunk, many did not know anything beyond 'hypertension'. This reveals the importance of creating awareness. Fondjo et al.,[8] did a study in a University Hospital in Ghana to know the level of knowledge of HDsP and the factors associated with knowledge adequacy among rural pregnant women at antenatal care and reported inadequate and adequate knowledge of HDsP in 88.6% and 11.4% women respectively. For participants with adequate knowledge of HDsP also, only 9.1%and 2.3% had moderate and high knowledge respectively. Women more than35 years old and having a higher level of education were significantly associated with greater odds of having adequate knowledge. After controlling for potential confounders, it was found that higher level of education was independently associated with adequate/ better knowledge of HDsP, as was found in the present study also. Olaoye et al.,[9] did a study amongst health providers by using a self-administered questionnaire and reported gaps, symptoms in early stages of disease, dangerous squeal and importance of quality care.

Conclusion

Community based study in pregnant women of remote rural region revealed that though most pregnant women said they were aware of hypertension during pregnancy, numbers changed with place of care and many were not aware of symptoms and signs, dangerous complications and modes of prevention. Time, they spent with health providers and probably peers helped more women in having awareness as was reflected amongst women of present study.

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Limitations

Many women were illiterate or primary educated which limited their understanding of questions in spite of explaining and informed consent. Also, a lot of statistical elaboration was not done because mission was to share information about rural masses about hypertensive disorders which occur during pregnancy commonly and affect mother and baby.

Strengths

It is community-based study amongst rural women with low resources. It provides information in context of masses, guiding health providers for planning and providing needed services.

Conflict of interest

There is no Conflict of interest.

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