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Effectiveness of Vascular Symptom Management Package (VSMP) on Quality of Life (QOL) among Pregnant women with PIH in Hilly areas of Uttarakhand

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ABSTRACT

Pregnancy-induced hypertension is a high-risk affecting almost all the vessels, particularly those of uterus, kidney, placental bed and brain result in the symptoms called Vascular Symptoms. Thus, it, directly and indirectly, have an effect on the physical and psychological QOL of pregnant women. The aim of this study was to assess the effect of Vascular Symptom Management Package (VSMP) on the Quality of Life (QOL) of pregnant women with PIH. A quantitative approach with the true experimental design was adopted. One hundred twenty women with PIH were selected for study by using a purposive sampling technique. Subjects were randomly assigned to an experimental and control group by using Sequentially Numbered, Opaque Sealed Envelops (SNOSE) (60 in Experimental group & 60 in Control group). The data analyzed by using descriptive and inferential statistics. Paired 't' test used to compare the pre-test and post-test QOL scores within the group. The inferential statistics results revealed that the post-test QOL score is decreased in the control group and increased in the experimental group significantly. Independent sample 't' test used to compare the pre and post-test QOL scores between experimental and control groups. The mean post-QOL score of the experimental group was higher than that of the mean post QOL score of the control group. This shows a significant increase in the QOL score in the experimental group. Hence, it can be interpreted that VSMP is effective in improving the QOL. PIH is a life-threatening condition. So VSMP is a nurse-led intervention that can be implemented to effectively reduce the vascular symptoms and improve the QOL of pregnant women with PIH.

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INTRODUCTION

"Safe Motherhood is a human right… Our task is to ensure that in the next decade, it is not regarded as a fringe issue, but as a central issue".

-James Wolfensohn - Word Bank

Increased blood pressure is a common complication during pregnancy (Tooher *et al.*, 2013) and it's significantly associated with materno-perinatal morbidity and mortality. This Increased Blood Pressure (Hypertension) is an underlying pathological sign which may already exist or seems for 1^{st} time during

pregnancy (Roberts and Lain, 2002; Dutta, 2013). Increased Blood Pressure during pregnancy is called Pregnancy Induced Hypertension. These pregnancies induced hypertension classically begins after mid of the second trimester (20^{th} week) with its own classical symptoms i.e., systolic blood pressure more than 140mmHg& diastolic blood pressure more than 90mmHg and presence of protein in pregnant mother's urine (urinary albumin protein $\geq$ 300 mg/24 h) (Dutta, 2013).

Pregnancy-induced hypertension implies a threat to pregnancy, either by means of the mother's health or the health of the fetus. PIH having the basic pathology of endothelial dysfunction and intense vasospasm affecting almost all the vessels, particularly those of uterus, kidney, placental bed and brain result in the symptoms called Vascular Symptoms. Thus, PIH affects the physical and psychological QOL of pregnant women. Saxena N, BavaAK, Yogeshwar, Nandanwar Y stated in his study conducted in New Delhi that out of 150 subjects the symptoms experienced by the preeclamptic and eclamptic mothers were convulsions (75), headache (66), vomiting (23), blurred vision (14), epigastric pain (11), feet edema (37), oliguria (13), generalized edema/ascites (03), high blood pressure (Saxena *et al.*, 2016).

Singhal SR, Deepika, Anshiu, Nanda S stated in his study conducted in Haryana, India that common presenting symptoms were convulsions (51%), headache (44%), epigastric pain (20%), blurred vision (8%), oliguria (9%) and ascitis (1%). 41%, 31%, and 10% of women had one, two and three symptoms, respectively. There were 49 patients with severe preeclampsia and 51 patients with ecclampsia (Singhal *et al.*, 2009). Pregnant women with increased blood pressure shown the poorer physical, psychological, social and environmental quality of life scores compared to women with no history of increased blood pressure during pregnancy. Whereas health or functioning quality of life component reported the lowest, which is averaging 17.63. And the minimally affected quality of life component was family i.e., 26.0. Gestational trimesters of the pregnancy found to be not played any significant variations in the Quality of Life (Falcão *et al.*, 2016).

Raddi SA stated in her study that the quality of life of PIH women was highest among domain IV(environmental domain). They fared better in domain I (physical domain) and domain III (Social relationship domain) whereas, they scored least in domain IV (Psychological). There was a moderate degree of a significant positive correlation between physical-psychological, physical-social and physical environmental domain (Raddi *et al.*, 2009). Women with preterm delivery and hypertension group had statistically significant lower Health-related Quality of Life (HRQL) scores on the physical domain during pregnancy than those without complications. It shows that Pregnancy specific health problems, especially hypertension and preterm delivery, are associated with decreased HRQL in pregnancy (Mautner *et al.*, 2009). Significantly substandard psychological quality of life was found among all the PIH mothers, especially those reported severe pre-eclampsia ($p \leq 0.05$) compared to those pregnant mothers diagnosed with a mild form of pre-eclampsia ($p \leq 0.03$) (Stern *et al.*, 2014).

After six weeks of postpartum, all the mothers been diagnosed with severe pre-eclampsiaa reported poorer quality of life than those mothers been diagnosed with mild pre-eclampsia ($p \leq 0.05$), whereas quality of life of all the Pre-eclampsia diagnosed mothers been improved between 6 to 12-month interval ($p \leq 0.05$), but psychological wellbeing of mothers diagnosed with severe pre-eclampsia been worsened at 12 weeks of postpartum (Hoedjes *et al.*, 2011). Considering the importance of quality of life of pregnant women with PIH and HUGE literature gap in the filed the researcher aimed to test the effect of Vascular Symptom Management Package on Quality of Life of pregnant women with PIH. The aim of the present study was to evaluate the effectiveness of Vascular Symptom Management Package (VSMP) on Quality of Life (QOL) among Pregnant women with PIH.

METHODOLOGY

A quantitative approach with the true experimental design was adopted. One hundred twenty women with PIH were selected for study by using a purposive sampling technique. Pregnant women who diagnosed with Pregnancy Induced Hypertension and registered in respective study center belongs to a hilly area, is Primigravida, gestational age between 26 – 30weeks, is experiencing at least three vascular symptoms, were willing to give written consent for the study & can understand and speak the Hindi Language were included in the study. Pregnant women with convulsion and coma, with other chronic medical disorders & admitted in hospital during the time of data collection, were excluded from the study. Subjects were randomly assigned to an experimental and control group by using Sequentially Numbered, Opaque Sealed Envelops (SNOSE) (60 in Experimental group & 60 in Control group). Total dropouts were 14. The final sample size was

Table 1: Frequency & Percentage-wise distribution of the demographic variables of Pregnant women with PIH, N=106

S. No	Variables		Frequency	Percentage (%)
1.	Age	27 & below	80	75.5
		28-37	23	21.7
		38-47	0	0
		48 & above	3	2.8
2.	Education status	No formal education	8	7.5
		Primary	8	7.5
		Secondary	32	30.2
		Higher secondary	25	23.6
		Graduate and above	33	31.1
3.	Occupation	Housewife	94	88.68
		Working	12	11.32
4.	If working, specify the occupation	Skilled	9	75
		Non - Skilled	3	25
5.	Monthly family income (In Rs)	36,997 & above	5	4.7
		18,498 – 36,996	21	19.8
		13,874 - 18,497	28	26.4
		9,249 - 13,873	34	32.1
		5547 - 9248	10	9.4
		1866 - 5546	8	7.5
6.	Type of family	Nuclear	36	34.0
		Joint	69	65.1
		Extended	1	0.9
7.	Place of residence	Urban	7	6.6
		Rural	75	70.8
		Semi-Urban	24	22.6

106 (55 in Experimental group & 51 in Control group). VSMP includes Instructions on strategies to manage each vascular symptoms, fetal well being assessment, Sleep health behavior education, warning signs of complications & Importance of compliance to interventions. Demonstration on Systematic muscle relaxation techniques, Diaphramatic breathing & Selected prenatal yoga poses. The tools used to collect the data were 1. Demographic Questionnaire, 2. WHO QOL – BREF, 3. Opinionnaire to assess the opinion of VSMP. Permission of study was obtained from the National Consortium for Ph.D. in Nursing. Ethical clearance and permission will be obtained from the Institutional Ethical Committee and concerned Hospital Authorities. Informed written consent was taken from each participant. Baseline assessment was done on the first day & the first session of the intervention was implemented on the same day. The second session of the intervention was implemented after one week. Post assessment was done after 4 weeks. Phone calls & weekly meeting was done to make the mother adhere in practice. The data analyzed by using descriptive and inferential statistics.

RESULTS AND DISCUSSION

Table 1 shows the Demographic characteristics of the study participants shows that majority (75.5%) of the women belongs to the age group of 27 and below, a highest and almost equal percentage of women had the education of graduation and above (33%) & secondary education (32%). Most (88.68%) of the women were housewives, the highest percentage (32.1%) of women belongs to the income of Rs. 9,249 - 13,873, the Majority of women belong to the Joint family (65.1%) and rural area (70.8%). The majority (61.3%) of women attained menarche between the age of 14 years, most (93.4%) of women having the duration of married lifeless than 7years. About 28% of women undergoing infertility treatment. 3.77% of women had a family history of PIH &17.92% of the women had a family history of hypertension. Nearly one

Table 2: Frequency & Percentage distribution magnitude of the Vascular Symptoms among Pregnant women with PIH, N=106

S. No.	Vascular Symptoms		Frequency	Percentage (%)
1.	Blood Pressure	a. < 140/90 mm Hg (Normal)	0	0
		b. 140/90 -149/99 mm Hg (Mild)	11	10.38
		c. 150/100 -159/109 mm Hg (Moderate)	53	50
		d. >160/110 mm Hg (Severe)	42	39.62
2.	Proteinuria	a. Absent (Normal)	0	0
		b. +1 (Mild)	18	16.98
		c. +2 (Moderate)	62	58.50
		d. +3 and above (Severe)	26	24.52
3.	Edema	a. 0 (Normal)	0	0
		b. 1(Mild)	29	27.36
		c. 2(Moderate)	60	56.60
		d. 3 (Severe)	17	16.04
4.	Weight gain (Per week)	a. 0.5(250gms)- 1 lb (500gms) (Normal)	74	69.81
		b. 1lb(500gms) – 2lbs (1kg) (Mild)	28	26.42
		c. > 2lbs (1kg) (Severe)	4	3.77
5.	Headache	a. 0 (No pain)	16	15.09
		b. 1-3 (Mild Pain)	43	40.57
		c. 4-6 (Moderate pain)	37	34.91
		d. 7-10 (Severe pain)	10	9.43
6.	Epigastric Pain	a. 0 (No pain)	23	21.70
		b. 1-3 (Mild Pain)	41	38.68
		c. 4-6 (Moderate pain)	32	30.19
		d. 7-10 (Severe pain)	10	9.43
7.	IUGR	a. No IUGR	73	68.87
		b. Mild	31	29.25
		c. Severe	02	1.88
8.	Insomnia	a. Absent	37	34.91
		b. Present	69	65.09
9.	Depression	a. Absent	84	79.25
		b. Present	22	20.75

Table 3: Comparison of pre-test and post-test QOL score within an experimental and control group, N=106

S.No	Group	Mean + SD		Confidence Interval		Mean Difference	"t" value	df	"P" value
		Pretest	Post-test	Lower	Upper				
1	Experimental Group	66.92 ± 7.236	75.81 ± 5.207	-10.373	-7.408	8.89	-12.026	54	0.001
2	Control Group	71.86 ± 4.490	50.25 ± 10.516	18.829	23.444	21.61	18.398	50	0.001

Paire dt-test, df=54, 50, p<0.05 level

Table 4: Comparison of pre-test and post-test QOL score between an experimental and control group, n=106

S.No	Group	Mean + SD		Confidence Interval		Mean Difference	"t" value	df	"p" value
		Exp. Group	Cont. Group	Lower	Upper				
1	Pre test	66.92 ± 7.236	71.86 ± 4.490	-7.276	-2.594	-4.935	-4.181	104	0.001
2	Post test	75.81 ± 5.207	50.25 ± 10.516	21.931	28.254	25.092	15.740	104	0.001

Independent sample t test, df=104, p<0.05 level

third (28.30%) of women had a history of medical disorders. Among them, most (96.67%) of them had hypothyroidism.

Table 2 shows the frequency & percentage distribution of the magnitude of Vascular Symptoms among Pregnant women with PIH. The blood pressure shows that half (50%) of the sample had moderate BP, 39.62% had severed BP, whereas only 10.38 % had mild BP. Regarding proteinuria, almost half of the sample (58.50 %) had moderate proteinuria, 24.52% had severe proteinuria, whereas only 16.98 % had mild proteinuria. Edema of pregnant women depicts that almost half of the sample (56.60 %) had moderate edema, 27.36 % had mild edema, whereas only 16.04% had severe edema. Weight gain of pregnant women shows that the majority (69.81%) of women had normal weight gain, 26.42% had mild weight gain and only 3.77% had severe weight gain. Headache depicts that 40.57%, 34.91%, 9.43% of women show mild, moderate and severe ache, respectively, whereas 15.09% had no ache. Epigastric pain shows that 38.68%, 30.19%, 9.43% women show mild, moderate and severe ache, respectively, whereas 21.70% had no pain. Regarding IUGR majority (68.87%) of women had no IUGR, 29.25 % had mild IUGR and only 1.88% had severe IUGR. 65.09% of pregnant women experienced insomnia and 20.75% experienced depression.

Table 3 depicts the statistical mean score difference between the experimental and control groups about the quality of life of pregnant women with PIH. In pretest quality of life mean score in the experimental and control group is 75.81+ 5.207 and 71.86+ 4.490, respectively. After the intervention quality of life means score significantly increased to 75.81+ 5.207 in the experimental group; also, in the control group after the four weeks from pretest, the post-test mean score significantly reduced to 50.25+ 10.516. Hence it can be interpreted that the post-test QOL score is decreased in the control group and increased in the experimental group significantly (p<0.005).

Table 4 states the statistical Quality of Life mean score difference in pre and post among experimental and control groups. The mean pre-test QOL score in the experimental group is 66.92+ 7.236 and in control group is 71.86+ 4.490. And the mean post-test QOL score in the experimental group is 75.81+ 5.207 more than the post-test QOL score in the control group 50.25+ 10.516 with the mean difference of 25.092. The mean post-QOL score of the experimental group was significantly higher (p=<0.05) than that of mean post QOL score of the control group.

In this study variables, i.e., age of the pregnant women (0.541), education (0.096), family monthly income (0.602), occupation (0.558), type of family (0.352) and residence (0.411) not shown any statistical association pre- interventional mean score at the level of significance p≤05.05.

This study result shows that women with PIH have lower QOL. These findings were supported by Mautner E et al. shows that women with hypertension group had statistically significantly lower Health-related Quality of Life (HRQL) scores on the physical domain during pregnancy than those without complications (Mautner *et al.*, 2009). This study result shows that Vascular Symptom Management Package (VSMP) was effective in reducing the vascular symptoms, improve the QOL of pregnant women with PIH and given hope to conduct the main study. Jayasutha J et al. stated that counseling on PIH women revealed that a significant reduction in blood pressure (P=0.0001). And also author stated that patient counseling makes the patient understand better about their disease, diet modification and pharmacotherapy and thereby enhances compliance and adherence to therapy with an optimal outcome of therapy and QOL (Jayasutha *et al.*, 2013).

Timely recognition and early prevention measures

in pregnancy-induced hypertension and its complications are essential in order to minimize morbidity and mortality. Information education communication program about alarming symptoms is also important because it will PIH women's to get timely treatment and prevent deterioration of the health and thereby the quality of life will be improved (Subedi, 2014).

CONCLUSION

Pregnancy Induced Hypertension affects about 10% of all pregnant women around the world. It an important cause of severe acute morbidity, long term disability and death among mothers and babies and also reduce the QOL of pregnant women. The majority of complications related to PIH can be avoided by providing timely and effective care to women. Thus, the optimization of health care for women during pregnancy to prevent and treat PIH is a necessary step towards the achievement of reduction of maternal and perinatal mortality rates. Women who are undergoingVSMPhave significantly improve the QOL score, which will improve the maternal and neonatal outcomes of pregnant women with PIH. So VSMP is a nurse-led intervention that can be implemented to effectively reduce the vascular symptoms and improve the QOL of pregnant women with PIH.

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