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Social Support and Adherence among Hypertensive Patients

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Abstract

Adherence to prescribed medical regimen plays a key role in sustaining health and well-being of individuals with hypertension. Among various factors social support seems to have a significant influence on adherence. With this background, this study was carried out with the following objectives- (1) to find out the role of gender in social support and adherence (2) to explore the relationship between social support and adherence and (3) to find out the effect of social support on adherence among hypertensive patients. Utilizing between subjects design, one hundred and fifty (75 men, 75 women) hypertensive patients were recruited from various hospitals in Mizoram, India and were administered the Interpersonal Support Evaluation List and Compliance Scale for hypertensive patients. Data were analysed using independent t test, Pearson r and simple regression. Independent t test indicated a significant gender difference in social support and adherence. A significant positive correlation was noticed between social support and adherence. Social support predicted a significant proportion of variance in adherence among hypertensive patients. The findings illuminate the role of social support in adherence to medical regimen. Psychosocial interventions to optimize social support in enhancing the adherence among patients with hypertension are of great importance in health care management.

Keywords: Social Support, Adherence, Hypertensive patients

JEL Classification*:* I1, I12

Paper Classification: Research Paper

Introduction

Hypertension or high blood pressure is a chronic condition that affects people all over the world. According to World Health Organization (WHO, 2013), over 140 million Indians were considered to have high blood pressure and the number is expected to cross 214 million mark in 2030. As per the World Health Organization 2008 estimates, the incidence of higher blood pressure in Indian men and women was 33.2% and 31.7% (WHO, 2011). According to the survey conducted by Integrated Disease Surveillance Project in 2007-08 on non-communicable disease risk factors, 19.6 % of hypertension cases were reported in north-eastern state of Mizoram, India (Ministry of Health and Family Welfare).

Literature Review

Adherence to prescribed medical regimen plays a key role in sustaining health and well-being of individuals with hypertension. In literature, compliance is used as an alternative word to adherence. The World Health Organization (2003) describes adherence as the degree to which an individual's behaviour (e.g., taking medicines, adhering to diet, and/or implementing lifestyle modifications) correlates with agreed recommendations given by a health professional. Adherence has also been described as the active, voluntary, and collaborative participation of the patient in a mutually acceptable course of behavior to bring about a therapeutic outcome (Meichenbaum & Turk, 1987; Delamater, 2006). Several factors influence patient's adherence behaviour and one of the most important factors is social support. Kaniasty (2008) defines social support as the social interactions that provide an individual with potential access to receive actual or perceived resources from others who are perceived as caring. Previous studies have shown that social support has an influence on the cause, the course, and the management of a variety of medical conditions, including hypertension (Mancia, Fagard, Narkiewicz, Redon, Zanchetti, Böhm, & Galderisi, 2013; Holt-Lunstad, Smith, & Layton, 2010; Cohen, 2004).

A study by Osamor (2015) including hypertensive patients in southwest Nigeria found that those patients who had support from friends or family members displayed better compliance to treatment than those who did not, although this difference was highest for those who had the support of friends. Similarly Hu, Li, and Arao (2015) in their study in Chinese local community found a positive association between family social support and adherence to medication and regular blood pressure measurement. In contrast, literature also reported an absence of relationship between social support and adherence in patients with hypertension. An early study by Wang, Bohn, Knight, Glynn, Mogun, and Avorn (2002) found no relationship between social support and compliance. However the instrument that they had used in their study had only two items which might not be enough to assess the full aspect of social support.

Two key mechanisms can explain the effect of social support on health (1) the stress-buffering effect and (2) main effect (Cohen & Wills, 1985). Stress buffering model suggests that social support enhances health by giving psychological and material resources required to manage stress. On the other hand main-effect model hypothesizes that social support exerts a positive influence on health as it provides positive psychological resources (for instance identity, purpose, self-worth, and emotion regulation) which include health enhancing physiological and behavioural responses, regardless of whether or not people experience a state of stress.

Patient characteristics such as age and gender can influence social support and adherence to medical regimen. Literature has shown gender differences in both these constructs. A study found that men adhere more effectively to medications than women (Chen, Lee, Liang, & Liao, 2014). Similar findings were reported by Manteuffel, Williams, Chen, Verbrugge, Pittman, and Steinkellner (2014) where men were found to adhere better to medications than women. Adherence rate in female hypertensive participants was low as compared to their male counterparts (Khan, Shah & Hameed, 2014). In a population based study in Bangladesh involving hypertensive patients found that more men discontinued the treatment than women (Khanam, Lindeboom, Koehlmoos, Alam, Niessen & Milton, 2014).

In the context of social support, among women, it has been observed that the more siblings they have, the lower their blood pressure, however in men, bigger size of the family and involvement in activities were linked with lower blood pressure levels (Bland, Krogh, Winkelstein & Trevisan, 1991). In contrast the research study by Osamor (2015) among hypertensive patients found that gender was not significantly related with receiving social support. The discrepancy

of results among previous studies considering the influence of gender on social support and adherence prompts the need to explore the role of gender in influencing these variables in Indian context, especially among north-eastern population.

The review of literature indicated the effect of gender on social support and adherence. There is sufficient literature which showed that increase in social support can lead to improved adherence and yield better health outcomes whereas low social support can lead to poor adherence resulting in poor health. Although many research studies have reported the relationship between social support and adherence among hypertensive patients, understanding the impact of social support on adherence and the role of gender in influencing both these constructs in this population is limited especially in north-eastern states of India. With this background, the study was carried out with the following research objectives: (1) to find out the role of gender in social support and adherence (2) to explore the relationship between social support and adherence and (3) to find out the effect of social support on adherence among hypertensive patients. In order to examine the above mentioned objectives, the following hypotheses were formulated for the study (1) There would be a gender difference in social support and adherence (2) there would be a relationship between social support and adherence and (3) there would be an effect of social support on adherence among hypertensive patients.

Research Methodology

Study Sample and Procedure

This empirical study utilized a between-subjects design comprising of two independent groups' viz. men and women (75 each) recruited from different hospitals of Mizoram, India by purposive sampling method. The independent variable was gender and dependent variables were social support and adherence. The age range of men was 40 to 70 years (M=56.73, SD=9.17) and women was 44 to 70 years (M=59.27, SD=7.29). The age range of the total sample was 40-70 years (M=58, SD= 8.35).

Initially, written permissions were obtained from the concerned authorities in few hospitals of Mizoram, to select the participants for this study. Rapport was established with the participants and objectives of the study and procedures of scale administration were described to them. After procuring consent from the participants to volunteer in the study, the scales namely Interpersonal Support Evaluation List and Compliance Scale for Hypertensive Patients were administered individually. The data obtained from all the study participants were analyzed with appropriate statistics.

Measures

Interpersonal Support Evaluation List (ISEL)(Cohen & Hoberman, 1983) consisted of 40 items having a 4 point Likert scale ranging from definitely false(0) to definitely true(3). ISEL has four subscales namely tangible subscale (that assesses perceived availability of the material aid), appraisal subscale (that assesses the perceived availability of someone to verbalize regarding one's problems), self-esteem subscale (that assesses the perceived availability of positive comparison when comparing one's self to others) and belonging subscale (that assesses the perceived availability of those with whom one can perform things with). Each subscale consisted of equal number of items. Some of the items are reversed and all scores are kept continuous. Higher scores indicated higher social support. The Cronbach's alpha for this scale ranges from 0.79 to 0.91.

Compliance Scale for Hypertensive Patients (HYCOMPS) (Swain,2013) The scale comprised of 15 items having 5 point Likert scale ranging from Do not know/ Not applicable(0) to None of the time(4). The scale measured five dimensions of compliance viz. medication, diet, exercise, self-monitoring and doctor's appointment. Compliance was found by summing up the scores of all the 15 items. The Cronbach's alpha for this scale is 0.67. Higher scores indicated higher compliance.

Results

The quantitative data were examined by using descriptive statistics, independent t test, Pearson r and simple regression utilizing SPSS 20.0.

Gender Differences in Social Support and Adherence

Independent t-test, comparing the two groups i.e. men and women on different subscales and dimensions of social support and adherence was conducted. Table 1 shows the results of the analyses.

Table 1: Mean (M), Standard Deviation (SD) and t-values (t) of social support and adherence among hypertensive patients

Variables	Men (n=75)		Women (n=75)		t values	Cohen's d	95% CI	
	M	SD	M	SD			Lower	Upper
Social Support	90.59	4.78	97.55	4.83	8.86**	1.44	-8.51	-5.40
Appraisal	22.16	2.30	23.39	2.30	3.27**	0.54	-1.97	-0.49
Tangible	22.89	2.31	23.97	2.62	2.68**	0.04	-1.88	-0.28
Self Esteem	23.29	2.23	24.91	1.99	4.69**	0.77	-2.30	-0.93
Belonging	22.24	2.61	25.28	2.60	7.16**	1.17	-3.88	-2.20
Adherence	30.32	4.55	38.05	4.50	10.47**	1.70	-9.13	-6.27
Medicine	14.51	2.65	18.56	3.01	8.77**	1.43	-4.97	-3.14
Exercise	5.39	2.27	7.29	1.82	5.71**	0.92	-2.57	-1.24
Diet	5.00	2.18	6.33	1.73	4.14**	0.67	-1.97	-0.69
Self-Monitoring	2.68	0.57	3.00	0.66	3.18**	0.52	-0.52	-0.12
Doctor's Appointment	2.75	0.44	2.87	0.72	1.23	0.20	-0.31	-0.07

*Note: **p<0.01. Higher scores indicate a greater magnitude of each variable. All analyses are two-tailed.*

Table 1 reveals that significant gender difference was noticed on overall social support, $t(148)=8.86$, $p<.01$, Cohen's d =1.44. Women were observed to have higher social support (M=97.55, SD=4.83) compared to men (M=90.59, SD=4.78), indicating the high effect of gender on social support. Statistically significant differences were found between the two groups on all the subscales of social support namely, appraisal subscale, $t(148)$ =3.27, $p<.01$, Cohen's d=0.54, tangible subscale, $t(148)=2.68$,$p<.01$, Cohen's d=0.04, self-esteem subscale, $t(148)=4.69$, $p<.01$, Cohen's d=0.77 and belonging subscale, $t(148)=7.16$, $p<.01$, Cohen's d=1.17. The results indicated that women have higher level of social support with respect to appraisal (M=23.39, SD=2.30), tangible (M=23.97,SD=2.62), self-esteem (M=24.91, SD=1.99), and belonging (M=25.28, SD=2.60) support while men have lower level of social support with respect to appraisal (M=22.16, SD=2.30), tangible (M=22.89, SD=2.31), self-esteem (M=23.29, SD= 2.23) and belonging support (M=22.24, SD=2.61).

Statistically significant differences were found between the two groups on overall adherence, $t(148)=10.47$, $p<.01$, Cohen's $d=1.70$. Women were observed to have higher level of adherence ($M=38.05$, $SD=4.50$) compared to men ($M=30.32$, $SD=4.55$) suggesting higher effect of gender on adherence. Statistically significant differences were also found between the two groups on all the dimensions of adherence except on one dimension namely doctor's appointment. A significant difference was found on the dimension of medicine, $t(148)=8.77$, $p<.01$, Cohen's $d=1.43$, exercise, $t(148)=5.71$, $p<.01$, Cohen's $d=0.92$, diet, $t(148)=4.14$, $p<.01$, Cohen's $d=0.67$ and self-monitoring, $t(148)=3.18$, $p<.01$, Cohen's $d=0.52$. The results indicated that women have higher level of adherence with respect to medicine ($M=18.56$, $SD=3.01$), exercise ($M=7.29$, $SD= 1.82$), diet($M=6.33$, $SD=1.73$) and self-monitoring ($M=3.00$, $SD=0.66$), than their counterparts- medicine ($M=14.51$, $SD=2.65$), exercise ($M=5.39$, $SD= 2.27$), diet($M=5.00$, $SD=2.18$) and self-monitoring ($M=2.68$, $SD=0.57$). Gender was found to have high effect on the dimensions of adherence.

Relationship among the Measures

The correlation coefficients between social support, adherence and their respective subscales and dimensions among hypertensive patients are presented in Table 2.

Table 2: Inter-correlations between Social Support and Adherence among Hypertensive Patients

Variables	Medicine	Exercise	Diet	Self Monitoring	Doctor's Appointment	Total Adherence
Appraisal	.28**	.11	.05	.10	-.03	.24**
Tangible	.19**	.13	.00	.03	-.09	.16
Self Esteem	.05	.05	.09	.15	.06	.10
Belonging	.42**	.14	.21**	.11	.12	.40**
Total Social Support	.43**	.19*	.16*	.16*	.04	.41**

*Note: *p<0.05, **p<0.01. Higher scores indicate a greater magnitude of each variable. All analyses are two-tailed*

Significant positive correlations were found between overall social support and overall adherence and their respective subscales and dimensions. Significant positive correlation were observed between overall social support and overall adherence r(148)=.41, p<.01. Significant positive correlations were noticed between overall social support and dimensions of adherence viz. medicine r(148) = .43, p<.01, exercise r(148) = .19, p<.05, diet r(148)= .16, p<.05, and self-monitoring r(148) = .16, p<.05. This showed that increase in social support is associated with increase in overall adherence and four of its dimensions viz. medication, exercise, diet and self-monitoring.

Significant positive correlations were observed between overall adherence and subscales of social support. Appraisal subscale of social support was positively correlated with adherence to medicine r(148)=.28, p<.01, and total adherence score r(148)=.24, p<.01,which indicated that when appraisal support is high, medication adherence and overall adherence is also high. Tangible subscale of social support has shown a significant positive correlation with medicine dimension of adherence r (148) = .19, p<.01, indicating that with increase in tangible support, there is an increase in adherence to medicine.

Belonging subscale of social support was positively correlated with adherence to medicine r(148) =.42, p <. 01, diet r (148) = .21, p <. 01, and total adherence score r (148) = .40, p <. 01, suggesting that as belongingness increased adherence to medicine, diet and overall adherence is also increased among hypertensive patients.

Effect of Social Support on Adherence

Simple regression was done to examine the effect of social support on adherence among hypertensive patients and the result is presented in Table 3.

Table 3: Summary of simple regression analysis for social support predicting adherence among hypertensive patients (*N*=150)

Criterion	C	*B*	*SEB*	β	*t*	*SE*	R^2	*F*	*p*
Adherence	-3.95	.40	.07	.41	5.37	5.45	.163	28.88	<.001

Predictor: Social Support, C Constant, B Unstandardized Beta Coefficient, SEB Standardized Error of Beta, β Standardized Beta Coefficient, t t-values of Beta, SE Standard error of the estimate

It was seen from the Table 3 that 16.3 percent variance was explained by social support in adherence, R^2=.163, adjusted R^2=.158, F (1,148)=28.88, p< .001. The relationship between social support and adherence was positive, β= .41, p<.001, suggesting that with increase in social support being associated with better adherence among hypertensive patients.

Discussion

The study was aimed to investigate the gender difference in social support and adherence. The results of this study found that men and women with hypertension differed significantly with respect to social support and adherence. Women hypertensive patients showed better overall social support as compared to their counterparts. They were also found to be higher in all the subscales of social support namely appraisal support, tangible support, self-esteem support and belonging support. This result is consistent with the previous research findings where women with more siblings have been observed to have lower blood pressure (Bland et al., 1991). Significant gender differences were observed in overall adherence and four of its dimensions namely, medication, exercise, diet and self-monitoring where women showed better adherence than men. These findings are in line with the research findings of Reach, Guedj-Meynier, Darné and Herpin (2015). They found that adherence to treatment was significantly better in women with uncontrolled hypertension.

The study also aimed to find out the relationship between social support and adherence and the impact of social support on adherence. A positive correlation was observed between social support and adherence. This showed that as social support increases there is an increase in adherence. This outcome is in accordance with the research finding of a study where family social support was found to be positively related with adherence to medication and regular blood pressure measurement (Hu et al., 2015). The present study revealed a significant impact of social support on adherence which supports the findings of previous research where higher perceived social support predicted better medication adherence (Wu, Frazier, Rayens, Lennie, Chung & Moser, 2013). Friends, family members, and other social ties likely to impact health by encouraging health enhancing behaviors, utilization of health care, and adherence to medication via social control (Kinney, Bloor, Martin & Sandler, 2005; Molloy, Perkins-Porras, Strike & Steptoe, 2008). More frequent interaction with others might also give rise to more chances to keep a track of or impact health behaviours, as network ties can provide health information (Kinney, Bloor, Martin & Sandler, 2005; Perry & Pescosolido, 2010).

Limitations and Implications

The study certainly has some limitations. The study has only used quantitative approach. The data were collected from one place (Mizoram). People who have a higher level of social support tend to be high in adherence. Professionals from the discipline of health psychology may conduct programs to help people with hypertension to have more social support network which ultimately will increase adherence. The findings of the study showed that men have lower social support and poor adherence levels. This prompts the need to design gender specific social support-based interventions to assist the individuals utilize available social networks and enhance social relationships. Also we encourage the future investigators to explore support and adherence among primary and secondary hypertensive patients. Future research should consider other constructs that may impact the link between social support and adherence. Lastly, exploring these constructs utilizing mixed method approach might provide more insights.

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