

Somatic Problems and Coping Strategies of Adolescents with Sickle Cell Disease

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ABSTRACT

Out of total sample of the study 72.7 % adolescents were homozygous and 76.7 % were heterozygous. Male and females of Age group 14-16 years were maximum number. Percentage of heterozygous males complaining somatic problems is higher, whereas percentage of homozygous females complaining somatic problems is high. There is significant positive relationship between Maladaptive coping style and somatic problems. Somatic problems emerge as significant predictor in variation of criterion variable somatic problems. The t values explain significant difference in somatic complaints among sickle cell adolescents with respect to gender and zygosity.

Keywords: *Adaptive and Maladaptive coping, Sickle Cell Anemia, Adolescents, Somatic problems.*

Sickle cell disease is a molecular hereditary hemolytic disorder of hemoglobin molecule in which glutamic acid at position 6 of β -polypeptide chain of hemoglobin is replaced by another amino acid, valine (Ingram, 1957). It causes infection, organ failure, chronic lung disease, anemia, stroke and thrombosis resulted unpredictable and recurrent episodes of pain (Smith, 1989). Sickle cell disease patients have psychosocial behavior problems, repeated absences in school & impaired peer relationships (Barbarin, 1994; Yang, Cepeda, Price, Shah, & Mankad, 1994). Coping is the process of executing a potential response which is related to secondary appraisal (Lazarus, 1966) consist problem focused or problem solving coping and emotion focused coping or managing the emotional distress (Carver, Scheier & Weintraub, 1989;

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Folkman & Lazarus, 1980). Carver, Scheier & Weintraub, 1989 developed new instrument to assess coping strategy of people which includes 14 various dimensions such as active coping, planning, suppression of competing activities, restrain coping, seeking social support instrumental and emotional, positive reinterpretation and growth, acceptance, turning to religion, focus on and venting of emotions, denial, behavioral disengagement, mental disengagement and alcohol-drug disengagement. These strategies were related to problems & emotional focused coping style. The coping strategies are stronger predictors of pain than medical status among sickle cell disease patients (Gil, Abrams, Philips, Thomas & Keefe, 1989). Individuals vary in their coping ability with somatic problems and sometimes it differs with age (McCrae, 1982) and sex (Hurtig & White, 1986) of the individuals.

About 7 percent carriers of sickle cell disease / Thallasaemia in the world, out of which 2.70 crore carriers are from India [WHO, 2006]. Earlier study shows the prevalence of Sickle cell anaemia in Chhattisgarh was 11 percent (Kar, 1991; Patra et al, 2011, Panigrahi, Patra & Khodiyar, 2014). The affected people belong to all communities (viz. OBCs, SC, ST and General) of Chhattisgarh and most common crisis of HbSS cases was Vaso-occlusive which was presented by musculo skeletal pain, abdominal pain, joint swelling, dactylities and chest pain (Panigrahi, Patra & Khodiyar, 2014). The occurrence of vaso-occlusive pain is higher in adolescents than children (Dampier, Brodecki & Neal, 2002; Platt, Thorington & Brambilla, 1991). Somatic Pains are inevitable and has to be managed. Adolescent at the junction of beginning of their life suffer. Apart from medical interventions psychological Adaptation is also important. Therefore in the present paper an attempt is made to find out the coping strategy component contributing in somatic complaints.

Aim of the Study:

The main aim of the study was to explore the relationship between somatic problems and coping strategy of adolescents with sickle cell gene and to explore the difference of coping strategies and somatic problems between homozygous and heterozygous males & females.

METHOD

Participants-

The sample of the study includes 309 adolescent SCD patients with 112 males and 197 females age range 11 to 19 years who were registered in various hospitals and health clinics of Bemetara, Durg, Raipur, Dhamtari, Mahasamund, Bijapur, Gariyaband, Balodabazar, Kabirdham, Dantewada and Bastar district of Chhattisgarh, and were selected purposively. The ethical approval for the present study was taken from Institutional ethics committee (IEC) for human research, Pt. Ravishankar Shukla University, Raipur, Chhattisgarh.

Tools-

The Interview-Schedule related to somatic problems and Stress Coping Scale (Janghel, 2012) was used to assess the coping strategy of adolescents with sickle cell disease. The, psychometric

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properties of the stress coping scale was ascertained, internal consistency of coping scale, (α) is 0.69.

Procedure-

Data was obtained using the interview-schedule and the scale by contacting the registered all homozygous and heterozygous sickle cell disease adolescents aged from 11-19 years of both sexes at various health clinics and their residence. The data was scientifically and statistically analyzed by using SPSS 20th version. The results were obtained on the basis of descriptive analysis, linear regression analysis and independent t- test.

RESULTS

The results obtained as shown in the tables. It is observed from the **table 1** that 76.7 % adolescents from the sample were heterozygous and 23.3 % were homozygous. In the heterozygous group 31.22 % were males and 68.78 % were females. It was also observed that frequency of males and females different age groups. The percentage of male heterozygous is highest in 17-19 age group and lowest in 11-13 age groups. Among females maximum percentage was in age group of 14-16 and lowest in 11-13. Among homozygous group 52.78 % were males and 47.22 % females. Maximum percentage of SCD adolescents of homozygous group was in the age range of 14-16 years. The percentage of male and female were 39.47% and 41.16 % respectively. Percentage of male and female in other age group of homozygous is same in different ages.

Observation of **table 2** reveals that 90.5 % males and 76.5 females heterozygous group respond that they suffer from somatic problems. Among homozygous group 89.5% males and 100% females complain somatic problems. Overall it was observed that percentage of males with somatic problems is high (90.2%) in comparison to females. Further it was also observed that among heterozygous group 56.7 percent males complain 4-6 number of phenotypic problem whereas 57.6 % patients females of heterozygous group complains 1-3 number of problems. Among homozygous group 47.1 % of females complain 4-6 problems & 23.5 % of males complain 1-3 problems.

To find out which coping strategy predicts somatic complaint. Linear regression analysis results from **table 3** reveals that maladaptive coping styles emerge out to be significant predictor in relation to somatic complaints ($R^2=.045$; $\beta=.213$; $t= 3.81$; $p<.001$). There is positive relationship between maladaptive coping styles, indicating higher the maladaptive coping style more will be the somatic complaints.

The independent 't' test computed to find out whether there is difference in coping style and somatic problems with respect to zygosity and gender, the results are given in **table 4**. It is revealed that there is significant difference in adaptive coping styles of male and females ($t = 2.40$, $p = .017$). Male adolescents are higher in adaptive coping style (mean of male = 25.37 &

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mean of females = 24.65) than females. There is significant difference in maladaptive coping styles of male and females ($t = 3.03, p = .003$). Male adolescents are higher in maladaptive coping style (mean of male = 17.56 & mean of females = 16.83) than females. The data revealed that there is significant difference in numbers of somatic problems of male and females ($t = 4.74, p < .01$). Male adolescents are higher in numbers of somatic problems (mean of male = 4.38 & mean of females = 2.98) than females.

The insignificant t value observed in the table indicates that SCD adolescents do not differ in their adaptive and maladaptive coping style with respect to zygosity. The t value observed in the table revealed that there is significant difference in numbers of somatic problems with respect to zygosity ($t = -6.71, p < .01$) and homozygous adolescents show many complaints in comparison to heterozygous adolescents (mean of homozygous = 5.36, $SD = 2.85$ & mean of heterozygous = 2.98, $SD = 2.09$).

DISCUSSION

There have been numerous articles on the psychological adjustment of SCD children and adult includes social functioning, behavior problems, Psychiatric diagnosis and sexual functioning and coping (Barbarin and Christian, 1999). Gil, Williams, Thompson & Kinney, 1991 found that there were no significant difference between SCD phenotype and pain status, between pain coping status factor score of girls and boys although present study found gender differences in coping style score (Adaptive & maladaptive). The present study shows significant difference in number of somatic problems with respect to gender. Male showing large number of somatic problems in compares to female adolescents, which is adversely found by Barbarin & Christian, 1999. Maladaptive coping style (self destruction, denial, substance use, behavioral disengagement, venting, self blame) contributes in variation of criterion variable and positive relationship between maladaptive coping strategy and number of somatic problems that is more the maladaptive coping style more will be number of somatic problems complain. Zygosity plays important role in number of somatic problems. Homozygous adolescents complain more problems in comparison to heterozygous adolescents. SCD male and females differ in their coping (adaptive as well as maladaptive) and number of somatic problems. Male adolescents shows high mean score in adaptive coping style (active coping, use of emotional support, use of instrumental support, positive reframing, planning, humor, acceptance and religion), maladaptive coping style (self destruction, denial, substance use, behavioral disengagement, venting, self blame) and number of somatic problems in comparison to females. Another study shows Denial was negatively associated with Education level and planning was positively associated. During SCD-related stressful events mostly women were likely to used venting, positive reframing and religion –based coping than man. Mostly females were more likely to use planning, seek emotional support and use acceptance coping style with disease than males. It means gender was significant associated with coping style of disease (Jonassaint, C., Jonassaint, J., Stanton, M., Castro, L., & Royal, C., 2010). So far as number of somatic problems and zygosity relationship it can be explained in terms of biological reason that is two recessive genes are found in

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homozygous patients restraining proper oxygen supplies in the micro capillaries and veins. Male being more susceptible to phenotypic problem than females. It can be discussed in the light of female adaptability towards the problem it may be phenotypic problem in compare to males. It is also observed that males significantly use more adaptive and maladaptive coping style than females.

CONCLUSION

The finding of the study indicate that adolescents suffering from sickle cell disease show phenotypic problems on an average three to four in problems. It is also observed that adolescents with high somatic problems use bi in large maladaptive coping style. The homozygous sickle cell disease adolescents have high number of somatic problems than heterozygous sickle cell disease adolescents. The male patients use adaptive and maladaptive coping strategies more frequently and have more somatic problems than female patients.

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TABLES

Table 1. Zygoty of sickle cell patients with age and gender distribution.

S.N	Age group In Year	Homozygous(72) 23.3%				Heterozygous(237) 76.7%			
		Male		Female		Male		Female	
		Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
1	11-13	9	23.69	8	23.54	7	9.45	26	15.94
2	14-16	15	39.47	14	41.16	32	43.24	78	47.84
3	17-19	14	36.84	12	35.3	35	47.31	59	36.22
4	Total	38	52.78	34	47.22	74	31.22	163	68.78

Table 2. Numbers of somatic problems occurring in sickle cell patients.

SN	Somatic complaints	Heterozygous				Homozygous				Total			
		Males		Females		Males		Females		Males		Females	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1	None	7	9.5	38	23.3	4	10.5	00	0.0	11	9.8	38	19.3
2	Yes	67	90.5	125	76.7	34	89.5	34	100.0	101	90.2	159	80.7
	Range												
1	1-3	25	37.3	72	57.6	8	23.5	8	23.5	33	32.7	80	50.3
2	4-6	38	56.7	50	40	5	14.7	16	47.1	43	42.6	66	41.5
3	7-9	4	6	3	2.4	17	50	8	23.5	21	20.8	11	6.9
4	10	0	0	0	0	4	11.8	2	5.9	4	4.0	2	1.3
	Total	67	100	125	100	34	100	34	100	101	100.0	159	100.0

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Table 3. Correlation and Regression between Somatic Symptoms and Coping Strategy

Correlation					
SN	Coping Strategies	Somatic complaints			
		Mean	SD	Correlation (r)	P-value
1	Adaptive coping	24.9	2.59	-.014	.405
2	Maladaptive coping	17.09	2.14	.213	.000
Linear Regression					
SN	Coping Strategies	Somatic complaints			
	Predictors	R ² Change	B- coefficient	t-value	Significance
1	Maladaptive coping	.045	.213	3.81	.000

R² = .045

F (1, 307) =14.55; p<.001

Table 4. Independent samples t-Test of zygosity, gender with coping style & Somatic problems

SN	Coping style / somatic Problem	Variables	Mean	SD	t- value	Significance
1	Adaptive Coping	Heterozygous	24.8	2.65	-	-
		Homozygous	25.2	2.38	-1.11	.268 ^{NS}
		Male	25.37	2.39	-	-
		Female	24.65	2.68	2.40	.017
2	Maladaptive Coping Style	Heterozygous	17.10	2.12	-	-
		Homozygous	17.06	2.22	.122	.903 ^{NS}
		Male	17.56	1.93	-	-
		Female	16.83	2.21	3.03	.003
3	Numbers of Somatic Problems	Heterozygous	2.92	2.09	-	-
		Homozygous	5.36	2.85	-6.71	.000
		Male	4.38	2.58	-	-
		Female	2.98	2.33	4.74	.000

^{NS} = Not Significant