Research Article

Epidemiological determinants of mental status differences in geriatric population in rural and urban area in Anand, Gujarat

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Abstract

Background: The aged population is a medical as well as sociological problem. It makes a very great demand in terms of health services in the community.

Objectives: The current study was conducted to know the important epidemiological determinants affecting mental status in geriatric age.

Material and Methods: The study design was non-experimental, analytical cross-sectional study comprising of 200 participants from rural and urban areas. Consent of the subject regarding their participation in the study was obtained. Data entry was done in excel sheet and the final analysis was done using SPSS 15 and Epi info 7 software. Statistical significance was tested by applying Mann–Whitney *U* test and Logistic regression.

Results: Among males and females, the urban–rural difference is statistically significant. The depression (both mild and severe) is 97/200 = 48.5% in rural area whereas in urban area it is 162/200 = 81%, and overall it is 64.75%. This difference is statistically highly significant as *z*-score is –6.8027 and $p < 0.0001$. Gender, area, marital status, education, social relation, and family type are found to be significant independent determinants. In urban area, type of family is a significant determinant whereas in rural area it is not (0.01 and 0.44, respectively). The results of logistic regression revealed that area, marital status, income source, age, and type of family are important determinants of mental status in older age.

Conclusions: Modifiable independent determinants can be adjusted to the circumstances whereas it is almost impossible to deal with the non-modifiable determinants. Talking sessions should further be organized and they should be befriended and helped accordingly.

KEY WORDS: Geriatric population, urban, rural, mental status differences, independent variables

Introduction

The rapid urbanization and society modernization has completely changed the family values and the framework of family support and has brought in economic insecurity, social isolation, and elderly abuse leading to a host of psychological illnesses.[1] India traditionally lived in joint family set ups with agrarian economy where everyone shared responsibilities, financial gains, social obligations, etc. and elders got all the respect from junior members of the family.[2] A World Health Organization (WHO) report says that factors increasing depression risk in older adults include chronic diseases, pain, adverse life events lack of adequate social support, and others.[3] Depression in later life is particularly costly because of the excess disability it causes and its deleterious interaction with physical health.[4] This study was conducted to identify epidemiological determinants accountable for the mental status differences in geriatric population in the local setup.

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Material and Methods

The present study was a cross-sectional analytical study conducted over a period of 2 years from 2010 to 2012. Geriatric Depression Scale and general health questionnaire was used to interview the geriatric people. The study was done in both urban and rural area. The rural and urban areas identified were from the catchment area of Rural and Urban Health Training Centers. From rural area a total of 200 participants were taken and the same number was taken in urban area making a total of 400. Thus, total 400 participants from rural and urban area were part of the study. Objectives of study were explained to every participant (Table 1). Consent of the subject regarding their participation in the study was obtained. Data entry was done in excel sheet and the final analysis was done using SPSS 15 and Epi info 7 software.

Ethical Considerations

The study protocol was approved by Ethical Committee of the institute. Informed consent was obtained from each subject.

Table 1: Distribution of study participants

Area	Male	Female	Total
Rural	109 (56.47)	91 (43.96)	200 (50.0)
Urban	84 (43.52)	116 (56.03)	200 (50.0)
Total	193 (100.0)	207 (100.0)	400 (100.0)

Table 2: Area and gender-wise median geriatric depression score

Variables	Median GDS score	Mann–Whitney *U* test		
		Value	Significance	
			Z value	*p*-Value
Rural	9	11,759.500	-6.794	0.000
Urban	17			
Male	10	14,666.000	-3.758	0.000
Female	14			

Results

Total 400 participants, 200 each from urban and rural area participated in the study. Total 193 male and 207 female participants were there (Table 2).

Median GDS score in urban area is 17, whereas in rural area it is 9.The result is statistically highly significant. In female the score is high as compared to male. This result is also highly statistically significant (Table 3).

Among males and females, the urban–rural difference is statistically significant. The depression (both mild and severe) is 97/200 = 48.5% in rural area whereas in urban area, it is 162/200 = 81%.Overall the depression is 64.75% (Table 4).

All the independent variables were found to be significantly associated with depression by univariate analysis through Mann–Whitney *U* test except income source (Table 5).

The results of logistic regression revealed that area, marital status, income source, age, and type of family are statistically significant.

Discussion

It was found that the median GDS score in urban area was 17, whereas in rural area it was 9. The result was statistically highly significant. In female the score was high as compared to male. This result was statistically highly significant. In the current study, overall 141/400 = 35.25% persons were found to be having a normal mental status. Briefly, 171/400 = 42.75% were suffering from mild depression whereas 88/400 = 22% had severe depression. Study done in Pondicherry by Bhardwaj et al[5] revealed that prevalence of geriatric depression was 98% with 78% mild and 20% severe depression.

It was found that among males, 86/193 = 44.55% were found to be having a normal mental status Briefly, 77/193 = 39.89% were suffering from mild depression whereas 30/193 = 15.54% had severe depression. Amongst females, 55/207 = 26.5% were found to be having a normal mental status. In total, 94/207 = 45.41% were suffering from mild depression whereas 58/207 = 28.01% had severe depression. Study done in Pondicherry by Bhardwaj et al[5] showed that the prevalence of mild depression among males was 80.8% and it was 75.4% among females while 14.8% males had severe depression as

Table 3: Gender specific area wise mental status

Gender	Area	Mental status			Total	Statistical significance
		Normal	Mild depression	Severe depression		
Male	Rural	58 (67.44)	45 (58.44)	6 (20.00)	109 (56.47)	χ^2 = 20.56, df-2, p = 0.000
	Urban	28 (32.55)	32 (41.55)	24 (80.00)	84 (43.52)	
	Total	86 (100.00)	77 (100.00)	30 (100.00)	193 (100.0)	
Female	Rural	45 (81.81)	39 (41.48)	7 (12.06)	91 (43.96)	χ^2 = 56.17,df-2, p = 0.000
	Urban	10 (18.18)	55 (58.51)	51 (87.93)	116 (56.03)	
	Total	55 (100.00)	94 (100.00)	58 (100.00)	207 (100.00)	

Table 4: Important determinants of mental status

	Variable	Mann–Whitney *U* test, statistical significance	
Gender			
Male	193 (48.25)	$Z = -4.64$, $p = 0.000$	*S*
Female	207 (51.75)		
Area			
Rural	200 (100.0)	$Z = -9.18$, $p = 0.000$	*S*
Urban	200 (100.0)		
Marital status			
Married	275 (68.75)	$Z = -6.550$, $p = 0.000$	*S*
Single living	125 (31.25)		
Education			
Illiterate	146 (36.50)	$Z = -2.043$, $p = 0.041$	*S*
Literate	254 (63.5)		
Income source			
Nil	117 (29.25)	$Z = -1.38$, $p = 0.167$	*NS*
Yes	283 (70.75)		
Social relation			
No	16 (4.0)	$Z = -3.38$, $p = 0.000$	*S*
Yes	384 (96.0)		
Chronic illness			
No	183 (45.75)	$Z = -2.13$, $p = 0.000$	*S*
Yes	217 (54.25)		
Type of family			
Nuclear	189 (47.25)	$Z = -4.390$, $p = 0.000$	*S*
Joint	211 (52.75)		

Table 5: Logistic regression analysis

Variables	*B*	S.E.	Sig.	Exp (*B*)	95.0% C.I. for Exp (*B*)	
					Lower	Upper
Area	1.729	0.267	**0.000**	5.634	3.336	9.515
Age	0.334	0.101	**0.001**	1.397	1.145	1.704
Gender	0.423	0.284	0.136	1.527	0.876	2.664
Marital status	–0.852	0.309	**0.006**	2.345	1.279	4.298
Education	–0.074	0.288	0.797	0.929	0.528	1.634
Source of income	–0.907	0.292	**0.002**	0.404	0.228	0.716
Type of family	–0.496	0.253	**0.050**	0.609	0.371	1.000
Social relation with family members	1.403	1.085	0.196	4.068	0.485	34.131
Chronic illness	0.239	0.244	0.326	1.270	0.788	2.048
Constant	–1.904	1.223	0.120	0.149		

Dependent variable: Depression present (1) and Depression absent (0).

compared to 24.5% of the females. Our study findings matched with the study findings of this study for severe depression where females had outnumbered males. Depression was more common in women (27/45, 60%) than men (17/58, 29.3%) as per the finding by Sinha et al[6] in their study.

In the current study, it was found that amongst males the rural–urban difference and amongst females the rural–urban difference is statistically significant. The depression (both mild and severe) is 97/200 = 48.5% in rural area whereas in urban area, it is 162/200 = 81%.This difference was statistically highly significant as *z*-score is –6.8027 and $p < 0.0001$. It was found that in urban area, male and female difference was statistically significant whereas in rural area, male and female difference was not statistically significant.

Gender, area, marital status, education, social relation, chronic illness and type of family are statistically significant

univariate independent variables through Mann–Whitney *U* test. In urban area, type of family was a significant determinant, whereas in rural area it was not (*p*-value = 0.01 and 0.44, respectively). In univariate analysis, income source was not found to be statistically significantly associated with the depression whereas in multiple logistic regression analysis the gender, education and social relation were not significant. Barua et al[7] assessed factors for depression in geriatric population in their study and revealed that older age group, female gender, chronic co-morbidities, less education, unmarried status, loss of spouse, living alone were identified as risk factors for depression. Park et al[8] has also found that marital status, employment status, years of schooling and age were important determinants in geriatric depression. They mentioned that subjects showed high prevalence of depression, especially after 69 years due to increased widowhood, dependency, and health deterioration with age. Illiteracy, economic dependency, and loneliness were reasons for higher prevalence of depression in the lower class (72.7%) than in all the other classes put together (54.9%) and in illiterates (58.9%) rather than in literates (48.8%). The socioeconomic class as one of the independent determinants for depression was not studied, as in the present study the entire study participants were quite homogeneous for this particular determinant; but otherwise the education and income source were significantly associated with depression in our study. In the same study by Park et al[8] lower prevalence of depression among the financially totally dependent subjects (41.7%) as compared to the partially dependent ones (63.3%) was found and they have reasoned it for improper care and security. It was found that social relationship with family members was found to be an important determinant as it was found by Park et al[8] who stated that the burden of earning despite poor health, loneliness, and negligence by children (regarding those living alone), were the main reasons for depression among independent subjects. Our findings were also similar to the findings in the study conducted by Sinha et al[9] where they have found that women were more depressed than men and widow compared to married. Both these associations were statistically significant in their study. A significant association of gender and marital status with depression in univariate analysis was not observed. Reddy[10] and Jain[11] in their study also attributed high prevalence of depression to widowhood, illiteracy, economic dependency and poor status of the family in their studies. Type of family was a significant determinant in the current study for depression and this is supported by other Indian studies in which it was reported that individuals of nuclear families are more susceptible to developing psychological problems than those of joint families.[12,13] The study could have been done in a wider spread area, so that it adds to a better sampling frame and provides good external validity. There can be multi-centric studies also. It was concluded that, after knowing the important determinants, the issues which can be modified can be further taken up and some solutions can be provided. It was found that talking sessions can be organized and older age people should be befriended and helped accordingly.

Conclusions

Modifiable independent determinants can be adjusted to the circumstances whereas it is almost impossible to deal with the non-modifiable determinants. Talking sessions should further be organized and they should be befriended and helped accordingly.

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