



The association of Socio-demographics characteristics and social support from family and community with depression: The National Health and Nutrition Examination Survey 2005-2006

Erfan Ayubi¹, Milad Nazarzadeh¹, Siamak Sabour^{1,2}

1. Department of Epidemiology, Faculty of Health, Shahid 2. Safety promotion and injury prevention research centre, Shahid Beheshti University of Medical Sciences, Tehran, I.R.Iran

ABSTRACT

Aims & objectives: Protective effect of social support networks on depressive symptoms has been reported. The aim of this study was to examine the association between depressive symptoms and social support from family and community using data from the National Health and Nutrition Examination Survey (NHANES) 2005-2006. **Methodology:** This is a cross-sectional population-based study of 10,348 people participating in the NHANES 2005-2006. Participants were interviewed on their level of social support and depressive symptoms. Logistic regression and analysis of variance was used to assess the effects of demographic variables and social support with depression. **Results:** Being married and having a high education level is inversely related to depressive symptoms. Also social supports from family had protective effect on depression symptoms and impacts of each family member were different. It also became clear that family support in associated with social support had a protective effect on the emergence of depressive symptoms. In this effect, the interaction between spouse and professional support on depressive symptoms were more prominent. In addition to, interaction between children's emotional support and religious practices was important. **Conclusion:** The result of this study adherent with the protective theory of social support on depression.

KEY WORDS- Depressive disorder, Social support, Family, Physician, NHANES

Corresponding Author: Department of Epidemiology, Faculty of Health & Safety Promotion and Injury Prevention Research Centre, Shahid Beheshti University of Medical Sciences, Evin Chamran Highway, Tabnak street, Postcode: 19835-35511, Tehran, I.R.Iran
Email: s.sabour@sbmu.ac.ir

Funding: None

Conflict of interest: None

Introduction

Depression is a common mental disorder that characterized by sadness, loss of interest or pleasure, feelings of guilt or low self-worth, disturbed sleep or appetite, low energy and poor concentration¹. A large number of epidemiological studies in the world have revealed that depression is a common illness in the world². In western countries depression is very prevalent and in the US estimated about 16/9%³. The prevalence of these disorders varies among countries, within countries and even among races⁴. In 2000, global burden of disease stated that mental disorders were responsible for 14 percent of the total burden of disease, and depression is the fourth leading cause of

disease burden in the world⁵. World Health Organization states that each year 850,000 lives are lost due to depression¹. Depression is the most common mental disorder reported by general practitioners and one-tenth of individuals covered by the primary care, suffering from depression⁶. Studies have shown that symptoms of depression lead to absenteeism reduced work performance and production⁷, increased disability⁸ and suicide⁹.

Many factors contributed to depression; along with these factors, low levels of social support have been identified as risk factor associated with depression^{10,11}. Social support has been studied as the most important feature in relation to neutralize the adverse effects of

stress. Social support for each person creates a secure connection that in regards to basic feature of security sense, intimacy and closeness can be detected¹². Social support is a concept that has three forms: emotional, informational, and instrumentation. Usefulness of this distinction is well known. Emotional support can be defined as created emotional and affectionate relationship with the person. Instrumental support is services, assisting in activities, money and other assistance that are available. Informational support includes information and advice given to people at risk of physical and mental stress¹³.

Indicated that social support from family members, relatives and health worker reduce symptoms of depression in pregnant women¹⁴. It can have the same effect on older adults¹⁵, adolescents¹⁶, person with multiple sclerosis¹⁷, people with diabetes¹⁸, cancer patients^{19,20} and patients with cardiovascular disease²¹. All these studies show that a wider support network reduce levels of depression and its complication., Achieving a better assessment of the bilateral relationship between depression and social support we used a large sample size study to determine the effect of social support on depression and its symptoms. Therefore, we examined the effect of social support (emotional, instrumental, and informational) from family and community on depression used data from the National Health and Nutrition Examination Survey (NHANES) 2005 to 2006.

Material and Methods

Study population: NHANES is a nationally representative survey of the non-institutionalized population in the United States. It used a complex multistage cluster design to estimate the prevalence of chronic conditions. For this study, we used the 2005 to 2006 cycles of NHANES which provides adequate sample size. Taking into account missing data, information of 10,348 people included in our study. Individuals were interviewed at the family and individual level for demographics variables. People over 16 years had directly interviewed but, for adolescence under 16 years, their parents had interviewed.

With regard to missing data for 170 people (1.6%), 7097 people over 12 years were included to examine the impact of demographic variable on depression. Then 2886 people over 40 years were selected to measure the impact of social support on depressive symptoms.

Measurements depression: Individuals interviewed for signs of depression in mobile center by trained personnel. The eligible sample is mobile exam center

(MEC) participants 12 years and older. The questions were asked during the computer-assisted personal interview (CAPI) in the MEC. Depression screener questionnaire (DPQ) was used to measure depressive symptoms. Construct and external validity of this questionnaire also specified²². Questions have been taken from the Patient Health Questionnaire (PHQ). The questionnaire is a diagnostic tool (Prime-MD) that checks the status of participants two weeks prior to the depression. The Questions were 10 item and they were a self-reported assessment. Participants were asked, "over the last 2 weeks, how often have you been bothered by any of the following problems?" for each of 9 DSM- IV criteria, which included such items as "feeling tired or having little energy" and "feeling down, depressed, or hopeless". The nine questions are scored from "0" (not at all) to "3" (nearly every day). For statistical analysis, questions were coded from 1 to 4 and range of depression scores change from 9 (no depression) to 36 (very depressed), but due to missing data, and according to other studies²³, scores were classified into two categories: 0 to 18 (those who have not symptoms of depression) and 18 to 36 (those have symptom of depression).

Measurement social support:

All survey participants 40 or more years of age were eligible. The questions were asked in the household interview. Social support questionnaire (SSQ_D) was used that its questions was selected from the Yale Health and Aging Study (MacArthur Studies of Successful Aging) and the social network Index - Alameda country study. Theoretical structure of the questionnaire is based on this definition that social support consists of having love, support, attention from family members, friends and other people. There are 21 questions that provide information on emotional, instrumental and social support. Social support from family were classified based on the support of children, spouses, parents and the whole family, and social support from community based on receiving support from friends, family, religious Clergymen, doctors and the whole community. The question of interest to the church and religious practices based on the number of times a day, week, and month or year, asked and added.

Statistical analysis: The sample weights used followed National Center for Health Statistical guidelines and were calculated according to the base probabilities of selection, adjusted for nonresponse, and post stratified to match population control totals and followed the analytical guidelines for NHANES data proposed by the CDC²³.

Frequency and percentage of baseline demographic characteristics of the study population was analyzed using descriptive statistics. Binary logistic regression

analysis was used to measure relationship between demographic variables and depression. We used one-way analysis of variance to assess the impact of social support from family members, community members and financial and instruments support as the independent variable on the mean score of depression as the dependent variable. Two-way analysis of variance was used to examine the impact of social support from family and community members on the depression and interaction between these variables. STATA SE (version 11.0) was used for data analyses and p-values ≤ 0.05 were considered as statistical significant.

Result:

10,348 people included in our study. Demographic characteristics were shown in Table 1.

Table 1. Frequency distribution of study of population according to sex, marital status, education, citizenship status, family size, annual family income

Characteristics	frequency	Frequency (percent)
Sex		
Male	5080	49.1%
Female	5268	50.9%
Marital status		
Married	2711	26.2%
Single	2411	23.2%
Widow	463	4.5%
Divorced	470	4.6%
Other	4291	41.1%
Educational level		
Less than the 9th grade	628	6.1%
9-11 grade	766	7.4%
High school grad/GED or equivalent	1181	11.4%
Some college or AA degree	1417	13.7%
College graduate or above	978	9.5%
Other	4979	48.1%
Citizenship status		
Citizen by birth or naturalization	9233	89.2%
Not a citizen of the US	1107	10.7%
Family dimension		
1 people	1238	0.1%
2 people	1687	16.3%
3 people	1849	17.9%

4 people	2168	20.9%
5 people	1689	16.3%
6 people	879	8.5%
7 people or more	842	18.1%
Annual household income		
0 to 5000 \$	347	3.4%
5,000 to 10000 \$	488	4.7%
10,000 to 15000 \$	868	8.3%
15,000 to 20000 \$	836	8.8%
20,000 to 25000 \$	859	9.6%
25,000 to 35000 \$	1338	12.9%
35,000 to 45000 \$	1011	9.8%
45,000 to 55000 \$	896	8.7%
55,000 to 65000 \$	575	5.6%
65,000 to 75000 \$	525	5.1%
>75,000\$	2080	20.1%
Other	532	0.03%

Binary Logistic regression model showed a statistically significant relationship between sex and family dimension (two people), ($p < 0.001$ OR=2.2, $P < 0.001$ OR=1.93), marital status (married), citizenship status and education (9-11 grade, Some college or AA degree) with depression score respectively ($p = 0.007$ OR=0.49, $p = 0.01$ OR=0.61, $p < 0.001$ OR=0.19, $p = 0.01$ OR=0.56) (Table 2).

Table 2 - Association of selective variables with depression using logistic regression analysis

Variable	p-value	OR
Sex		
Female	0.001	2.2
Male		
Marital status		
Married	0.007	0.49
Education level		
Student	0.01	0.56
College graduate or above	0.001	0.19
Citizenship status		
Citizen by birth or naturalization	0.01	0.61
Not a citizen of the US		
Family dimension		
2 people	0.001	1.93

To examine the relationship between social support (emotional, instrumental and informational) and depression, one-way analysis of variance (ANOVA) shows that the social supports of each family members (child, spouse, parents) are statistically associated with depression ($p < 0.001$ $F = 10.43$). In addition, there was statistically significant relationship between social support from friends and acquaintances, Religious Clergymen, professional and depression

score ($p < 0.001$ $F = 41.25$). In addition, the financial and instrumental support were significant ($p < 0.001$ $F = 5.68$). The association of social support from family members, community members and instrumental support on depression are shown in Table 3.

Table 3. Comparison of depression scores in subjects according to family, instrumental and financial support

Variables	Mean	SD
social support from family†		
children	8.1	8.1
spouses	7.4	7.4
Parents	6.4	6.4
Whole family	10.1	10.1
social support from community††		
Friends and acquaintances	7.5	7.5
church	6.3	6.3
physician	1.5	1.5
Whole community	10.8	10.8
instrumental and financial support†††		
Yes	5.9	5.9
No	7.7	7.7
Reject the offer of help	8.8	8.8

†Between groups $df = 3$, within groups $df = 1747$, Total $df = 1750$, $F = 10.43$, ††Between groups $df = 3$, within groups $df = 821$, Total $df = 824$, $F = 41.25$, †††Between groups $df = 3$, within groups $df = 2202$, Total $df = 2206$, $F = 5.68$, *Two-sided p-value

The effect of social support from family members on depression with regard to support from community members has been shown in Table 4.

Table 4. depression mean (SD) with regard to family members' support and community members' support

Community member s††	Family members†				p-*
	Child ren	Spou se	Parents	Whole family	
Friends and acquaint ances	6.3(4.2)	4.9(2.7)	8.6(3.48)	9.4(5.3)	
church	4.1(1.7)	-	-	19.6(9.42)	0.001
physicia n	-	1.5(0.5)	-	-	
Whole commun ity	12.6(4.7)	4.2(1.1)	12.5(4.0)	6.5(4.9)	
p-value			0.001		0.001 †††

†Test of between-subjects effects: family members

$df = 3$, $F = 13.21$, †† Test of between-subjects effects: community members $df = 3$, $F = 8.84$, ††† Test of between-subject effects: family support-community support interaction $df = 4$, $F = 26.20$, *Two-sided p-value

This effect is also statistically significant ($p < 0.001$ $F = 13.21$). In addition, such effect was found for social support from community members with regard to

interaction between support from family and community was statistically significant ($p < 0.001$ $F = 26.20$). Also this study showed a significant negative correlation between tendency to religious practice, religious sites and depression score ($r = -0.04$, $p = 0.02$). Likewise we found a significant positive correlation between having a large number of friends and share problems with those ($r = 0.07$, $p < 0.001$).

Discussion: Because of high prevalence of depression in the U.S, supportive factors that delay the onset of depression are important. Researcher has been expressed bilateral relationship between social support and depression. Besides, epidemiological studies have shown that low levels of social support from family and community members in various groups associated with the risk of depression. Our study with large sample size confirms that protective of effect of social support on depression theory.

Relationship between demographic variables and depression in this study showed that depression in women is more likely than men ($OR = 2.2$) as well as social and family circumstances for incident depression in women is more provider. Generally, some factors such as pregnancy, hormones, personality, biological factor and sex discrimination maybe play an important role in the incidence of depression in woman's life. Then, the occurrence or absence of depression symptoms largely depends on the physiological, hormonal, genetically characteristics and woman's life style. Because, the study on twins in Sweden²⁴, revealed the greater influence of genetic factors in woman than men. It was also shown that People with high education level reported fewer symptoms of depression. These finding of the current study are consistent with those of largest study on the genetics of depression that found inverse relationship between depression and high educational levels. But this inverse relationship was not found in other country^{25, 26}.

Married individual reported fewer symptoms of depression in this study. A possible explanation for this might be that marriage had a great protective effect on mental health of women and men. Another important reason maybe couples emotional support,

commitment and financial stability after marriage.

In other hand, two-person family reported more symptoms of depression. In a study by Riolo²⁷, in the National Health and Nutrition Examination Survey 1994 to 1998, prevalence of major depressive disorder was significantly higher in Whites than in African Americans and Mexican Americans; the opposite pattern was found for dysthymic disorder. This study showed that living in poverty, female gender, older age, low education levels, divorce and widowhood increase the chances of the appearance of depression symptoms, but increase the level of education and being married were protective effect on depression.

Our study showed that support from each family member has a significant role in the creation and emergence of depressive symptoms so that people have more support from family members have less depressive symptom. In this study, parents, children and spouses had the most contribution to reducing the signs and symptoms of depression (respectively). It seems that these results are due to family network social support. These results can vary according to the type and household size.

These findings of the current study are consistent with those of Senturk et al²⁸ who found women who reported higher depressive symptoms, had less support from their family members and emotional support from spouse had a significant protective effect against depression. This finding is in agreement with Xie et al²⁹ finding which showed support from family member, especially spouse, has a significant protective effect against depression. But in our study the role of parents was more significant. In line with the results of our study, other studies showed that social support from whole around environment; play a protective role in the prevention of late-life depression³⁰. Study by Wada et al³¹, confirmed our study result This study showed that the lack of support from family increase the chances of symptoms of depression.

In addition, we did find association between social support from community members (e.g. friends, Clergymen, religious and psychiatric professionals) and depressive symptoms. This finding indicated that People have to sense some emotional needs within the community. It is natural that inability to communicate with surrounding maybe lead to depression in future. In consisted with the results of our study, Mahan et al³² showed that social support from community in work environment can be involved in reducing depression and anxiety.

Moreover, we had seen less depressive symptoms in people who had rich financial and instrumental

support. Also, people who had been able to express their need or reject from others, had more depressive symptoms.

Simultaneous assessment of social support from family and community showed that people who had spouse emotional support and also shared their problems with doctor and supported by physician were significantly less depressed. Moreover, it becomes apparent that emotional supports from children with tendency to perform religious practices, attendance at religious places such as church have protective effect on depression.

In this study it was found that people who have extensive social network, strong social connection and receive more social support, shows fewer symptoms of depression and mood changes in their life. Indeed, as societies become more advanced in terms of facilities, and communications; life becomes more complex and anxiety. This could be lead to depression and anxiety symptoms. However, it is important that with support from family and community, these problems can be prevented. People over 40 are gradually entering retirement age and aging, therefore consider to these factors are very important Also Gagliardi study³³, confirms our study result that people who have extensive social network and in this network, friends and colleagues to be present, will have less anxiety and depression.

This study has limitation that should be considered. First, other confounding variables such as length of citizenship status, country of birth and occupation, which can affect this relationship has not been investigated. Second, this is a cross sectional study and cause-effect relationship cannot be identified, thus it is hard to find out whether lack of social support is cause of depression symptoms or that depressed people tend to have more seclusion and loneliness. But, it should be noted that cross sectional studies are appropriate for chronic disease and conditions associated with behavioral factors such as depression. So, further experimental investigations are needed to understand the true relationship between these two factors. The strengths of our study was large sample size and using powerful sampling method that it is representative of the U.S community. Because of large sample size, our study has appropriate external validity. **Conclusion:**The most obvious finding to emerge from this study is that social support can reduce the risk of depressive. It was also shown that support from family has an important role in reducing the risk of depression, as well as people with wider social networks and social connections will be less prone to depression.

Acknowledgement: We gratefully thank Professor Harold G. Koenig from Duke University, for his useful comments to improve scientific quality of this paper.

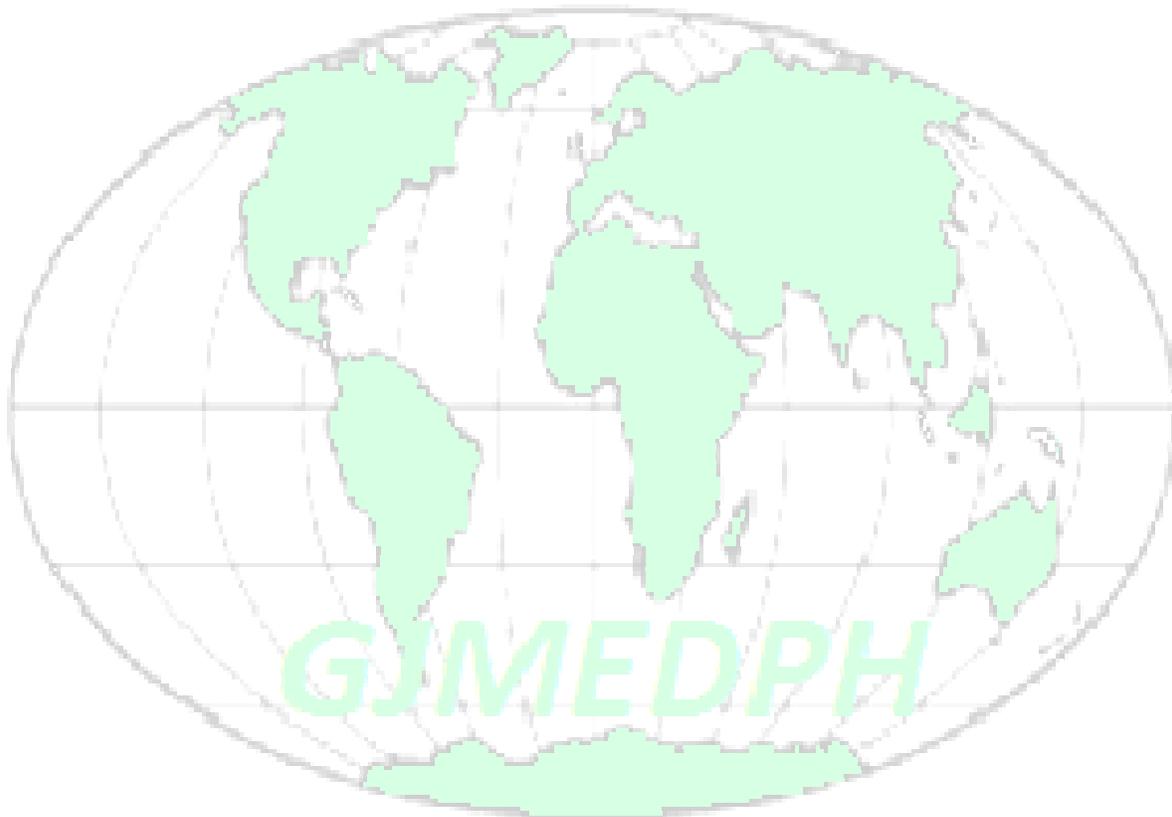
References:

1. Depression. WHO; 2011; Available from: <http://www.who.int/topics/depression/en/>
2. Murray CJ, Lopez AD. Evidence-based health policy--lessons from the Global Burden of Disease Study. *Science*. 1996 Nov 1;274(5288):740-3.
3. Andrade L, Caraveo-Anduaga JJ, Berglund P, et al. The epidemiology of major depressive episodes: results from the International Consortium of Psychiatric Epidemiology (ICPE) Surveys. *Int J Methods Psychiatr Res*. 2003;12(1):3-21.
4. Pi EH. Ethnicity and psychopharmacology. *Ethn Dis*. 2001 Winter;11(1):166-7.
5. Prince M, Patel V, Saxena S, et al. No health without mental health. *Lancet*. 2007 Sep 8;370(9590):859-77.
6. Berardi D, Leggieri G, Ceroni GB, et al. Depression in primary care. A nationwide epidemiological survey. *Fam Pract*. 2002 Aug;19(4):397-400.
7. Goldberg RJ, Steury S. Depression in the workplace: costs and barriers to treatment. *Psychiatr Serv*. 2001 Dec;52(12):1639-43.
8. Banerjee A, Kumar S, Kulhara P, et al. Prevalence of depression and its effect on disability in patients with age-related macular degeneration. *Indian J Ophthalmol*. 2008 Nov-Dec;56(6):469-74.
9. Arsenaault-Lapierre G, Kim C, Turecki G. Psychiatric diagnoses in 3275 suicides: a meta-analysis. *BMC Psychiatry*. 2004;4:37.
10. Lazarus RS. Coping theory and research: past, present, and future. *Psychosom Med*. 1993 May-Jun;55(3):234-47.
11. Prince MJ, Harwood RH, Blizard RA, et al. Social support deficits, loneliness and life events as risk factors for depression in old age. The Gospel Oak Project VI. *Psychol Med*. 1997 Mar;27(2):323-32.
12. Ghaffari M, Shahbazian H, Kholghi M, et al. Relationship between social support and depression in diabetic patients. *Sci Med J*. 2010;8:383-9.
13. ROOK KS, ITUARTE PHG. Social control, social support, and companionship in older adults' family relationships and friendships. *Personal Relationships*. 1999;6:199-211.
14. Westdahl C, Milan S, Magriples U, et al. Social support and social conflict as predictors of prenatal depression. *Obstet Gynecol*. 2007 Jul;110(1):134-40.
15. Suttajit S, Punpuing S, Jirapramukpitak T, et al. Impairment, disability, social support and depression among older parents in rural Thailand. *Psychol Med*. 2010 Oct;40(10):1711-21.
16. Johnson JE, Esposito-Smythers C, Miranda R, et al. Gender, social support, and depression in criminal justice- involved adolescents. *Int J Offender Ther Comp Criminol*. 2011 Oct;55(7):1096-109.
17. Suh Y, Weikert M, Dlugonski D, et al. Physical activity, social support, and depression: Possible independent and indirect associations in persons with multiple sclerosis. *Psychol Health Med*. 2011 Jul 25.
18. Sacco WP, Yanover T. Diabetes and depression: the role of social support and medical symptoms. *J Behav Med*. 2006 Dec;29(6):523-31.
19. Bigatti SM, Wagner CD, Lydon-Lam JR, et al. Depression in husbands of breast cancer patients: relationships to coping and social support. *Support Care Cancer*. 2011 Apr;19(4):455-66.
20. Lutgendorf SK, DeGeest K, Sung CY, et al. Depression, social support, and beta-adrenergic transcription control in human ovarian cancer. *Brain Behav Immun*. 2009 Feb;23(2):176-83.
21. Frasure-Smith N, Lesperance F, Gravel G, et al. Social support, depression, and mortality during the first year after myocardial infarction. *Circulation*. 2000 Apr 25;101(16):1919-24.
22. Kroenke K, Spitzer RL, Williams JB. The PHQ-9: validity of a brief depression severity measure. *J Gen Intern Med*. 2001 Sep;16(9):606-13.
23. NHANES Analyses Course. 2010; Available from: http://www.cdc.gov/nchs/tutorials/NHANES/NHANE_SAnalyses/.
24. Kendler KS, Gatz M, Gardner CO, Pedersen NL. Personality and major depression: a Swedish longitudinal, population-based twin study. *Arch Gen Psychiatry*. 2006 Oct;63(10):1113-20.
25. David Cyranoski. Depression Study in China Reveals Some Surprises Compared with the West. *Nature*. 2011;4
26. Bjelland I, Krokstad S, Mykletun A, et al. Does a higher educational level protect against anxiety and depression? The HUNT study. *Soc Sci Med*. 2008 Mar;66(6):1334-45.
27. Riolo SA, Nguyen TA, Greden JF, et al. Prevalence of depression by race/ethnicity: findings from the National Health and Nutrition Examination Survey III. *Am J Public Health*. 2005 Jun;95(6):998-1000.
28. Senturk V, Abas M, Berksun O, et al. Social support and antenatal depression in extended and nuclear family environments in Turkey: a cross-sectional survey. *BMC Psychiatry*. 2011;11:48.
29. Xie RH, Yang J, Liao S, et al. Prenatal family support, postnatal family support and postpartum depression. *Aust N Z J Obstet Gynaecol*. 2010 Aug;50(4):340-5.
30. Alexandrino-Silva C, Alves TF, Tofoli LF, et al. Psychiatry: life events and social support in late life depression. *Clinics (Sao Paulo)*. 2011;66(2):233-8.
31. Wada K, Satoh T, Tanaka K, et al. Associations of depressive symptoms with regular leisure activity and family social support among Japanese workers. *Ind*

Health. 2007 Jan;45(1):181-5.

32. Mahan PL, Mahan MP, Park NJ, et al. Work environment stressors, social support, anxiety, and depression among secondary school teachers. AAOHN J. 2010 May;58(5):197-205.

33. Gagliardi C, Vespa A, Papa R, et al. Social support networks and depression of women suffering from early-stage breast cancer: a case control study. J Psychosoc Oncol. 2009;27(2):216-29.



Access This Article Online

Quick Response Code:



Website:
www.gjmedph.org