International Journal of Control Theory and Applications

ISSN : 0974-5572

Volume 10 • Number 36 • 2017

Urban and Rural Differences in Suicide Ideation Among Korean 20-64 years Adults: Results from the Fifth Korean National Health and Nutrition Examination Survey 2010-2012

Eunok Park[a]

[a]*102 Jeju daehakro Ara 1 Dong Jeju-si, Rep. of Korea, College of Nursing, Jeju National University. Email: eopark@jejunu.ac.kr*

Abstract: Purposes: This study investigated the prevalence of suicide ideation and the associated factors in urban and rural area.

Methods: A secondary analysis was performed using data from nationwide cross-sectional survey of the fifth Korean National Health and Nutrition Examination Survey (KNHANES) in 2010-2012. Subjects who were aged 20~64 years (13,414) were included for this analysis. Pooled weights of sampling were applied to all data analysis process. Chi-square tests and multiple logistic regression was performed.

Results: The prevalence of suicidal ideation was 13.9% in rural and 12.3% in urban, the difference was not significant. Significant associated factor with suicide ideation in urban were female (Odds ratio [OR] 1.92), low income (OR 1.71 compared to high level of income), less education (OR 1.61 for elementary or none compared with university graduate), single (OR 1.36), living alone (OR 1.58), perceived unhealthy status (OR 1.67), having one disease (OR 1.32) or two or more (OR 1.46), alcohol dependency (OR 1.75), having much stress (OR 3.12), and depression (OR 7.55). In rural, female (OR 1.56), 45-64 years old age group (OR 2.31 compared with 20-44 years old), the divorced, separated, or widowed (OR 2.64), having much stress (OR 5.04), and depression (OR 9.05) were significant factors in suicide ideation.

Conclusions: The different suicide prevention programs need for each area, taking the associated factors with suicide ideation into account in each area. The approaches to reduce depression and stress should be fostered to reduce suicide, considering that depression and stress were strong risk factor in both areas.

1. INTRODUCTION

Suicide is a significant and preventable social and public health problem[1]. Approximately 5.3% of all deaths in 2012 was accounted by suicide, representing the fourth leading cause of death in South Korea[2]. Statistics shows that suicide mortality varies by age group. Although suicide rate was higher in elderly over 60's than adults aged of 20's – 50's, ranking of suicide among causes of death was higher in 20's – 50's adults, showing the first ranking among adults 20–39 years of age and the second ranking in those 40–59 years of age [2].

The elderly are at high risk of suicide and many studies investigated suicide among elderly[3-5]. Relatively few studies focused on suicide among adults[6]. Suicide among middle-aged adults who participate in economic activities left the large impact on the lives and mental health of the remained families and communities[1].

Meanwhile, suicide mortality has been reported to differ by residential area. Suicide mortality differed by region[7] and the rate was higher in rural areas than in urban areas[8]. The features of residential area affect residents' health in terms of physical environment, availability of health services, or socio-economic conditions[9].

Taking account of these points, the associated factors with suicide ideation would differ by residential area. Some researchers have studied on suicide ideation by residence area among elderly[10], the prevalence of and the associated factors with suicide ideation among middle-aged adults by residence area are not well known, however. Suicide is a national concern and prevention of suicide is a priority for South Korea. Understanding of the population at risk of suicide ideation and the influencing factors would be helpful for finding appropriate strategies to prevent suicide. This study explores the prevalence of suicide ideation in urban and rural area and whether the associated factors present different patterns based on residential area, using data from Korean nationwide survey.

2. METHODS

2.1. Study Design

This is a secondary analysis using data from nationwide cross-sectional survey of the fifth Korean National Health and Nutrition Examination Survey (KNHANES) in 2010-2012. The survey was approved by the Korea Center for Disease Control Institutional Ethics Review Board (No. 2010-02CON-21-C, 2011-02CON-06-C, 2012-01EXP-01-2C)[11], and the written informed consents with sign were obtained from all respondents before data collection[11]

2.2. Participants

The participants were sampled using complex, stratified, multistage probability method based on residential area, sex and age. The response rate were 81.9% in 2010, 80.4 % in 2011, and 80.0% in 2012[11]. Among a total of 25,533 participants, subjects who were aged 20~64 years (13,414) were used in the study. The permission of using the raw data from KCDC was obtained and data were directly downloaded from the website with password.

2.3. Measurements

2.4. Dependent Variable

Suicide ideation was assessed by asking "Have you ever seriously considered committing suicide or taking your own life in the past year?" and participants answered 'yes' or 'no'.

2.5. Independent Variables

To explore the associated factors with suicide ideation, socio-demographic status (residence area, gender, age, education, marital status, personal income, household income, job, living alone), health related features (disease, perceived health status), health behaviors (current smoking, obesity), and mental health status (alcohol dependency, stress, depression) were included.

Socio-demographic characteristics were consisted of residential area (urban, rural), gender (men, women), age group (20-44 years, 45-64 years), educational attainment (no education or elementary school graduate, middle school, high school, and college graduate or higher), marital status (never married, married, the separated/ divorced/widowed), income level (lower, lower intermediate, upper intermediate, upper). Participants were asked "How many people do you live with, including you?" and responses were divided into 'living alone, living with others'.

Health status included two variables; perceived health status and disease. Participants were asked "In general, how do you think your health?" with five-category response *excellent, good, fair, poor* and *very poor*) to assess perceived general health status. Responses were dichotomized into "healthy (excellent/good/fair)" and "not healthy (poor/very poor)". Participants were also asked whether they have any disease, disease status was coded as 'do not have, one, two or more' based on number of diseases they have. Health behaviors were consisted of current smoking (yes or no).

To assess alcohol dependency, Alcohol Use Disorders Identification Test (AUDIT) which developed World Health Organization (WHO) was used, and scores of 20 or above were considered as alcohol dependency[12]. To evaluate perceived stress, participants were asked " How do you feel stressed on ordinary day?" with response of 'very much, much, moderate, a little'. Subjects' perceived stress was divided into two categories; 'much' and 'little'. For depression, participants were asked "Have you ever felt sad, blue or depressed enough to affect their daily lives almost every day for 2 weeks or longer in a row in the last year?" with 'yes or no' response.

2.6. Data Analysis

Data were analyzed with SAS software 9.3. Pooled weights of sampling were applied to all data analysis process to estimate statistics with representativeness for the Korean adult population. The results were presented with weighted percentages (standard errors) and odds ratio (confidence intervals). Chi-square tests were done to examine the differences in distribution of participants' characteristics and the differences in the prevalence of suicide ideation according to participants' characteristics by residential area. A multiple logistic regression was performed to explore the associated factors with suicide ideation by residential area. To obtain the most proper logistic model, manual backward stepwise selection was used. At the first step, all independent variables in this study were included in the initial logistic models, the variables below p value >.15 were removed from the first full models at the second steps, and the variables p value >.05 were deleted from the second models. The final models for each urban and rural area were presented in the results.

3. RESULTS

3.1. General Characteristics of Participants: Comparison between Urban and Rural

A total of 13,414 Korean adults aged 20~64 years were included in this study, 11,120 participants lived in urban, and 2,294 were in rural area. About 42% (5,664) were male, and most respondents (60.9%) in urban area were aged 20–44 years.

About 60% in rural area (50.9% in urban) were in low or low intermediate level of income. 20.9% in rural area (8.5% in urban) had no education or an elementary school education. 75.7% in rural (68.5% in urban) were married, 37.2% in rural (33.1% in urban) had one or more diseases. 72.0% in urban (69.5% in rural) were current smokers, 8.8% in rural (7.2% in urban) had a problem of alcohol dependency. 14.4% in rural (12.0% in urban) reported they felt depressed.

3.2. Suicidal Ideation and Related Factors: Urban vs. Rural

The rate of suicidal ideation was 13.9% in rural and 12.3% in urban, showing a little bit higher among rural population, although the difference was not significant statistically. It increased with age for both rural and urban population (11.5% vs. 13.6% in urban and 10.3% vs. 17.3% in rural among those aged 20-44, 45-64 years of age, respectively). The prevalence of suicide ideation was was higher in women than in men, addressing 16.3% vs. 8.3% in urban and 17.3% vs. 10.9% in rural in women vs. men, respectively.

Suicidal ideation among the low economic status group was also higher among both urban and rural than upper economic status group and the difference of suicide ideation between economic status groups was larger in urban than in rural. Among those graduated middle school, suicidal ideation was more prevalent in urban (16.6%), but suicidal ideation was most prevalent among those had no education or graduated elementary school (20.1% in urban vs. 22.1% in rural). Among the divorced, separated, or widowed, suicide ideation was most prevalent, showing 28.8% in rural and 18.0% in urban. Suicide ideation was more prevalent among those lived alone than lived with others, presenting 17.9% in urban and 18.4% in rural. The prevalence of suicide ideation was higher among those who were unhealthy (27.8% in urban and 25.9% in rural 25.9%), those who had diseases two or more (20.3% in urban and 23.5% in rural), those who were alcohol dependent (20.1% in urban and 24.1% in rural). Suicide ideation was also more prevalent among those who had much stress (26.4% in urban and 33.0% in rural) and those who felt depression (50.3% in urban and 51.9% in rural).

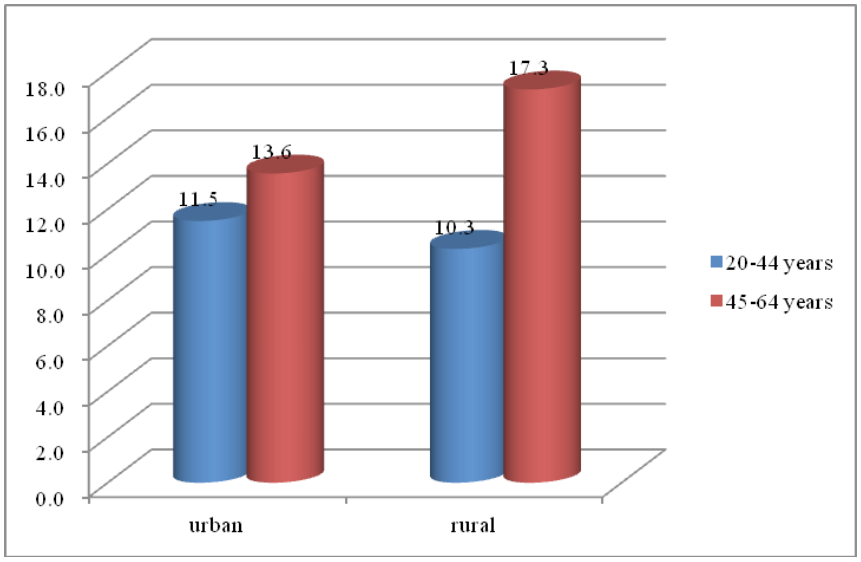

Figure 1: The prevalence of suicide ideation by age group and residential area

3.3. Factors Associated with Suicidal Ideation: Urban vs. Rural

The factors that predicted suicidal ideation differed by residential area. Significant associated factor with suicide ideation in urban were sex, income, education, marital status, living alone, perceived health status, disease, current smoking, alcohol dependency, perceived stress, and depression. In rural, sex, age group, marital status, disease, perceived stress, and depression were significant factors in suicide ideation.

The OR for suicidal ideation was the largest for depression, showing OR 7.55 (95% CI: 6.23–9.14) in urban and 9.05 (95% CI: 5.99–13.69) in rural. The impact of depression on suicide ideation was greater in rural than in urban. Perceived stress also increased the risk of suicide ideation, presenting OR 3.12 (95% CI: 2.59–3.75) in urban and 5.04 (95% CI: 3.42–7.43). Compared with men, the OR for women was 1.92 (95% CI: 1.58–2.32) in urban and 1.56 (95% CI: 1.11–2.21) in rural. Marital status had a significant impact on the suicidal ideation

in both areas, but the pattern was different. In urban, the OR for those who were never married was 1.36 (95% CI: 1.08–1.70), and in rural, the OR for those who were divorced, separated, or widowed was 2.64 (95% CI: 1.54–4.55).

Age did not influence on suicide ideation in urban, but the OR for those who were aged 45-64years was 2.31 (95% CI: 1.46–3.67) in rural, compared with those who were aged 20-44 years.

Table 1
The association between suicide ideation and socio-demographic characteristics, health status, health behaviors, and mental health by residential area

Parameters (or variables)		*Residential area*							
		Urban				*Rural*			
		%	*S.E*	*Chi*	*p*	*%*	*S.E*	*Chi*	*p*
Total		12.9				13.3			
Sex	male	8.3	0.5	164.93	<.001	10.9	1.1	19.48	<.001
	female	16.3	0.6			17.3	1.3		
Age group	20-44 years	11.5	0.5	10.67	0.011	10.3	1.3	23.44	<.001
	45-64 years	13.6	0.6			17.3	1.1		
Income	Low	17.2	0.9	104.95	<.001	15.9	1.8	4.41	0.440
	low-intermediate	12.8	0.8			12.8	1.5		
	intermediate-high	9.8	0.8			12.1	1.8		
	high	9.0	0.7			13.7	2.3		
Education	elementary	20.1	1.6	99.15	<.001	22.1	1.9	35.37	<.001
	middle school	16.6	1.3			11.4	2.2		
	high school	12.3	0.6			12.5	1.3		
	university	9.7	0.5			10.4	1.5		
Marital status	unmarried	13.4	0.9	27.53	<.001	11.7	2.1	32.14	<.001
	married	11.4	0.5			12.9	1.0		
	divorced, separated, widowed	18.0	1.6			28.8	3.8		
Living alone	alone	17.9	2.1	15.63	0.002	18.4	4.3	1.84	0.237
	with others	12.0	0.4			13.7	0.9		
Perceived health	healthy	9.8	0.4	401.81	<.001	11.3	0.9	59.48	<.001
	unhealthy	27.8	1.3			25.9	2.4		
Disease	none	9.9	0.4	135.13	<.001	11.1	1.0	34.47	<.001
	1	15.5	0.9			15.9	1.9		
	2 or over 2	20.3	1.4			23.5	2.3		
Current smoking	No	12.0	0.5	2.82	0.220	14.1	1.0	0.23	0.704
	Yes	13.1	0.8			13.4	1.7		
Alcohol dependency	AUDIT <=19	11.8	0.4	43.03	<.001	12.8	1.0	17.35	<.001
	AUDIT>=20	20.1	1.8			24.1	3.8		
Walking 30 min/day	No	12.7	0.5	2.24	0.254	13.8	0.9	0.03	0.880
	Yes	11.7	0.6			14.0	1.6		
Stress	little	6.6	0.3	831.96	<.001	6.5	0.7	271.58	<.001
	much	26.4	1.0			33.0	2.2		
Depression	No	7.1	0.3	2041.50	<.001	7.5	0.7	468.02	<.001
	Yes	50.3	1.7			51.9	3.0		

Table 2
The Predictive factors for suicide ideation by residential area

Variables (Reference)		*Odds ratio*	*95% CI*		*P*
Urban					
Sex (male)	Female	1.92	1.58	2.32	<.001
Income (high)	Low	1.71	1.34	2.18	<.001
	low-intermediate	1.42	1.09	1.85	0.009
	intermediate-high	1.06	0.80	1.42	0.670
Education (university)	elementary or none	1.61	1.18	2.21	0.003
	middle school	1.48	1.09	2.01	0.011
	high school	1.16	0.95	1.41	0.141
Marital Status (married)	Single	1.36	1.08	1.70	0.009
	Separated, Divorced, Widowed	0.73	0.53	1.01	0.055
Living alone (with others)	Alone	1.58	1.06	2.35	0.024
Health	not healthy	1.67	1.36	2.04	<.001
Disease (none)	One	1.32	1.08	1.62	0.008
	two or more	1.46	1.11	1.90	0.006
Alcohol dependency (no)	Yes	1.75	1.32	2.33	<.001
Perceived stress (little)	Much	3.12	2.59	3.75	<.001
Depression (no)	Yes	7.55	6.23	9.14	<.001
Rural					
Sex (male)	Female	1.56	1.11	2.21	0.011
Age group (20-44 years)	45-64 years	2.31	1.46	3.67	<.001
Marital Status (married)	Single	1.16	0.62	2.15	0.644
	Separated, Divorced, Widowed	2.64	1.54	4.55	<.001
Perceived stress (little)	Much	5.04	3.42	7.43	<.001
Depression (no)	Yes	9.05	5.99	13.69	<.001

Level of income, education, living alone health status, diseases and alcohol dependency had a significant influence on suicide ideation only in urban. People in the low income had a higher risk of suicide ideation with OR of 1.71 (95% CI: 1.34–2.18) against people in the upper income. Compared with university graduates, the OR for those with no education or with an elementary school education was 1.61 (95% CI: 1.18–2.21), that for middle school graduates was 1.48 (95% CI: 1.09–2.01). People living alone had a 1.58-fold higher risk for suicide ideation (95% CI: 1.06–2.35) against people living with others. The OR of suicide ideation for those who were unhealthy was 1.67 (95% CI: 1.06–2.35). Suffering from a disease did not influenced on suicide ideation in rural. However, having two or more disease had a 1.46-fold higher risk in urban (95% CI: 1.11–1.90) and having a disease had a higher risk of suicide ideation with OR 1.32 (95% CI: 1.08–1.62). Alcohol dependency exerted a significant impact on suicide ideation only among urban population (OR 1.75, 95% CI 1.32-2.33).

4. DISCUSSION

This study was one of a few studies which focused on the dissimilarities of the associated factors with suicide ideation by residential area among Korean 20-64 years old adults.

In this study, 12.6% participants were at risk of suicide ideation overall, 12.3% in urban, and 13.9% in rural. Although, the rate of suicide ideation was higher in rural, the difference was not significant statistically.

Some studies reported the rate of suicide or suicide ideation were higher in rural [6, 13-15], and rural residence was associated with greater suicide risk [14]. On the other hand, other studies presented there was no difference in suicide ideation between areas [10, 16]. Previous studies showed that the difference in suicide ideation by residence areas varies depending on geography or age group of study population.

Meanwhile, the associated factors with suicide ideation differed between residential areas in this result. Sex, marital status, perceived stress, and depression were influencing factors on suicide ideation in both urban and rural area. However, their specific effects varied from residential areas.

It had been reported that depression exerted a strong effect on suicide ideation [6, 17]. This study found that the effect of depression on suicide ideation was the strongest in both areas and it was larger in rural than in urban, as well as the depression was more prevalent among rural population. A previous study reported that residence in rural/small town increased the risk of depression among students [18], being consistent with this study result. In addition, being stressed much had also higher effect on suicide ideation in rural than in urban. Previous studies addressed that stress was one of predictive factor on suicide ideation like this study result [6, 10]. Mental health problems play a great role on suicide [1]. This study also produced that mental health problem such as depression or stress exerted a great influence on suicide ideation like previous study results. The findings that the influences were greater in rural area than in urban area might account for economic disadvantages, low education, or employment status.

The findings showed that sex had a significant impact on suicide ideation in rural and in urban. Many studies presented the similar results [6, 17, 19]. Women are under unfavorable conditions from many aspects in our society (low opportunities to participate in economic activity, low position or salary in their work, great burden of rearing children or doing housekeeping, etc)[20, 22, 23] and these conditions are likely to account for higher suicide ideation among women.

This study result presented that living without partner put them at high risk of suicide ideation. Those who were never married had higher risk of suicide ideation compared with those married in urban, while those who were divorced, separated, or widowed were at higher risk in rural like former study result[17]. In urban, the proportion of the unmarried was larger than in rural, and the prevalence of suicide ideation was higher in urban than in rural among those who were unmarried.

This study findings presented that risk factors for suicide ideation differed depending on residential areas; age group in rural vs. income, education, living alone, health status, diseases, and alcohol dependency in urban. More factors were associated with suicide ideation in urban than in rural.

Suicide ideation was more frequently reported by middle-aged adults (45-64 years old: OR 2.31 compared to the 20-44 years old group) in rural. Age was the associated factor with suicide association only in rural. Previous study based on general population reported the prevalence of suicide ideation was not different significantly between 20-44 years old age group and 45-64 years old age group[6]. In urban, age was not a significant risk factor for suicide ideation.

Otherwise, suicide ideation was more prevalent among those having with low income (OR: 1.71 compared to the upper income group), those who are in low education level(OR: 1.61 elementary school graduates compared to the graduates from university), those living alone (OR: 1.58), those who were in bad health status (OR: 1.67), those who having disease two or more disease (OR: 1.46), and those having alcohol dependency(OR: 1.75). These variables were significant only in urban. Alcohol abuse is considered a risk factor for attempted and completed suicide [1]. Perceived health status was also presented as an associated factor with suicide in the previous studies [21]. A variety of factors contributed to suicide ideation in urban compared with rural area. Socioeconomic characteristics and health related factors were associated with suicide ideation in urban. The differences of

the associated factors between urban and rural could be attributed to difference of population composition. The finding of this study showed a significant difference in age group distribution between urban and rural area. The proportion of 45-64 years old was much higher in rural than in urban.

5. CONCLUSION

The findings of this study, which showed that the risk factors of suicide ideation differ by residential areas, might be useful to identify groups at high risk of suicide ideation and to develop effective preventive programs to reduce suicide in each area. Taking the associated factors with suicide ideation into account by residential areas, the development of suicide prevention programs requires different strategies for each area. The approaches to reduce depression and stress should be adopted for decreasing suicide and programs for women might be considered, in the view of the fact that depression and stress were strong risk factor for suicide ideation and female were at high risk of suicide ideation in both areas. The suicide prevention program consider 45-64 age group and the divorced, the separated or the widowed for rural adults. It needs to focus on adults without partner, with low income or low education, and it might be essential to cultivate community programs for those who have alcohol dependency, perceives their health bad, have any disease.

REFERENCES

[1] World Health Organization, "Public health action for the prevention of suicide", Geneva: World Health Organization, **(2012)**.

[2] Statistics Korea, "Annual report of the cause of death statistics", Daejeon: Statistics Korea, **(2013)**.

[3] L. M. Corna, J. Cairney, and D. L. Streiner, "Suicide ideation in older adults: relationship to mental health problems and service use", The Gerontologist, vol. 50, no. 6, **(2010)**, pp. 785-797.

[4] Y. Dong, F. Huang, G. Hu, Y. Liu, R. Zheng, Q. Zhang, and X. Mao. "The prevalence of suicidal ideation among the elderly in China: A meta-analysis of 11 cross-sectional studies", Comprehensive Psychiatry, vol. 55 no. 5, **(2014)**, pp. 1100-1105.

[5] K. M. Shin, S. M. Cho, C. H. Hong, K. S. Park, Y. M. Shin, K. Y. Lim, and S. H. Koh, "Suicide among the elderly and associated factors in South Korea", Aging & Mental Health, vol. 17, no. 1, **(2013)**, pp. 109-114.

[6] E. O. Park, and S. J. Choi, "Prevalence of Suicidal Ideation and related Risk Factors among Korean Adults", Journal of Korean Academy of Psychiatric and Mental Health Nursing, vol. 22, no. 2, **(2013)**, pp. 88-96.

[7] E. O. Park, M. Y. Hyun, C. I. Lee, E. J. Lee, and S. C. Hong, "A study on regional differentials in death caused by suicide in South Korea", Journal of Korean Academy of Nursing, vol. 37, no. 1, **(2007)**, pp. 44-51

[8] K. S. Cheong, M. H. Choi, B. M. Cho, T. H. Yoon, C. H. Kim, Y. M. Kim, and I. K. Hwang, "Suicide rate differences by sex, age, and urbanicity, and related regional factors in Korea", Journal of Preventive Medicine and Public Health, vol. 45, no. 2, **(2012)**, pp. 70-77.

[9] S. Macintyre, A. Ellaway, and S. Cummins, "Place effects on health: how can we conceptualise, operationalise and measure them?", Social science & medicine, vol. 55, no. 1, **(2002)**, pp. 125-139.

[10] Y. H. Mun, and M. Y. Im, "Suicidal ideation and association factors of the elderly according to residence area: Focusing on the comparisons between urban and rural area", Journal of Korean Public Health Nursing, vol. 27, no.3, **(2013)**, pp. 551-563.

[11] Ministry of Health and Welfare and Korea Center for Disease Control and Prevention, "Guidelines for health examination of Korean National Health and Nutrition Examination Survey, the fifth phase (2010-2012)". Korea Center for Disease Control and Prevention: Seoul, **(2012)**.

[12] T. F. Babor, J. C. Higgins-Biddle, J. B. Saunders, and B. G. Monteiro, "The alcohol use disorders identification test: guidelines for use in primary care", Geneva: World Health Organization, **(2001).**

[13] N. D. Kapusta, A. Zorman, E. Etzersdorfer, P. S. Elmar, J. J. Elisabeth, and G. Sonneck, "Rural− urban differences in Austrian suicides", Social Psychiatry and Psychiatric Epidemiology, vol. 43, no. 4, **(2008)**, pp. 311-318.

[14] J. F. McCarthy, F. C. Blow, R. V. Ignacio, M. A. Ilgen, K. L. Austin, and M. Valenstein, "Suicide among patients in the Veterans Affairs health system: rural–urban differences in rates, risks, and methods", American Journal of Public Health, vol. 102, no. S1, **(2012)**, S111-S117.

[15] B. B. Park, and D. Lester, "Rural and urban suicide in South Korea", Psychological Reports, vol. 111, no. 2, **(2012)**, pp. 495-497.

[16] T. Forkmann, E. Brahler, S. Gauggel, and H. Glaesmer, "Prevalence of suicidal ideation and related risk factors in the German general population", Journal of Nervous and Mental Disease, vol. 200, no. 5, **(2012),** pp. 401-405.

[17] Y. R. Chin, H. Y. Lee, and E. S. So, "Suicidal ideation and associated factors by sex in Korean adults: a population-based cross-sectional survey", International Journal of Public Health, vol. 56, no. 4, **(2011)**, pp. 429-439.

[18] E. Mojs, K. Warchoł-Biedermann, M. D. Głowacka, W. Strzelecki, B. Ziemska, and J. T. Marcinkowski, "Are students prone to depression and suicidal thoughts? Assessment of the risk of depression in university students from rural and urban areas", Ann Agric Environ Med, vol. 19, no. 4, **(2012)**, pp. 770-774.

[19] S.H. Song, C. Y. Kang, T. Y. Lee, and I. S. Kwon, "Influencing Factors on Suicide Ideation among High School Students", Journal of Agricultural Medicine and Community Health, vol. 36, no.1, **(2011)**, pp. 1-12.

[20] H. Chun, L. Doyal, S. Payne, S. I. Cho, and I. H. Kim, "Understanding women, health, and social change: the case of South Korea", International Journal of Health Services, vol. 36, no. 3, **(2006)**, pp. 575-592.

[21] D. O'Reilly, M. Rosato, S. Connolly, and C. Cardwell, "Area factors and suicide: 5-year follow-up of the Northern Ireland population", The British Journal of Psychiatry, vol. 192, no. 2, **(2008)**, pp. 106-111.

[22] Wanninayake, S. (2016). Sri Lankan women migrant workers and role of family and kinship networks. *Journal of Advances in Humanities and Social Sciences, 1*(2), 14-23.

[23] Salam, A. (2016). Challenges faced by working women in Al Ain city, UAE. *International Journal of Humanities, Arts and Social Sciences, 2*(5), 189-197.