

Predictive factors for loneliness in female high school students: An univariate and multivariate logistic regression analysis

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ABSTRACT

Background and aims: Loneliness typically includes anxious feelings. It is particularly relevant to adolescence period. It has effect on physical and mental health. The present study aimed to identify the predictive factors of loneliness among high schools female students.

Methods: A cross-sectional survey was carried out among high schools female students in Ilam during the academic year 2014-15. Sampling was done by multistage method. The student's consent to participation in the study obtained by full filled the questionnaires. Data were collected by demographic and University of California, Los Angeles questionnaires. Questionnaires with incomplete information were excluded. The Cronbach's alpha coefficient was measured as an index of internal identicalness of the questionnaire to verify its reliability.

Results: A total of 400 female high school students were studied. Overall, 62.8% of students put into non- loneliness group and 37.3% of all have loneliness. The univariate logistic regression analysis demonstrates that education field, father's education and father's occupation were different between the groups ($P < 0.05$). The risk of loneliness was higher in students with a mathematical sciences education field in comparison to general education field (OR=1.75). In multivariate logistic regression analysis the education field, father's education and father's occupation were considered as independent predictive variables for female students' loneliness. The AUROC criterion was applied to compute both the sensibility and the specificity of the manikin. The overall percent of correct classification of the model is 64%.

Conclusion: Identify the causes of students loneliness can prevent complications and provide appropriate solutions.

Keywords: Cross-sectional study, Ilam, UCLA questionnaire.

INTRODUCTION

Loneliness is defined as an unpleasant emotional response to isolation or lack of

companionship that effects on various aspects of psychological well-being.¹

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The real prevalence of loneliness is unclear. However, it has been estimated that 60 million of American populations have been experiencing a loneliness feel in their life.²

Loneliness typically includes anxious feelings and researcher believes that loneliness is particularly relevant to adolescence period. During the adolescence period the person's social network, connect and commonality with other will be changed. Hence, the adolescence experiences the loneliness more than other people.^{3,4} However, there are several effective factors on loneliness, including social, mental and emotional factors,⁵ but previous studies have also been demonstrated that adolescence loneliness is associated with a range of psychological problems, including lowered self-esteem and increased feelings of depression and anxiety.¹

Previous researches reported the relationship between loneliness and depression.^{6,7} Hence, it can be said loneliness is a risk factor for suicide^{8,9} and alcoholism^{10,11} Loneliness can induce some physical health problems, such as cardiovascular diseases, sleep disturbances, increased incidence of high blood pressure, high cholesterol, obesity and other complications.¹²⁻¹⁴ Hence, several studies investigated the prevalence and risk factors on loneliness in various age groups.¹⁵⁻¹⁷

Therefore, the main aim of the present study was to identify the predictive factors of loneliness among high schools female students in Ilam, western area of Iran.

METHODS

A cross-sectional study was carried out among high schools female students in Ilam, western area of Iran during the academic year 2014-15.

Sampling was done by multistage method. Hence, the first five females' high schools were randomly selected and 450 female high school students were selected as the sample group. The student's consent to participation in the study obtained by full

filled questionnaires. Questionnaires with incomplete information were eliminated from the research process. Therefore, 400 full filled questionnaires were considered.

Demographic information questionnaire: This questionnaire was designed by the authors and assessed variables such as age, education field, education level, parents' education and parents' occupation.

University of California, Los Angeles (UCLA) questionnaire (1978): This questionnaire was first published in 1978 by Russell and revised in 1980 and 1993. This questionnaire is the first and the most famous loneliness scale. This 20-item questionnaire has been designed based on a four-point Likert scale to measure feelings of social isolation. Participants rate each item as either 1="I never feel this way", 2="I rarely feel this way", 3="I sometimes feel this way" and 4="I often feel this way". Questionnaire consists of 11 positive items and 9 negative items. All negative items including; 1-5-6-9-10-15-16-19 and 20 are inversely scoring.¹⁸ The lowest score is 20, which means there is no loneliness. However, the score 80 is the highest score and is a sign of severe loneliness. Previous studies have confirmed the questionnaire validity^{19,20} The Cronbach's alpha coefficient was measured as an index of internal identicalness of the questionnaire to verify its reliability. The obtained values were 0.82 for the questionnaire.

RESULTS

A total of 400 female high school students were studied. Overall, 251 (62.8%) students were put into non- loneliness group. But 149 (37.3%) of all participants have loneliness. The Mean \pm SD age was 15.80 ± 1.9 and 15.51 ± 1.05 years in non-loneliness and loneliness students, respectively ($P=0.533$).

The univariate logistic regression analysis shows that the variables such as education field, father's education and father's

occupation were different between the groups (P<0.05). The risk of loneliness was higher in students with a mathematical sciences education field in comparison to general

education field (OR=1.75). The association between loneliness status and other variables using univariate logistic regression analysis is presented in Table 1.

Table 1: The association between students' loneliness status and other variables using univariate logistic regression analysis

Characteristics		B	SE	OR (95% CI)*	P
Education field	Mathematical Sciences	0.557	0.286	1.75(0.1-3.06)	0.008
	Experimental Sciences	-0.080	0.269	0.923(0.45-1.56)	
	Humanities Sciences	-0.934	0.328	0.39(0.21-0.75)	
Father's occupation	Education grade	-0.422	0.267	0.98(0.74-1.22)	0.114
	Non-governmental	0.587	0.209	1.95(1.2-2.71)	0.005
Mather's occupation	Governmental			1.0(Ref)	
	Non-governmental	-0.096	0.307	1.08(0.5-1.66)	0.756
Father's education	Governmental			1.0(Ref)	
	Illiterate	-0.272	0.633	1.42(0.22-2.63)	0.045
	Primary	0.015	0.360	1.55(0.5-2.6)	
	Secondary	0.038	0.231	1.14(0.66-1.63)	
	Diploma	-1.659	0.554	0.33(0.06-0.56)	
Academic			1.0(Ref)		
Mather's education	Illiterate	-0.396	0.403	0.915(0.31-1.52)	0.112
	Primary	-0.396	0.403	0.915(0.31-1.52)	
	Secondary	0.400	0.274	1.71(0.87-2.55)	
	Diploma	0.046	0.333	1.27(0.54-2.01)	
	Academic			1.0(Ref)	

In the multivariate logistic regression analysis, the education field, father's education and father's occupation were considered as independent predictive variables for female

students' loneliness. The association between female students' loneliness and other variables using multivariate logistic regression analysis is presented in table 2.

Table 2: The association between students' loneliness status and other variables using multivariate logistic regression analysis

Characteristics		B	S.E.	Wald	OR	df	P
Education field	Mathematical Sciences	0.795	0.305	1.129	2.21	1	0.001
	Experimental sciences	0.099	0.294	0.114	1.1	1	
	Humanities Sciences	-0.766	0.341	5.062	0.456	1	
Father's occupation	Non-governmental	1.015	0.256	14.618	2.76	1	0.000
	Governmental				1.0(Ref)		
Father's education	Illiterate	-1.115	0.667	2.798	0.328	1	0.002
	Primary	-0.546	0.396	1.898	0.579	1	0.094
	Secondary	-0.386	0.262	2.165	0.680	1	0.168
	Diploma	-2.335	0.586	15.893	0.1	1	0.141
	Academic				1.0(Ref)		0.000

The AUROC criterion was used to compute both the sensitivity and the specificity of the model (Figure 1).

The overall percentage of correct classification of the model is 64%. It

means that, with knowing the education field, father's education and father's occupation, the ability of the model to predict the actual category of the cases is 64%.

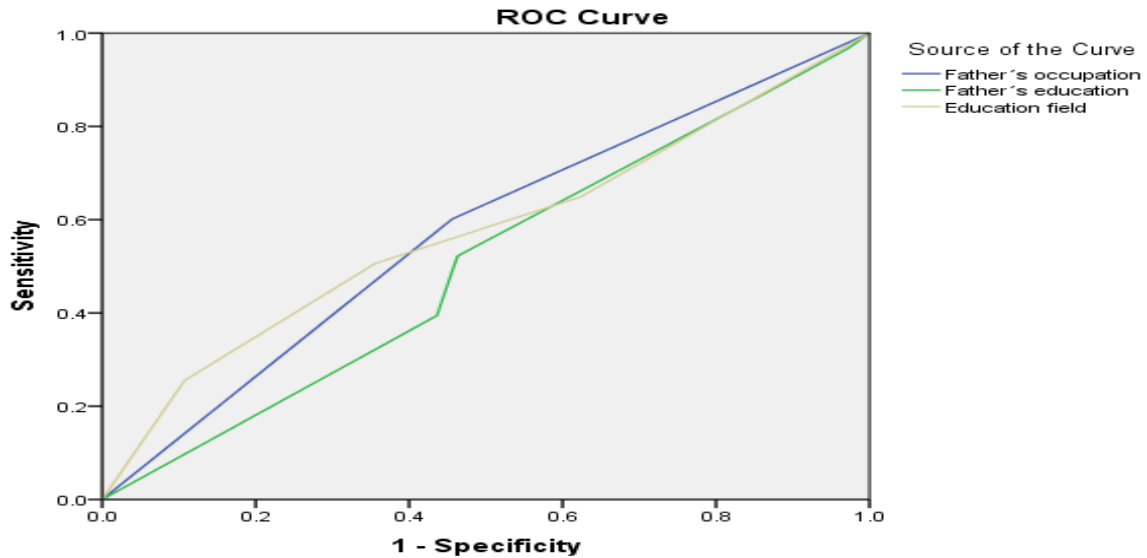


Figure 1: The AUROC criterion to compute both the sensitivity and the specificity of the model

DISCUSSION

In the present study, it was investigated the predictive factors for loneliness among female high school students in Ilam, western area of Iran. About one third of all participants (37.3%) have loneliness. Considering to the physical and psychological effect of loneliness in human life, there are several studies in this matter.²¹⁻²³

The univariate logistic regression analysis presented the education field as a predictive factor for loneliness in our population, so that the risk of loneliness was higher in students with a mathematical sciences education field in comparison to the general education field.

The univariate logistic regression analysis showed that father's education and father's occupation are other predictive factors for loneliness in our population. A study reported the role of family as important effective factor of loneliness

among 287 children.²² Other studies confirmed the role of father in their children hope and effort.^{24,25}

In Iranian population, most people with higher education levels have better positions and more income. At the same time, there is a significant relationship between child health and their parent's income.²⁶⁻²⁸ The US National Health Interview Survey (NHIS) reported a positive relationship between family income and child health status. On the other hand, children in poorer families had significantly worse health than children from richer families, and some chronic health conditions such as mental and nervous system problems had higher incidence in poorer families.^{29,30}

Based on multivariate logistic regression analysis, the education field, father's education and father's occupation were main independent predictive factors for

loneliness among our study population. So, the students with non-governmental father's occupation have about three times the risk of loneliness. Fathers are the main source of financing and family welfare in Iran. There are a relationship between socioeconomic situation and increase the risk of depression due to factors such as perceived low social status, cultural factors, financial problems, stressful environments, social isolation, and greater daily stress.^{31,32} Because of depression is a risk factor for loneliness, increase loneliness in depressed individuals with the unsuitable socioeconomic situation can be expected.

CONCLUSION

According to the findings, it is recommended to provide appropriate and effective counseling facilities for parents. In addition, identify the causes of students loneliness can prevent complications and provide appropriate solutions.

CONFLICT OF INTEREST

The authors declare that they have no conflict of interests.

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