

Psychological distress and its associated risk factors among university students

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SUMMARY

OBJECTIVE: Psychological distress is an important mental health problem among university students. The goal of this study was to determine psychological distress and its associated risk factors among students in the Anhui province.

METHODS: A cross-sectional study was conducted in a sample of 1304 students. In this study, a self-administered questionnaire consisting of the general demography and General Health Questionnaire (GHQ-12) was completed. Psychological distress was assessed using the GHQ-12-item questionnaire. A dichotomous category split was imposed on the GHQ-12 for the purpose of analysis. A GHQ-12 score of 4 or higher indicated psychological distress. The data were analyzed by SPSS 20.0 system.

RESULTS: A total of 1304 samples were analyzed in this study. The results indicated that the education level of the father and mother was associated with the students' psychological distress ($P < 0.001$). A significant association was found between high-intensity exercise and low-intensity exercise and psychological distress. However, no significant difference was identified between gender and psychological distress ($P = 0.173$).

CONCLUSION: The education level of parents, high-intensity exercise, and low-intensity exercise were associated with psychological distress. Our results suggest that it is indispensable to raise awareness of psychological disorders and its associated risk factors among university students. Further studies are required to develop appropriate interventions for high-risk groups.

KEYWORDS: Stress, psychological. Risk factors. Students. Universities.

INTRODUCTION

Psychological distress is common worldwide^{1,2}. The characteristics of psychological distress include lack of enthusiasm, desperation about the future, and symptoms of anxiety³. The prevalence of psychological distress varies with country. About 50% of university students in Italy suffer from psychological distress⁴, about 40% in the UK⁵, and 50% in

Spain⁵. It is predicted that a quarter of the global population will be affected by depressive symptoms at some stage in their life. More than 1/3 of undergraduates suffer from some type of dysfunction due to psychological distress, and nearly 1/10 students have considered attempting suicide, according to the American National College Health Assessment⁶.

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Psychological distress has become an important public health problem.

Psychological distress among undergraduates was associated with a variety of factors across various domains such as economics, social communication, academic pressure, and coping skills. The rapid development of higher education and high expectations has brought great pressure to students^{7,8}. However, discussions about psychological distress are limited and mostly conducted in Western societies⁹.

Psychological distress and its related factors vary across the globe. It is more prevalent among females than males¹⁰, and family support has been inextricably linked with it¹¹. However, there are few studies on the mental health of Chinese college students¹².

Psychological distress is an important mental health problem among university students⁹. The objective of this study was to determine the risk factors of psychological distress. The results indicated that the education level of parents, low- and high-intensity exercise were associated with psychological stress.

METHODS

Samples

The presented study was conducted with a cross-sectional design. A self-reported questionnaire was completed by 1310 university students. Written informed consent was obtained from all subjects.

Measurement instruments

The general demographic questionnaire, General Health Questionnaire (GHQ) scale, low-intensity and high-intensity exercise were used to measure the mental health of students in this study. The demographic characteristics of respondents mainly included gender, age, education level of the father and mother, location, household income, and exercise. GHQ was used to measure mental health¹³, the Likert four scale¹⁴ was adopted to calculate the score of GHQ. This scale consisted of 12 items, and the score of each item ranged from 1 to 4. The total score of the GHQ-12 was the sum of the score of each item. A total GHQ-12 score of 4 or above was defined as psychological distress.

Low-intensity exercise was defined as at least 20 minutes or more of sports such as walking or shadowbox. In terms of low-intensity exercise frequency, n=232 (17.8%) “never exercised”, while n=718 (55.1%) exercised “1 to 2 times per week”, n=270 (20.7%) exercised “3 to 4 times per week”, and n=84 (6.4%) “More

than 5 times per week”. High-intensity exercise was defined as at least 20 minutes or more of sports such as playing ball or running.

Statistical analysis

Statistical analyses were performed using SPSS 20.0 (Inc. Chicago, IL, USA). Descriptive analysis was conducted for the distribution of characteristics of the subjects included. The Chi-squared test was applied to analyze the correlation of psychological distress with its associated risk factors.

RESULTS

The descriptive statistics of the subjects are shown in Table 1. Out of the total 1304 subjects, 463 were male and 841 were female. A total of 903 (69.2%) respondents were from rural areas. A total of 1072 (82.2%) participants reported practicing low-intensity exercises at least once a week (Table 1). In addition, a total of 1062(81.4%) subjects showed psychological distress. Table 2 shows the association of psychological distress with the characteristics of the subjects. The results indicated that the education level of parents was significantly associated with psychological distress ($P=0.001$). Another interesting finding was that the students whose parents had middle-school or lower education were more likely to have psychological distress. A significant association of low-intensity exercise ($P=0.034$) and high-intensity exercise ($P=0.003$) with psychological distress was also found in this work. The results also identified that the frequency of exercise per week was associated with psychological distress. However, no significant association was detected between psychological distress and gender ($P=0.162$).

The distribution of the GHQ-12 score is shown in Figure 1.

DISCUSSIONS

The aim of the current study was to determine the psychological distress and its associated risk factors among university students. The study found that factors affecting psychological distress included education level of parents, low-intensity and high-intensity exercise. Our results also showed that more than half of the participants in our study presented psychological distress, and about 81.4% of 1304 scored 4 or above in the GHQ-12. The prevalence of psychological distress in studies from other countries was lower than

our results. For example, about 55.5% in Singapore¹⁵ and 46.2% in Malaysia¹⁶ had psychological distress. The possible reason may be that the instruments used to measure psychological stress are different. Therefore, predictors of psychological stress among students need further investigation.

The finding of this study was that the prevalence of psychological distress among female students is higher than among males, though no statistical significance was identified. This is similar to that found by another study in Australian undergraduate students¹⁷. Whereas prospective symptom checklist -90 studies showed that Chinese male college students have more psychological distress¹⁸. This study indicates that we should pay attention to regional, cultural, and corresponding measurement tools when studying gender differences and psychological stress.

Another finding of the study was that the education level of parents was associated with the psychological stress of students, which was consistent with the

results of an American study¹⁷. Although the education level of parents and income levels are often correlated, in a nationally representative longitudinal study of young adults in the US, the effect of parents' low education on adult depression symptoms was self-abasement, whereas the effect of parental low income was not inferior¹⁷. Students whose parents were less educated were prone to psychological stress¹⁹.

Additionally, an association of low-intensity and high-intensity exercise with psychological distress was found in the present study. Evidence from a previous study identified that high-intensity exercise was helpful for reducing psychological stress²⁰. The useful submission from the findings was that self-reported exercise was credible for epidemiology studies.

Some limitations may also exist in the study. A shortcoming of the cross-sectional design was the failure to explore the cause-result relationship. Thus, further longitudinal studies are still required to examine the impact of low-intensity and high-intensity exercise

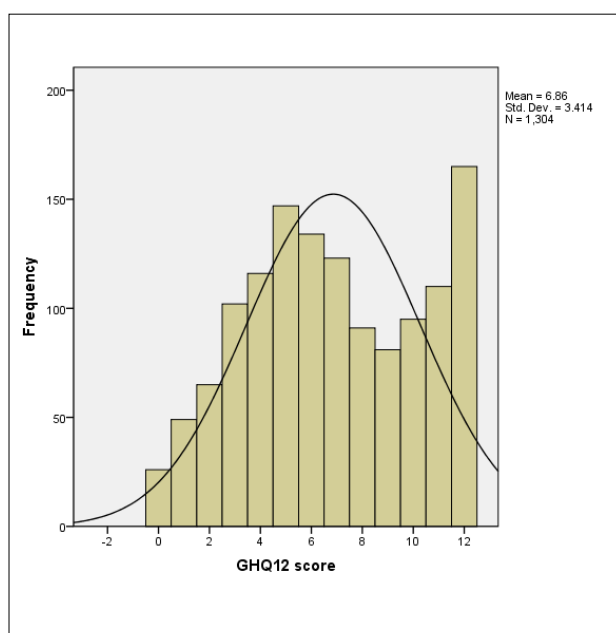
TABLE 1. SOCIODEMOGRAPHIC CHARACTERISTICS OF THE STUDY SAMPLE (N = 1304)

	Variable	Frequency	Percentage (%)
Gender	Male	463	35.5
	Female	841	64.5
Grade	One	680	52.1
	Two	373	28.6
	Three	189	14.5
	Four	61	4.7
	Graduate year 1	1	0.1
Father education	Primary school and low	243	18.
	Middle school	895	68.6
	College and above	165	12.7
Mother education	Primary school and low	583	44.7
	Middle school	619	47.5
	College and above	100	7.7
Location	Rural area	903	69.2
	Urban area	400	30.7
Income	< 10000	327	25.1
	10000-30000	426	32.7
	30000-60000	390	29.9
	> 60000	156	12.0
Low-intensity exercise	never	232	17.8
	1 to 2 times per week	718	55.1
	3 to 4 times per week	270	20.7
	More than 5 times per week	84	6.4
High-intensity exercise	never	522	40.0
	1 to 2 times per week	604	46.3
	3 to 4 times per week	127	9.7
	More than 5 times per week	51	3.9
GHQ dichotomy	< 4	242	18.6
	≥4	1062	81.4

TABLE 2. PSYCHOLOGICAL DISTRESS AND ITS ASSOCIATED RISK FACTORS EVALUATION VALUE

Variable		GHQ < 4	GHQ ≥ 4	Chi-Square value	P-value
Gender	male	70	393	1.957*	0.162
	female	104	737		
Grade	One	81	599	1.397	0.237
	Two	61	312		
	Three	19	170		
	Four	13	48		
	Graduate year 1	0	1		
Father education	Primary school and below	23	220	11.740	0.001
	Middle school	115	780		
	College and above	36	129		
Mother education	Primary school and below	59	524	12.073	0.001
	Middle school	94	525		
	College and above	21	79		
Location	Rural area	110	793	3.066*	0.080
	Urban area	63	337		
Income	< 10000	41	286	0.810	0.368
	10000-30000	57	369		
	30000-60000	50	340		
	> 60000	26	130		
Low-intensity exercise	never	24	208	4.514	0.034
	1 to 2 times per week	95	623		
	3 to 4 times per week	38	232		
	More than 5 times per week	17	67		
High-intensity exercise	never	53	469	8.666	0.003
	1 to 2 times per week	88	516		
	3 to 4 times per week	24	103		
	More than 5 times per week	9	42		

Note: "a" represents Pearson Chi-Square

FIGURE 1. THE DISTRIBUTION OF GHQ-12 SCORES AMONG PARTICIPANTS

on psychological stress. Additionally, the population of this study is small and relatively uniform, future studies should recruit more students from different universities and regions.

CONCLUSIONS

The education level of parents, high-intensity, and low-intensity exercise were associated with psychological distress. Our results suggest that it is indispensable to raise awareness about psychological disorders and its associated risk factors among university students. Further studies should be developed.

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Disclosure

The authors declare no conflict of interest.

Author Contributions

Conceived and designed the experiments; Baohong Xue and Dexun Zhao. Performed the experiments; Tingting Li, Xu Zhang, Rui Wang, and Dexun Zhao. Analyzed the data; Lianping He. Wrote the paper; Tingting Li and Mingming Chen.

RESUMO

OBJETIVO: O estresse psicológico é um importante problema de saúde mental entre estudantes universitários. O objetivo deste estudo foi determinar o estresse psicológico e seus fatores de risco associados entre os estudantes na província de Anhui.

MÉTODOS: Um estudo transversal foi realizado entre uma amostra de 1.304 indivíduos. Nesse estudo, foi preenchido um questionário autoaplicável que consiste na demografia geral e no Questionário Geral de Saúde (GHQ-12). O problema psicológico foi avaliado utilizando o questionário GHQ de 12 itens. Uma divisão dicotômica de categoria foi imposta ao GHQ-12 para efeito de análise. Uma pontuação de quatro ou mais no GHQ-12 mostrava que um indivíduo tem problemas psicológicos. Os dados foram analisados pelo software SPSS 20.0.

RESULTADOS: Um total de 1.304 amostras foi analisado neste estudo. Os resultados indicaram que o nível de educação do pai e da mãe estava associado com estudantes em estresse psicológico ($P < 0,001$). Foi encontrada uma associação significativa entre o exercício de alta intensidade e o exercício de baixa intensidade com o estresse psicológico. No entanto, não foi identificada qualquer diferença significativa entre o gênero e o estresse psicológico ($P = 0,173$).

CONCLUSÃO: O nível de educação dos pais, exercícios de alta intensidade e exercícios de baixa intensidade foram associados com estresse psicológico. Nossos resultados sugerem que é indispensável aumentar a sensibilização para as perturbações psicológicas e para os fatores de risco associados aos estudantes universitários. São necessários mais estudos para desenvolver intervenções adequadas para grupos de alto risco.

PALAVRAS-CHAVE: Estresse psicológico. Fatores de risco. Estudantes. Universidades.

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