

Research on Influencing Factors of Emergency Ability Among College Students

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Abstract. The objective of the paper is to analyze the influencing factors of emergency ability among college student. First, based on literature analysis, the factors affecting college students' emergency ability are preliminarily determined to include 24 indicators. Then, based on the questionnaire response of 158 college students from 13 provinces and 3 municipalities, a reliability analysis was made for the influencing factors of emergency ability scale by using SPSS24.0 software. Finally, based on the structural equation model principle, the model of the influencing factors of college students' emergency ability is verified. The results show that the scale of influence factors of college students' emergency ability has good reliability and validity. The confirmatory factor analysis model of the influencing factors of college students, emergency ability is well fitted with the data. The influencing factors of college students' emergency ability contains 5 dimensions and 24 indices. The five dimensions are network environment, family environment, social environment, university environment and individual factors.

1. Introduction

At present, with the development of science and technology, colleges and universities in the period of social transformation are faced with a variety of emergencies that occur frequently. How to grasp the characteristics of college students in the new era poses a challenge to the effective prevention of emergencies in colleges and also the safety of college students. Therefore, by establishing the influencing factors of college students' emergency ability evaluation index system, evaluating the current emergency ability level of college students, which provides preconditions for colleges to formulate emergency management mechanism, college students' emergency training and emergency drill content.

Foreign research on college students' emergency ability is relatively early, starting in the 1980s, focusing on how college students respond to campus crisis events. In recent years, foreign scholars have studied the influence factors of college students' emergency ability, the reasons for the lack of emergency ability of college students, and how to objectively and scientifically evaluate the emergency ability of college students^[1-3]. The domestic research on the emergency ability of college students in contemporary colleges has already begun since the beginning of this century. Most of them are researching and investigating the current situation of college students' emergency ability, or analyzing the reasons for how to cultivate college students' emergency ability^[4-6]. At the same time, there are many researches on the emergency management system of college students in China. Relatively speaking, there are few studies on the evaluation system of college students' emergency ability.

Based on this, the paper will analyze the factors influencing the emergency ability of college students. Through the questionnaire survey and the structural equation model analysis method, the rationality and scientificity of the influencing factors of college students' emergency ability are verified.

2. Identifying the Influencing Factors of College Students' Emergency Ability

College students' emergency ability means that college students can use their full understanding of potential crises and try to accumulate in time to respond to campus emergencies, in terms of self-help and mutual assistance. Thought literature and the recent campus safety accidents analysis, we find that there are two main factors affecting the emergency ability of college students.

On the one hand, the key factors affecting their emergency response capabilities are the college students themselves, the characteristics of college students themselves, the reserve of emergency knowledge, and the accumulation of emergency skills. On the other hand, college students are in a period of vigorous development in the information age. Undoubtedly, college students in the new era are deeply affected by the network. The social economy is constantly developing, the environment is constantly changing, and the society's attention and training to college students will also affect its emergency response capabilities. Personal growth is often closely related to the family, and parents have a certain impact on the emergency ability of college students. In the new era, the time spent by college students in school is much greater than that in other places. The emergency management of colleges and universities must have an impact on the emergency ability of college students.

Through literature analysis, we have initially determined the factors that affect college students' emergency ability (see table 1).

Table 1 the factors that affect college students' emergency ability

Components	Items description
Social environment	X1: The attitude of most people in society to safety.
	X2: The influence of political economy and culture on emergency response ability.
	X3: Social emergency management agencies and related laws and regulations.
	X4: National publicity and education on emergency areas, such as banners, etc.
Network environment	X5: Emergency text, video, audio and pictures.
	X6: Communicate content about emergency topics on the web.
	X7: The paradox of emergency on the Internet.
University environment	X8: University safety facilities.
	X9: The completeness of college emergency.
	X10. Emergency knowledge training, courses, presentations, and faculty.
	X11.Regular maintenance of safety facilities in colleges.
	X12. Emergency institution in colleges and universities.
Family environment	X13. Emergency drills in colleges.
	X14. Parents' education on children's emergency.
	X15. Parents' behaviors in response to safety
	X16. Family habits.
Individual factor	X17. Family economic situation
	X18. Safety values.
	X19. Emergency knowledge and skills
	X20. Ability to observe and judge dangerous.
	X21. Ability to express and understand in the face of unexpected situations.
	X22. Alerts and vigilance of external environmental conditions that may cause harm to yourself or others
	X23. physiological functions (physical fitness, coordination, agility, strength, etc).
	X24. Psychological function (emotional control, psychological maturity, etc.).

3. The Confirmatory Factor Analysis of Influencing Factors of College Students' Emergency Ability

3.1 Preparation of the questionnaire

We designed the influencing factors of college students' emergency ability scale (hereinafter referred to as IFCSEAS) based on the indicator descriptions given in Table 1. For the purpose of ensuring each items were clear and unambiguous, we invited three professors who engaged in safety management research to evaluate and revise the items. Finally, we developed the initial questionnaire of influencing factors of college students' emergency ability using the method of Likert's five grade scale, ranging from 1 (very disagree) to 5 (very agree) for each of the IFCSEAS questions.

3.2 Samples

We choose domestic university students as research sample. The questionnaires are distributing on college students in the form of on-site and e-mail. Adopting the method of whole random sampling, 200 questionnaires have been handed for this study, retrieved and 158, 79% of the retrieved ones, taking effect. Survey sample age distribution between 18 and 25 years old. Survey samples are geographically distributed in 13 provinces and 3 municipalities. Most of the samples are from Hunan Province.

3.3 The reliability of IFCSEAS

The Alpha coefficient is used to analyze the reliability of the questionnaire. In general, Its reliability can be accepted if the Cronbach's coefficient reaches 0.7 above. SPSS24.0 is used to analyze the reliability of the questionnaire. The results show in table 2. From the data we obtained, the cronbach's alpha of total questionnaire reached 0.955; the cronbach's alpha of dimensions were 0.825, 0.817, 0.928, 0.825 and 0.912, respectively. If we delete any of the items in the questionnaire, it will lead to a decrease in the reliability coefficient of the questionnaire. Thus, the influencing factors of college students' emergency ability scale has a good reliability.

Table 2 The results Reliability analysis

Dimensions	NO.	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Cronbach's Alpha of dimensions	Cronbach's Alpha of total questionnaire
Social environment	X1	91.48	177.347	0.576	0.955	0.825	0.955
	X2	91.53	178.875	0.581	0.954		
	X3	91.46	177.141	0.672	0.953		
	X4	91.40	176.674	0.701	0.953		
Network environment	X5	91.40	175.923	0.674	0.953	0.817	
	X6	91.56	175.280	0.666	0.954		
	X7	91.68	175.698	0.657	0.954		
University environment	X8	91.49	174.379	0.700	0.953	0.928	
	X9	91.40	176.025	0.733	0.953		
	X10	91.46	174.951	0.692	0.953		
	X11	91.41	174.128	0.733	0.953		
	X12	91.39	173.793	0.737	0.953		
	X13	91.37	175.726	0.731	0.953		
Family environment	X14	91.34	175.513	0.744	0.953	0.825	
	X15	91.30	175.296	0.748	0.953		
	X16	91.28	176.444	0.725	0.953		
	X17	91.72	179.823	0.478	0.956		
Individual factors	X18	91.16	178.444	0.674	0.953	0.912	
	X19	91.10	177.111	0.710	0.953		
	X20	91.09	179.011	0.640	0.954		
	X21	91.29	178.641	0.636	0.954		
	X22	91.17	178.334	0.674	0.953		
	X23	91.20	179.254	0.605	0.954		
	X24	91.19	177.760	0.663	0.954		

3.4 The Confirmatory Factor Analysis

We use the confirmatory factor analysis method to construct the structural equation model of the influencing factors of college students' emergency ability by AMOS21.0 software. The value of df (degrees of freedom) is $247 > 0$, which is excessive recognition model that can be analyzed. The unstandardized regression coefficient shows that the value of P between factors and between factors and potential variables reached the significant level of 0.05. Fig.1 shows that the standardized coefficient is between 0.50 and 0.89, and there is no coefficient greater than 0.95. Error variance is between 0.023 and 0.072, and there is no negative variance. It can be seen from the above analysis that the coefficient were estimated in the acceptable range.

We use absolute indexes, adjusted indexes and relative indexes to assess the extrinsic quality of the model. The absolute indexes include χ^2 / df , RMSEA (standardized root mean square residual), GFI (goodness-of-fit index) and AGFI (adjusted goodness-of-fit index). The adjusted indexes are PNFI (parsimony-adjusted normed fit index) and PGFI (parsimony goodness-of-fit index). The relative indexes include NFI (normed fit index), RFI (relative fit index), IFI (incremental fit index), TLI (Tacker-lewis index) and CFI (comparative fit index). Table 4 is the evaluation results of the structural equation model of the

influencing factors of college students' emergency ability. It can be seen from absolute indexes, relative indexes and adjusted indexes that the fit values of the indicators are all in acceptable range, which indicates the structure of the model is reasonable.

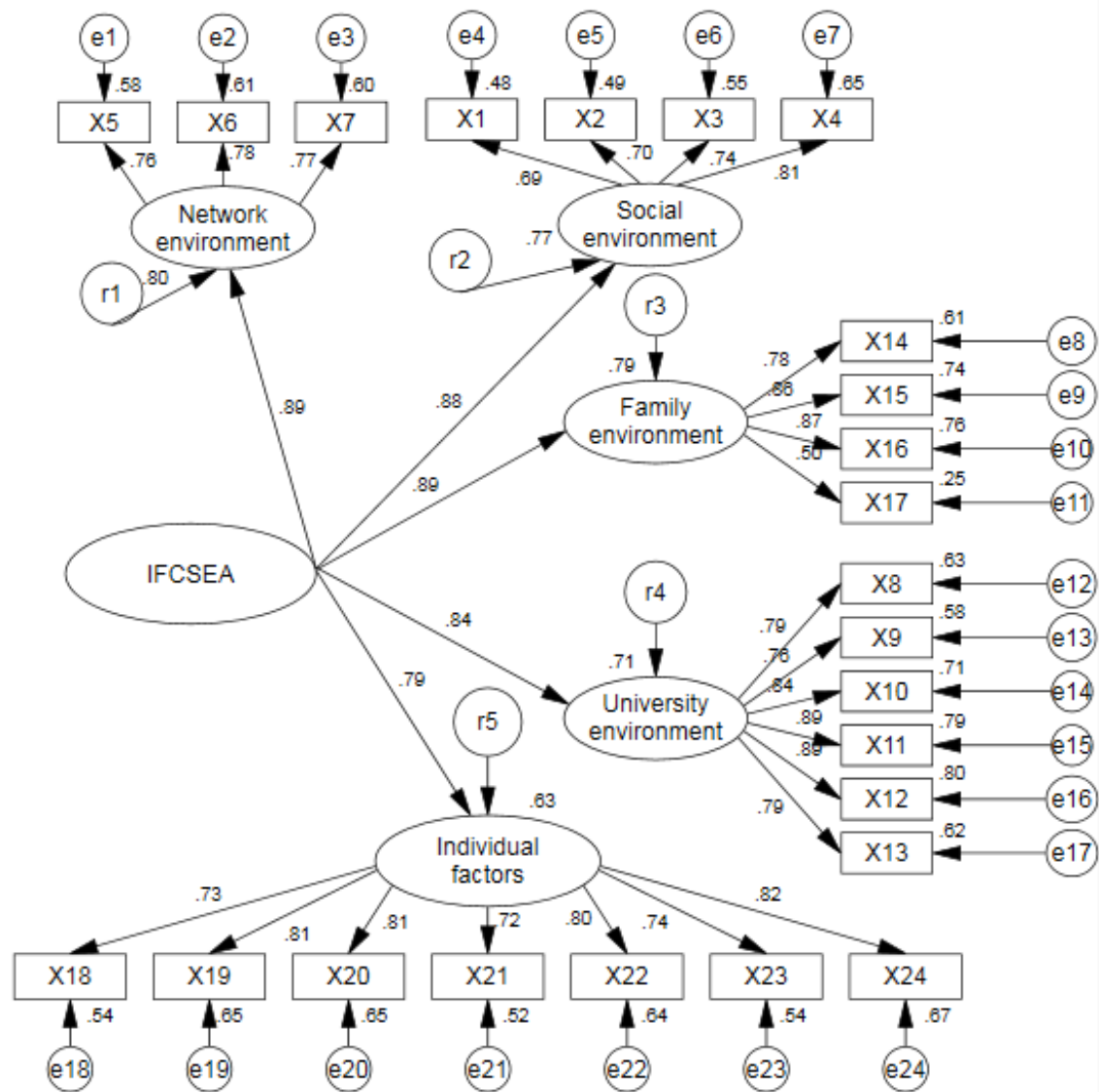
Table3 The evaluation results of confirmatory factor analysis model

Fit index	Evaluation standard	Evaluation results	Fit index	Evaluation standard	Evaluation results
Absolute indexes			relative indexes		
χ^2 / df	1~3	2.703	NFI	>0.90	0.986
RMSEA	<0.08	0.051	RFI	>0.90	0.961
GFI	>0.90	0.944	IFI	>0.90	1.000
AGFI	>0.90	0.932	TLI	>0.90	1.000
Adjusted indexes			CFI	>0.90	1.000
PNFI	>0.50	0.704	——	——	——
PGFI	>0.50	0.613	——	——	——

4. Discussion

The purpose of this study is to analyze the influencing factors of college students' emergency ability. We extracted 24 influencing factors and distributed them in five dimensions. The results of confirmatory factor analysis showed that the 5 dimensions of the influencing factors of college students' emergency ability fit the data well, also showed the measurement scale has good validity. In general, the path coefficient in the confirmatory factor analysis model can be regarded as the weight value. The network environment and family environment are the most important factor affecting college students' emergency ability. The network environment, family environment, social environment, university environment and individual factors can effectively predict the the emergency ability of college students, which its direct effect are respectively 0.89,0.89, 0.88, 0.84, 0.79, and the strength of direct effect are respectively 0.792, 0.792, 0.774, 0.706 and 0.624. So the sequence of strength of direct effect on emergency ability of college students is network environment = family environment > social environment > university environment > individual factors.

The network environment include three indices. College students' communication of emergency topics on the Internet plays an important role in improving their emergency capabilities. Emergency text, video, audio and pictures also have an important role to improve students' emergency ability. We need to make full use of network resources to improve the level of emergency ability of college students. The social environment contains four indices. In this dimension, the main effect on the improvement of college students' emergency ability is national publicity and education on emergency management. The family environment contains four indices. The influence of family members' safety habits on the level of college students' emergency ability is especially important. Parents should create a good family safety atmosphere to improve students' emergency ability. The university environment include six indices. Universities should establish a complete emergency management organization and regular maintenance of campus safety facilities. This helps create a good campus safety culture. The individual factor include seven indices. The psychological function (such as: emotional control, psychological maturity, etc.) of college students plays an important role in responding to emergencies. Similarly, the level of college students' emergency ability is closely related to his ability to detect emergency knowledge, skills and dangers. It can be seen from the influencing factors of college students' emergency ability that improving the level of emergency ability of college students should be comprehensively considered from the perspectives of the state, family, colleges and individuals.



Note: IFCSEA refers to the influencing factors of college students' emergency ability.

Fig. 1 Standardized estimates of influencing factors of college students' emergency ability

5. Conclusion

- (1) The influencing factors of college students' emergency ability scale has a good reliability and validity.
- (2) The influencing factors of college students' emergency ability contains 5 dimensions and 24 indices. The five dimensions are network environment, family environment, social environment, university environment and individual factors.

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