A Study on Suicide Ideas and Its Influencing Factorsof Recruiters Based on Implicit Attitudes

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Abstract: Suicidal ideation is a free factor of suicide, which is the pre-clinical stage of suicidal behavior. If the explicit attitude questionnaire is used for evaluation and screening, it may lead to the social praise responses of the subjects, thus reducing the validity of the screening. In this study, Greenwald's implicit attitude test was used to design an IAT test procedure for suicide ideation. The IAT was used to screen 800 recruits' implicit attitudes toward suicide ideation, and the influencing factors were studied.

1. Introduction

Suicide ideation refers to the idea of experiencing suicide without taking explicit actions to achieve it. [1] It has the characteristics of concealment, universality and occasionality. Studies have shown that suicide ideation is closely related to sleep problems, depression, despair and other psychological disorders. Due to the factors of status change, environmental adaptation, management, training pressure, distance from home, monotonous lifestyle and less interpersonal communication, many recruits have mental health problems such as depression, loneliness and emotional instability, accompanied by abnormal psychological activities such as cognition, emotion, thinking and behavior. [2-5] .The phenomenon of suicide is increasing year by year, which seriously affects the normal training and living of the army. It is necessary to screen recruits' suicidal ideation accurately and find out its influencing factors, so the research is aimed at exploring this problem.

2. Research objects and Tools

2.1. Research object

800 recruits from a training regiment were randomly selected as subjects. The demographic factors were: (1) age: average age: 19.18±1.64; (2) category: 635 ordinary soldiers (79.4%) and 165 college students (20.6%); (3) birthplace: 442 urban soldiers (55.3%) and 358 rural soldiers (44.7%); (4) nationality: 753 Han people (94.1%) and 47 ethnic minority (5.9%); (5) only child and non-only child: 417were only child in the family(52.1%), 383 (47.9%) were non-only children.

2.2. Research Tools

2.2.1 IAT Suicide Implicit Attitude Test Procedure.

Implicit Association Test (IAT) was first proposed by A.G. Greenwald in 1998. Implicit associative test (IAT) is a computerized classification task to measure the degree of automated connection between two categories of words (concept words and attribute words), and then to measure the implicit social cognition such as the individual's implicit attitude. [6]

Principle of IAT: Implicit association test is based on neural network model in physiology. The model considers that information is stored at a series of nodes of neural connections organized hierarchically according to semantic relations, so the relationship between the two concepts can be

measured by measuring the distance between the two concepts on such neural connections. Cognitively, the implicit attitude test is based on the automatic processing of attitudes, including the automatic initiation of attitudes and the diffusion of initiation.

2.2.2 The Military Mental Disease Prediction Scale

The Military Mental Disease Prediction Scale is a self-rating scale.The scale was compiled by Du Dehua et. al. It contains 11 factors: family and past history, growth experience, personality introversion, stress source, poor psychological defense, lack of social support, personality deviation, depression, mania, neurosis, psychosis and a disguising factor. Personality deviation, depression, mania, neurosis and psychosis are the general symptoms of mental illness. Family and past history, growth experience, introverted personality, stressors, poor psychological defense and lack of social support are risk factors for mental illness. There are 96 items in total. Two-point scoring system was adopted to answer "yes" and "no" with a score of 1 and 0. The higher the total score and each factor score of the scale, the worse the mental health status and the higher the risk of mental illness. Cronbach'a coefficient was 0.868, subscale was 0.359-0.789 (p < 0.01), and correlation coefficient of each factor was 0.140-0.842 (p < 0.01).

3. Research process

3.1. Design the procedure of IAT test for suicide ideation and Verify the validity test of IAT

3.1.1.Screening of explicit attitudes towards suicide ideation

800 recruits were screened for suicidal explicit attitudes by using explicit attitudes problem "nearly a recurrent thought or behavior of dying". It was found that 76 recruits in this group had suicidal ideation and 724 recruits had no suicidal ideation.

3.1.2. Initial Test of Implicit Attitude to Suicide Ideation

IAT tests were conducted on 76 recruits with suicidal ideation in explicit attitudes: the consistent task was implicit words + self words / life-related words + non-self words; the inconsistent task was life-related words + self words / suicide-related words + non-self words. [7-8]

IAT tests were conducted on 724 recruits who had no suicidal ideation in explicit attitudes: the task of consistency was suicide-related words + non-self words / life-related words + self words; the task of inconsistency was life-related words + non-self words / suicide-related words + self words.

Ten suicide words and lO life words were selected by 15 counseling teachers according to their understanding and counseling experience of suicide groups. The top ten words were selected from 40 Related words according to the grading method and from the perspective of whether they could represent the real thoughts of suicide idealists. Self and non-self words are directly translated from foreign literature.

The IAT test was carried out in seven steps. Step 1: To categorize suicide and life-related words and respond to them by pressing different keys ("E" and "I"); Step 2: To categorize self-and non-self-related words and react by pressing different keys ("E" and "I"); Step 3: To categorize suicide or life and self-or non-self-related words jointly, asking for suicide and self-words, life and self-related words. Non-self words are categorized and reacted by pressing different keys ("E" and "I"); Step 4: Repeat Step 3; Step 5: basically the same as Step 2, but opposite to the reaction keys ("I" and "E"); Step 6: Joint categorization of suicide or life and self-words or non-self-words, but requires that suicide words and self-words, life words and self-words be categorized as self-words, life words and self-words. First, and press different keys ("E" and "I") to react; Step 7: Repeat Part 6. Among them, step 3 and 6 are part 4 and 7. Step 1, 2 and 5 are both the exercises of reaction modes and the activation of the relationship between self-words and attribute words. Part 4 and 7 provide the response time difference between incompatible and incompatible classifications used in the indicators as the indicators of implicit attitude intensity, i.e. IAT effect.

The above IAT tests are programmed and carried out on a computer. Before the computer test, each person fills in the basic personal information form according to the requirements, and then

carries on IAT test. After the beginning of the test, the subjects were asked to classify the stimuli presented in the center of the screen as soon as possible according to the instructions. The stimuli were classified as "E" on Zuo Mai and "I" on the right. Error response, red fork warning sign appears in the center of the screen. In steps 4 and 7, no feedback was given to the error response. At the end of each part, the screen shows the average reaction time and error rate to prompt the subjects. Each test has an exercise section, and every two test intervals can rest. The experimental results are recorded automatically by the computer.

The response time of the subjects was pretreated by computer. Reaction time in IAT is 3000 milliseconds greater than 3000 milliseconds and 300 milliseconds less than 300 milliseconds. The data of unqualified subjects whose error rates exceed 20% in step 4 and step 7 were eliminated. Then the differences of IAT effect and other indicators under different conditions were compared. Data processing is carried out by SPSSl7.0 statistical software.

The results showed that the IAT effect of suicidal ideation subjects (inconsistent task-to-task) was significantly different from that of non-suicidal ideation subjects (see Table 1). The response time (suicide + self / life + non-ego) of the subjects with suicidal ideation was significantly shorter than that of the subjects with inconsistent tasks (life + self / suicide + non-ego); the response time (suicide + self / life + non-ego) of the subjects without suicidal ideation was significantly longer than that of the subjects with consistent tasks (life + self / suicide + non-ego). See Table 1.

Table 1 Statistical results of consistency, inconsistency and IAT effect in subjects (ms)

	Subjects with suicidal ideation			Subjects without suicidal ideation			IAT effect
	Inconsistent tasks	Consistent tasks	IAT effect	Inconsistent tasks	Consistent tasks	IAT effect	T test
$\bar{x}$	953.00	764.25	188.75	837.45	739.21	98.24	2.259
s	200.445	110.213	122.31	150.213	116.802	77.60	

3.1.3. Verify the validity test of IAT

The greater the D value is, the more sensitive the measuring tool is. Generally, d = 0.8 is considered to have a greater effect. In this study, d = 1.54 was measured in subjects with suicidal ideation, and d = 1.26 was measured in subjects without suicidal ideation. This shows that the test procedure tool can truly reflect the implicit attitude of the subjects, and can be used as a tool to study and measure the implicit attitude to suicide ideation.

3.2. Re-testing the Implicit Attitudes of Suicide Ideas

IAT procedure was used to screen the suicidal ideation of this group (800) with implicit attitude as the index. After screening, 76 recruits with suicidal ideation in explicit attitudes showed positive in the test. 13 recruits with suicidal ideation were screened out from 724 groups without suicidal ideation. A total of 89 recruits with suicidal ideation were formally included in the suicidal ideation group, and 711 recruits without suicidal ideation group.

3.3. Implementing the Test of Military Mental Disease Prediction Scale

The mental health status of 800 recruits was assessed by group test using the Military Mental Disease Prediction Scale. In order to alleviate the concerns of the participants, the test was conducted anonymously. Before the test, all the participants had informed consent. They added 1.96 standard deviations to the average score of the disguise scale, and answered continuously, randomly and indiscriminately. The answer items were not all the sample deletion criteria.

4. Experimental results and discussion

4.1. IAT test screening results

SPSS17.0 was used for independent sample T test and logistic regression analysis. $P < 0.05$ was used as the test index with statistical significance. In this group, 89 recruits (11.1%) had positive implicit attitudes towards suicide ideation.

4.2. Comparison of suicidal ideation group with or without mental health status

The results showed that there were significant differences between suicidal ideation group and non-suicidal ideation group in total score of mental disease prediction, psychosis, depression, personality introversion, stress source, poor psychological defense, lack of social support, family and past history, growth experience factors, but there was no difference between manic, neurosis, personality deviation and non-suicidal ideation group. See Table 2.

Table 2 Comparison of mental health status between recruits with suicidal ideation group and recruits without suicidal ideation group

Item	Suicidal ideation group (n=89)	No suicidal ideation group (n=711)	t	P
Total score of mental disease prediction	25.63±10.79	17.82±8.01	14.281**	0.01
Psychosis	2.31±1.22	0.23±0.72	29.340***	0.000
depressed	2.63±2.45	0.88±1.35	13.455***	0.000
Mania	3.58±1.66	3.66±1.57	5.582	0.081
Neurosis	2.61±2.22	2.55±1.67	6.531	0.112
Personality deviation	3.63±1.79	3.23±1.01	3.326	0.213
Introversion of personality	3.12±1.54	1.03±1.36	8.811***	0.000
Stressor	2.63±1.88	1.83±1.32	7.707***	0.000
Bad psychological defense	2.14±1.21	0.88±1.21	12.522***	0.000
Lack of social support	0..66±1.09	0.27±0.19	6.552*	0.037
Family and Past History	0.33±0.48	0.15±0.16	4.326***	0.000
Growth experience	1.63±0.79	1.05±0.08	7.631***	0.000

4.3. Logistic regression analysis

The risk factors of suicide ideation of recruits were analyzed. Age, culture, nationality, urban and rural areas, psychosis, mental defense, depression, neurosis, stress source, personality deviation, introversion, mania, social support, family history and growth experience were independent variables, and suicide ideation was dependent variable. Psychosis. Sex, depression and introversion are risk factors, while culture and growth experience are protective factors. See Table 3.

Previous studies have shown that suicide is prone to occur when individuals face negative life events, life stress, self-perceived setbacks that cannot be changed in a short time, environment and unsolvable problems, and are in a potential "depressive plan" or automatic despair belief. In addition, suicide is also closely related to the level of social and economic development, religious beliefs, the improvement of public health system and other factors. [9-10] New recruits are facing severe management training pressure, less interpersonal communication and lack of social support. They are prone to mental health problems such as anxiety, hostility, paranoia and somatization. The study showed that the total predictive score of mental illness, psychosis, depression, introversion, stressors, poor psychological defense, lack of social support, family and past history, growth experience of recruits with suicide ideation were significantly higher than those without suicide

ideation. This corroborates the previous research results. Therefore, we should attach importance to recruits with suicidal ideation, carry out one-to-one psychological intervention to recruits with suicidal ideation, pay particular attention to understanding the growth experience, family background, knowledge background and values of soldiers, and take effective measures to eliminate the suicidal willingness of recruits in the budding state, so as to ensure the security and stability of the army.

Table 3 Logistic analysis of risk factors for suicidal ideation in recruits

Independent Variable	B	S E	Wals	df	Sig.
Age	0.019	0.155	0.015	1	0.932
Culture category	-0.637	0.288	4.558	1	0.029
Nation	-1.331	0.698	3.221	1	0.061
Only child	0.355	0.426	3.558	1	0.059
Urban or rural	0.211	0.287	0.422	1	0.483
Psychosis	0.383	0.552	4.698	1	0.019
depressed	0.755	0.142	30.285	1	0.000
Mania	-0.015	0.108	0.022	1	0.887
Neurosis	0.204	0.132	2.423	1	0.112
Personality deviation	0.065	0.132	0.188	1	0.631
Introversion of personality	0.711	0.135	26.989	1	0.000
Stressor	-0.033	0.142	0.081	1	0.707
Bad psychological defense	0.028	0.149	0.029	1	0.883
Lack of social support	-0.059	0.218	0.051	1	0.731
Family and Past History	0.028	0.288	0.017	1	0.898
Growth experience	-2.623	0.308	68.373	1	0.000

Logistic regression analysis showed that psychosis, depression and introversion were risk factors for suicidal tendencies of soldiers. Culture and growth experience are protective factors for suicide. Soldiers in psychiatric state may suffer from sensory disorders, thinking disorders, emotional disorders, will and behavior disorders, and then injuries and self-injuries. Soldiers with depression have lower self-evaluation, sleep disorder, self-injury or suicide. Introverted soldiers tend to solve problems by themselves rather than appeal for help. They do not actively participate in the cultural and recreational activities of the army in military life. Soldiers'mental illness, depression and introversion should be paid attention to in their daily mental health work, and effective key points should be implemented. We should pay attention to psychological counseling and strengthen the guidance of fear, tension, anxiety and insecurity among recruits. We should pay more attention to soldiers of special family origin, family tension, poor families and single-parent families, strengthen the education of soldiers with lower knowledge and education, actively carry out mental health lectures and enrich cultural and recreational activities for recruits, enrich their spare time life and reduce the incidence of suicidal tendencies.

5. Conclusion

In this group, 89 recruits (11.1%) had positive implicit attitudes towards suicide ideation.

Suicidal ideation group had significant differences in total score of mental disease prediction, psychosis, depression, personality introversion, stress source, poor psychological defense, lack of social support, family and past history, growth experience factors and non-suicidal ideation group, but there was no difference in mania, neurosis, personality deviation and non-suicidal ideation group. The risk factors of suicide ideation of recruits were analyzed. Age, culture, nationality, urban and rural areas, psychosis, mental defense, depression, neurosis, stress source, personality deviation, introversion, mania, social support, family history and growth experience were taken as independent variables, suicide ideation as dependent variables, psychosis and depression as dependent variables. Introverted personality is a risk factor, while culture and growth experience are

protective factors.

We should strengthen the guidance of the new recruits'bad emotions such as fear, nervousness, anxiety and insecurity, especially the soldier who comes from special families, family tension, poor families and single-parent families, raise the education level of soldiers with lower knowledge and education, actively carry out mental health knowledge lectures and enrich cultural entertainment activities for the new recruits, and enrich their spare time life. To effectively reduce the incidence of suicidal tendencies.

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