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Mental health of Automobile Transportation Troop personnel stationed in the Western Sichuan Plateau of China

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Abstract

This study investigated the mental health of military transport personnel in the Western Sichuan Plateau of China, and factors that correlate with their mental health.

The Symptom Checklist 90 (SCL-90) was used to investigate the mental health status of the subjects. Their scores were compared with the national and military norm in China. Demographic factors were analyzed for associations with SCL-90 scores.

Psychological problems were detected in 28.90% of total 1076 male officers and soldiers surveyed. The SCL-90 scale somatization score of these servicemen was higher than the national and military norms in China, while other scores were comparable. The reported physical health symptoms and being an only child were strongly associated with the SCL-90 scores.

The mental health of military transport personnel in the China Western Sichuan Plateau should receive more attention.

Abbreviations: ANOVA = analyses of variance, SCL-90 = Symptom Checklist 90, WSPATT = Western Sichuan Plateau Automobile Transportation Troop.

Keywords: automobile transportation troop, mental health, plateau, servicemen, symptom checklist (SCL-90)

1. Introduction

In 2006, the Ministry of National Defense of PR China announced that a psychological test would be a part of the official recruitment examination.[1] As a result, the mental health of Chinese military personnel has attracted increased research attention.[2–4] One group of servicemen at high risk of mental health problems is the Western Sichuan Plateau Automobile Transportation Troop (WSPATT), stationed on the Western Sichuan Plateau of China. The Western Sichuan Plateau is located between the Qinghai-Tibet Plateau and the Sichuan Basin, at an altitude of 4000 to 4500 meters. The topography includes extremely high mountains, deep valleys, and alpine grasslands. The natural conditions of the plateau are harsh, with low atmospheric pressure, and strong ultraviolet radiation. People who are not acclimated to the high altitude are prone to hypoxia. These conditions seriously affect the physiological and psychological functions of military personnel.[5–7]

As major domestic disaster relief in China has increased in recent years, and international military peacekeeping operations, the mental health of military personnel has received intense attention from researchers in the fields of military medicine and psychology in China.[3,8,9] Previous studies showed that servicemen who are stationed perennially in the plateau experience psychological problems,[4] and the mental functions of servicemen who transferred from the plain to the plateau are also affected.[10]

The mission of the Automobile Transportation Troop in the Western Sichuan Plateau is to transport large amounts of goods and people. The Sichuan-Tibet Highway crosses the Western Sichuan Plateau and is an important ground transportation route that connects inland China and Tibet. The personnel experience a harsh natural environment, complex road conditions, heavy transportation tasks, significant pressures regarding safety, and long drive times. These problems result in a high prevalence of cervical spondylosis, lumbar spondylosis, insomnia, anxiety, and other mental and physical disorders[2,11,12] Similar risks were found by Hilton et al[13] and Apostolopoulos et al[14] for long-haul truck drivers in the United States and Australia.

In China, there was a study based on the Symptom Checklist (SCL-90)[15] of taxi drivers, which found that their mental health was lower than the Chinese norm for somatization, obsession, and interpersonal.[16] Another Chinese study of oil field drivers found a high prevalence of physical diseases, including spondylosis,[17] although many of the most prevalent diseases may have been related to obesity or metabolic syndrome. There have been three previous studies of the mental health of servicemen in WSPATT. Two found evidence of elevated SCL-90 symptoms, including somatization and paranoia, compared with

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military and general Chinese norms.[11,18] However, the most recent study found fewer symptoms than the military norms, but a high prevalence of insomnia.[2] Because of this inconsistency, it was decided to conduct this current, larger study.

SCL-90 is a self-reporting questionnaire for physical and mental symptoms. In 1984, Wang Zhengyu first introduced the SCL-90 scale in China.[19] Thereafter, it has been widely used in China to assess the mental health of people in various occupational groups.[3,9,20] In 2008, Yan et al[3] used the SCL-90 scale to assess comprehensively the mental health of new Chinese military recruits.

The servicemen in WSPATT are a special occupational group. These servicemen must have not only the general physical condition required for military service, but also professional driving skills and no signs of poor mental health.

This is the first definitive large-scale study of the mental health status of these servicemen, using the SCL-90. The objectives were to understand the status of their mental health, and to provide reference data that can help monitor and maintain the mental health of these servicemen.

2. Materials and methods

2.1. Respondents of the survey

Officers and soldiers of three corps of WSPATT that is stationed in the Western Sichuan Plateau, and who are responsible for driving, were chosen through cluster random sampling[3,11] to participate in this survey. The study protocol was approved by the ethical committee of the Chengdu Military General Hospital of the People's Liberation Army, PR China. All participants provided written informed consent and could decline to participate if they chose. The survey was conducted from July to September 2014.

The servicemen were screened by a medical doctor and a psychologist before participating in the survey, to exclude men with diagnosable physical or mental health conditions. The medical and health personnel of the troop were trained by the research team to administer the survey. The anonymity of the participants was assured by enclosing each questionnaire in a booklet that had no identifying information on the cover. Questionnaires were distributed and collected by the medical and health personnel of the troop. After the survey, the questionnaires were collected, and their quality was evaluated.

A total of 1200 questionnaires were distributed. Excluded from this analysis were 110 participants who declined to participate and 14 questionnaires in which all questions were answered exactly the same. Thus, 1076 valid questionnaires were included in this analysis, 89.67% of all the distributed questionnaires.

2.2. Questionnaire

A specially prepared questionnaire was included regarding factors that might further influence participants' wellbeing and the SCL-90 scale. These influencing factors included gender, age, ethnicity, education level, only-child status, job position, length of military service, and self-reported physical symptoms (neck or lower back discomfort).

The SCL-90 scale comprises 90 items. The items cover 9 symptoms of psychopathology: somatization, compulsion, interpersonal sensitivity, depression, anxiety, hostility, terror, paranoia, and psychosis. The severity of each symptom is rated on at 5-point scale, with 1 = not at all, and 5 = most severe. With reference to previous studies[11,15,19] the average of the SCL-90 score totals, the number of items rated ≥2, and the scores for the 9 symptoms were calculated. According to the SCL-90 analysis method for the Chinese population,[3,8,9] if the total score of a respondent is ≥160 points, the number of positive items is ≥43, or the score of any factor is ≥2 points, this is considered a positive indication of a psychological problem that needs further exploration.

2.3. Statistical methods

Statistical analyses were performed using SPSS 16.0. Descriptive statistics included frequency, percentage, and mean ± standard deviation. The measurement variables among multiple groups were compared using univariate analyses of variance (ANOVA), and pairwise comparisons between groups were performed using the Bonferroni adjustment for multiple comparisons. Comparisons between the 2 groups were conducted using independent samples *t*-tests. Multivariate comparisons were made with linear regression analysis, using the following procedure. Variables that did not influence SCL-90 scores in univariate tests were excluded. The remaining variables were dummy-coded for linear regression and used to predict the 9 symptoms of psychopathology of the SCL-90, the total average, and the number of positive items. A difference of $P \leq 0.05$ was considered statistically significant.

3. Results

3.1. General information on the sample

The study population consisted of 1076 men with valid questionnaires, aged 21.61 ± 3.40 years (17 to 34 years; Table 1). The respondents were apportioned to 4 age groups for analysis: 17 to 19, 20 to 21, 22 to 23, and 24 to 34 years. Concerning ethnicity, 949 (88.20%) of the respondents were Han Chinese. The remaining 127 (11.80%) respondents were of 16 other ethnic groups including Bai, Buyi, Tibetan, Dai, and etc. The levels of education of the respondents were as follows: 775 (72.03%) graduated from high school, and 301 (27.97%) graduated from college or above. A total of 419 (38.94%) respondents were only children.

The respondents held the following job positions: 855 (79.46%) ordinary drivers; 126 (11.71%) deputy squad leaders; 79 (7.34%) squad leaders; and 16 (1.49%) platoon leaders or company commanders. The average length of military service was 4.00 ± 3.10 years, with a maximum of 16 years. These were categorized into groups of 1, 2, 3–4, and ≥5 years of military service. Physical symptoms such as neck or lower back discomfort occurred in 347 (32.25%) respondents.

3.2. Detection rate of psychological problems

Of all the respondents in WSPATT, 311 (28.90%, 95% CI 26.19% to 31.61%) were rated as positive for psychological problems—mainly due to symptoms of somatization, compulsion, interpersonal sensitivity, and hostility.

3.3. Comparison of the SCL-90 scores with national and military norms

The average of the total SCL-90 scores, number of positive items, and the scores for the 9 symptoms of psychopathology for the

Table 1

Statistics on the general information of the servicemen in the plateau Automobile Transportation Troop.

	n (%)*
Gender	
Male	1076 (100)
Age, y	
mean ± SD (Min-Max)	21.61 ± 3.40 (17–34)
Age group, y	
17–19	339 (31.51)
20–21	290 (26.95)
22–23	196 (18.22)
24–34	251 (23.33)
Ethnicity	
Han	949 (88.20)
Other	127 (11.80)
Education	
High school	775 (72.03)
College or higher	301 (27.97)
Only child	
Yes	419 (38.94)
No	657 (61.06)
Rank	
Ordinary driver	855 (79.46)
Deputy squad leader	126 (11.71)
Squad leader	79 (7.34)
Platoon leader/Company commander	16 (1.49)
Time in military service, y	
mean ± SD (Min-Max)	4.00 ± 3.10 (1–16)
Time in military service, y	
1	220 (20.45)
2	250 (23.23)
3–4	247 (22.96)
≥5	359 (33.36)
Physical symptoms†	
Yes	347 (32.25)
No	729 (67.75)

* Unless indicated otherwise.

† Physical symptoms refer to neck or lower back discomfort.

SD = standard deviation.

respondents of WSPATT were compared with the national norms of non-military Chinese men[20] and Chinese male servicemen[8] (Table 2). The somatization scores on the SCL-90 scale of the present study population were higher than the national and military norms. Their scores for compulsion, interpersonal sensitivity, depression, hostility, and paranoia were lower than the national norm, as were the number of positive items. The study population's scores for terror and paranoia, and the number of positive items, were lower than the military norm. These findings suggest that, except for somatization, the reported overall mental health of the servicemen respondents in this study was better than the overall mental health of the national male average, and was basically the same as the average military male.

3.4. Univariate analyses of factors influencing the SCL-90 scale

Comparisons of the total SCL-90 score average, number of positive items, and scores for the 9 symptoms of psychopathology were conducted among the respondents of WSPATT who were stratified by age group, ethnicity, education, only-child status, job position, length of military service, and physical symptoms (Table 3). All of these variables, except for ethnicity and education level (i.e., age group, only-child status, job position, length of military service and physical symptoms), correlated with SCL-90 scores.

Older respondents scored significantly more highly with regard to: average total score; number of positive items; somatization; compulsion; interpersonal sensitivity; depression; anxiety; and hostility. Sole children scored more highly on all items. The senior soldiers (company commanders, platoon leaders, and squad leaders) scored more highly than did deputy squad leaders and ordinary drivers regarding average total scores; number of positive items; somatization; compulsion; interpersonal sensitivity; anxiety; and hostility. Longer-serving soldiers scored more highly on all items. Those with physical symptoms such as neck or lower back discomfort scored more highly on all items.

3.5. Multivariate analyses of factors influencing the SCL-90 scale

The beta values of the multiple linear regression analyses for total average SCL-90 scores, number of positive items, and scores of the nine symptoms of psychopathology for the servicemen of WSPATT are shown in Table 4. It can be seen that all the SCL-90 measures were predicted by being an only child, and by reporting physical health problems (Table 4). Additionally, being of more

Table 2

Comparison of the SCL-90 scale scores for the servicemen respondents in the plateau Automobile Transportation Troop with the national norm and military norm.

	Automobile troops	National norm	Military norm	P_1	P_2
Subjects, n	1076	724	9968		
Somatization	1.50 ± 0.57	1.38 ± 0.49	1.37 ± 0.47	<.001	<.001
Compulsion	1.56 ± 0.58	1.66 ± 0.61	1.57 ± 0.53	<.001	.560
Interpersonal sensitivity	1.44 ± 0.55	1.66 ± 0.64	1.46 ± 0.50	<.001	.217
Depression	1.41 ± 0.55	1.51 ± 0.60	1.42 ± 0.50	<.001	.537
Anxiety	1.37 ± 0.53	1.41 ± 0.44	1.36 ± 0.47	.093	.513
Hostility	1.42 ± 0.58	1.48 ± 0.56	1.40 ± 0.50	.029	.220
Terror	1.21 ± 0.42	1.23 ± 0.37	1.26 ± 0.41	.299	<.001
Paranoia	1.35 ± 0.52	1.46 ± 0.59	1.40 ± 0.50	<.001	.002
Psychosis	1.31 ± 0.50	1.32 ± 0.44	1.33 ± 0.44	.663	.162
Total average	1.40 ± 0.47	—	1.40 ± 0.43	—	1.000
No. of positive items	23.1 ± 21.36	25.68 ± 18.79	25.44 ± 19.63	.008	<.001

Note: The normal Chinese male SCL-90 results that were reported by Jin et al served as the national norm[20]; the Chinese military male SCL-90 results that were reported by Liu et al served as the military norm[8]; Pairwise comparisons between groups were performed using Bonferroni method. P_1 was the result for the comparison with the national norm; P_2 was the result for the comparison with the military norm. No. = Number, SCL-90 = symptom checklist 90.

Table 3

Univariate analysis of the influencing factors on the SCL-90 scale for the Automobile Transportation Troop.

	Somatization	Compulsion	Interpersonal sensitivity	Depression	Anxiety	Hostility	Terror	Paranoia	Psychosis	Total average	Positive items
Age group, y											
17–19	1.34±0.49	1.48±0.57	1.37±0.53	1.33±0.50	1.29±0.46	1.35±0.54	1.18±0.40	1.31±0.54	1.27±0.48	1.33±0.44	18.04±19.37
20–21	1.49±0.52	1.56±0.58	1.44±0.54	1.41±0.57	1.37±0.51	1.41±0.58	1.22±0.43	1.33±0.51	1.32±0.53	1.40±0.47	22.84±21.06
22–23	1.56±0.59	1.56±0.55	1.45±0.58	1.45±0.57	1.40±0.60	1.45±0.63	1.20±0.41	1.38±0.56	1.32±0.50	1.43±0.49	24.73±21.61
24–34	1.69±0.64	1.67±0.60	1.52±0.55	1.50±0.57	1.43±0.55	1.52±0.58	1.24±0.43	1.39±0.48	1.36±0.48	1.49±0.48	28.97±22.50
F	19.788	5.208	3.662	5.365	4.046	4.287	1.114	1.561	1.517	5.961	13.527
P	<.001	.001	.012	.001	.007	.005	.342	.197	.208	<.001	<.001
Ethnicity											
Han	1.51±0.58	1.56±0.58	1.44±0.56	1.42±0.56	1.37±0.53	1.42±0.58	1.21±0.43	1.35±0.53	1.32±0.51	1.41±0.48	23.34±21.48
Other	1.44±0.49	1.51±0.55	1.41±0.50	1.40±0.47	1.32±0.46	1.43±0.55	1.18±0.34	1.32±0.46	1.27±0.40	1.37±0.40	21.29±20.47
t	1.388	0.997	0.638	0.371	0.969	0.110	0.934	0.493	0.999	0.963	1.017
P	.165	.319	.524	.711	.333	.912	.351	.622	.318	.336	.309
Education											
High school	1.51±0.56	1.56±0.59	1.45±0.56	1.42±0.55	1.37±0.54	1.45±0.59	1.21±0.42	1.36±0.54	1.33±0.52	1.41±0.48	23.70±21.59
College or above	1.48±0.59	1.54±0.55	1.41±0.52	1.40±0.57	1.35±0.50	1.36±0.54	1.20±0.40	1.30±0.46	1.27±0.44	1.37±0.44	21.55±20.70
t	0.669	0.649	1.065	0.664	0.768	2.099	0.415	1.675	1.786	1.346	1.484
P	.503	.516	.287	.507	.443	.056	.678	.094	.074	.179	.138
Only child											
No	1.44±0.50	1.48±0.49	1.37±0.45	1.34±0.45	1.30±0.43	1.34±0.48	1.16±0.32	1.27±0.41	1.25±0.40	1.33±0.38	20.68±18.73
Yes	1.59±0.64	1.66±0.67	1.53±0.65	1.51±0.66	1.46±0.62	1.53±0.67	1.28±0.51	1.45±0.62	1.41±0.60	1.50±0.56	26.39±24.13
t	4.188	4.928	4.891	5.105	4.873	5.304	4.633	5.940	5.305	5.610	4.371
P	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001
Rank											
Ordinary driver	1.48±0.56	1.55±0.59	1.43±0.55	1.41±0.56	1.36±0.52	1.41±0.57	1.20±0.41	1.34±0.53	1.31±0.50	1.39±0.47	22.43±21.27
Deputy squad leader	1.48±0.47	1.46±0.44	1.37±0.46	1.34±0.49	1.29±0.44	1.40±0.58	1.18±0.34	1.32±0.48	1.25±0.41	1.35±0.40	21.78±19.40
Squad leader	1.76±0.70	1.69±0.61	1.58±0.65	1.51±0.59	1.50±0.64	1.58±0.66	1.29±0.50	1.40±0.53	1.39±0.52	1.53±0.54	29.61±22.67
Platoon leader/ Company commander	1.81±0.85	2.03±0.73	1.72±0.60	1.61±0.63	1.66±0.72	1.69±0.72	1.41±0.69	1.53±0.46	1.49±0.63	1.66±0.60	37.38±25.76
F	7.720	6.199	4.063	2.258	4.277	3.377	2.422	1.082	2.153	4.110	5.333
P	<.001	<.001	.007	.080	.005	.018	.064	.356	.092	.007	.001
Military service, y											
1	1.28±0.43	1.46±0.63	1.35±0.54	1.34±0.56	1.29±0.49	1.27±0.45	1.17±0.39	1.26±0.46	1.25±0.46	1.30±0.44	16.78±19.31
2	1.47±0.59	1.55±0.58	1.42±0.54	1.38±0.53	1.35±0.52	1.42±0.60	1.20±0.41	1.34±0.55	1.32±0.54	1.39±0.48	21.34±20.50
3–4	1.47±0.50	1.51±0.52	1.39±0.52	1.37±0.51	1.33±0.49	1.38±0.55	1.19±0.40	1.33±0.54	1.29±0.49	1.37±0.44	21.57±20.32
≥5	1.68±0.62	1.66±0.57	1.53±0.57	1.52±0.58	1.45±0.57	1.55±0.63	1.26±0.44	1.41±0.51	1.36±0.50	1.50±0.49	29.26±22.35
F	24.886	6.592	6.154	6.278	5.509	12.081	2.595	4.047	2.606	9.179	18.177
P	<.001	<.001	<.001	<.001	.001	<.001	.051	.007	.051	<.001	<.001
Physical symptoms											
No	1.34±0.43	1.46±0.52	1.36±0.48	1.32±0.48	1.29±0.43	1.32±0.48	1.17±0.36	1.27±0.44	1.25±0.44	1.31±0.40	19.28±19.95
Yes	1.83±0.68	1.76±0.64	1.60±0.64	1.60±0.64	1.53±0.65	1.64±0.71	1.30±0.50	1.51±0.63	1.45±0.59	1.59±0.56	31.12±22.03
t	14.301	8.181	6.806	7.884	7.415	8.571	5.097	7.403	6.071	9.259	8.793
P	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001

Note: *F* and *P* are the results for the univariate ANOVA test; *t* and *P* are the independent samples *t*-test results for the groups.
ANOVA = analyses of variance.

senior rank modestly predicted higher hostility and compulsion, while being longer in service modestly predicted a higher number of positive items and somatization.

4. Discussion

Previous studies have found that the prevalence of cervical spondylosis, lumbar spondylosis, insomnia, anxiety and other mental disorders is relatively high in servicemen of the Automobile Transportation Troop stationed in the Western Sichuan Plateau of PR China[2,11,12]. The present study, using the SCL-90 scale,[15,19] found that 28.90% of the WSPATT officers and soldiers experienced some degree of mental health problems. This rate is higher than that of Chinese male soldiers who Liu et al[8] surveyed using the SCL-90 scale (18.20%). However, other than the somatization factor, the overall mental health status of the men in the present study was better than that of the national average for men, and was the same as the average for men in the military. The higher rate of somatization may be due in large part to the stress of hypoxia, low atmospheric pressure, and strong ultraviolet radiation in the Western Sichuan Plateau. In addition, long haul driving consumes more energy and easily causes fatigue and injuries, which can result in cervical spondylosis, lumbar spondylosis, and other physical disorders in servicemen who frequently drive. Although the long-haul trucks are comfortable and two drivers drive in shifts, there may be a need to consider additional options to further minimize the stress of long haul driving.

This survey found that, for the servicemen in WSPATT, the total mean SCL-90 score, number of positive items, and the scores of various symptoms of psychopathology (except for somatization) were better than the national average for men,[20] and were at the same level as the average for men in the military.[8] This suggests that their mental health has generally improved since the previous smaller studies of the troop were conducted,[2,11,18] and is generally good other than for somatization, which may be due to physical health problems caused by driving. Two caveats to this conclusion are that men with diagnosable mental health problems were excluded from the survey, and that the reference data for normality were collected some time ago.

Table 4

Multivariate analysis of the influencing factors on the SCL-90 scale for the Automobile Transportation Troop.

	Somatization		Compulsion		Interpersonal sensitivity		Depression		Anxiety	
	β	P	β	P	β	P	β	P	β	P
Age, y										
20–21	0.086	.050	0.058	.226	0.045	.327	0.071	.119	0.061	.160
22–23	0.075	.189	0.009	.886	0.001	.996	0.053	.370	0.038	.496
24–34	0.100	.140	0.032	.664	−0.024	.737	0.042	.551	−0.012	.853
Only child										
Yes	0.170	<.001	0.181	<.001	0.172	<0.001	0.177	<.001	0.161	<.001
Rank										
Deputy squad leader	−0.075	.146	−0.117	.037	−0.083	.120	−0.100	.062	−0.094	.066
Squad leader	0.093	.162	0.041	.567	0.081	.244	−0.005	.938	0.075	.254
Platoon leader/Company commander	0.144	.279	0.371	.010	0.204	.139	0.085	.537	0.229	.081
Military service, y										
2	0.126	.009	0.058	.267	0.055	.275	0.003	.952	0.035	.458
3–4	0.099	.069	0.023	.689	0.030	.599	−0.012	.832	0.015	.781
≥5	0.150	.029	0.081	.277	0.121	.091	0.070	.328	0.084	.215
Physical symptoms										
Yes	0.427	<.001	0.278	<.001	0.212	<.001	0.254	<.001	0.227	<.001

	Hostility		Terror		Paranoia		Psychosis		Total average		Positive items	
	β	P	β	P	β	P	β	P	β	P	β	P
Age, y												
20–21	−0.001	.980	0.021	.544	−0.015	.720	0.037	.377	0.047	.218	2.947	.091
22–23	−0.069	.261	−0.049	.284	−0.030	.590	−0.003	.956	0.006	.903	1.404	.532
24–34	−0.117	.109	−0.069	.207	−0.068	.310	−0.011	.864	−0.008	.886	1.856	.490
Only child												
Yes	0.205	<.001	0.123	<.001	0.195	<.001	0.164	<.001	0.170	<.001	6.455	<.001
Rank												
Deputy squad leader	−0.046	.413	−0.026	.535	−0.042	.405	−0.072	.140	−0.075	.095	−2.814	.168
Squad leader	0.066	.359	0.059	.266	0.001	.989	0.046	.465	0.045	.437	0.848	.748
Platoon leader/Company commander	0.164	.250	0.177	.096	0.124	.341	0.137	.274	0.171	.140	8.200	.118
Military service, y												
2	0.134	.010	0.018	.639	0.064	.178	0.055	.228	0.057	.172	3.288	.085
3–4	0.117	.045	0.021	.633	0.064	.228	0.026	.610	0.041	.390	3.188	.137
≥5	0.270	<.001	0.090	.102	0.123	.069	0.059	.362	0.116	.052	8.049	.003
Physical symptoms												
Yes	0.269	<.001	0.127	<.001	0.233	<.001	0.187	<.001	0.248	<.001	9.330	<.001

Note: The β values in the table are the regression coefficients from multiple linear regression. The P values were adjusted by Bonferroni method. The reference level of the factor was the first level in Table 3.

Mental health improvements may reflect the increased attention to and awareness of mental health in China in general, and in the army in particular.[21–23] This includes the realization that mental wellbeing is important for the effectiveness of the military, and the widespread provision of mental health education, psychological training, group seminars on psychological problems, and mental health surveys in the Chinese army. These measures ensure that the mental health of officers and soldiers is known and that timely intervention is provided, thereby improving the mental health of the officers and soldiers in the Chinese army.[23] Moreover, nowadays recruits are screened for mental health before enlistment, reducing the number of recruits enlisting with existing mental health problems.[1,3]

In the present study, higher SCL-90 scores strongly correlated with being an only child and the self-report of physical health symptoms. The reported physical health symptoms may be due to the strains of long haul driving, already discussed with regard to somatization. Other personal variables related to SCL-90 scores found in the univariate analysis were age, length of service, and seniority. Since these variables were mostly not significant in the multivariate analyses, it may be inferred that they made experiencing physical health symptoms more likely, rather than being directly related to SCL-90 scores. The reported physical symptoms were not necessarily that serious, so their influence on physical health in conjunction with the high somatization scores suggests that physical health problems may be a cause of mental health problems, but also that complaining about and focusing on physical health problems may be a useful index of worsening mental health in this context.

There has been considerable discussion of the psychological results of being an only child. Two large recent studies of students in China have found that the psychological condition of only children is no different from that of children with siblings.[24,25] However, our study found that only child servicemen scored more highly on all items then other groups. There may be differences between students and the automobile transportation troop. One can speculate that men who grew up with siblings find it easier to adjust to the collectivity of military life and there may also be other reasons why servicemen with siblings appear better adjusted. For example, perhaps having a sibling, especially in rural China, affects career choices. Further research is required.

In conclusion, this study found that 28.90% of the servicemen in the Automobile Transportation Troop stationed in the Western Sichuan Plateau of China showed varying degrees of mental health problems, with somatization symptoms being the most significant problem. This is likely due to the particular

stresses of the environment and the heavy transportation tasks of the jobs of these men. However, other than somatization, the mental health of the study population was relatively good. To improve the wellbeing of the servicemen of the troop, it may be important to monitor their physical health regularly and to rotate them off the plateau to other duties after a reasonable length of time. The mental health of high-risk groups should receive more attention to improve the effectiveness of military mental health services.

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