

# Suicidal Ideation, Substance Use, and Sense of Coherence in Greek Male Conscripts

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This study aimed to estimate the comorbidity of suicidal behavior and substance use in young male conscripts and to analyze the association between personal coping resources and the severity of these behaviors. A total of 1,098 Greek male conscripts participated in this study, completing the Antonovsky's sense of coherence questionnaire and a standard questionnaire concerning their lifetime and current suicidal and substance-use behavior. A proportion of 11.7% and 24%, respectively, had lifetime and current feelings that life is not worth living. The differences between past and current death wishes (8.9% vs. 9.2%), suicidal thoughts (8.3% vs. 7.6%), and suicide attempts (2.4% vs. 2.9%) were not significant. All of the subgroups with suicidal ideation or behavior showed a significantly lower sense of coherence questionnaire score as compared with the whole sample. The comorbidity of past and current suicide thoughts and substance use ranged from 16.4% to 33.3% and 31.4% to 44.2%, respectively, depending on the kind of the substance. Finally, the subjects with past or current substance use had a significantly higher incidence of past or current, respectively, suicidal ideation or behavior, as compared with those without a history of substance use. We suggest the necessity of the early detection of these high-risk behaviors applying closer monitoring and integrated prevention programs.

## Introduction

Most questionnaire studies of nonclinical populations report a high lifetime prevalence of suicidal ideation and suicidal behavior in late adolescence or young adulthood.<sup>1,2</sup> In addition, it is well documented that suicidal behavior is reported frequently by substance abusers,<sup>4-7</sup> and prevalence rates of attempted suicide range between 15% and 45%.<sup>8</sup> Several explanations for the increased risk of suicidal behavior in substance abusers have been given, whereas there is evidence that substance abuse and suicidal behavior may share some common characteristics or individual predisposition.<sup>9</sup>

Aaron Antonovsky's sense of coherence (SOC)<sup>10,11</sup> ought to explain why some people can manage stress whereas others break down. The salutogenic model of Antonovsky proposes that the individual's SOC, which is a personal orientation toward life, determines one's health experience and can be seen as a relatively stable (trait) measure.<sup>12,13</sup> Lower SOC scores were found to be correlated significantly with difficulty in performing activities of daily living, in patients with rheumatoid arthritis,<sup>14</sup> with psychopathology in a sample of psychotic patients,<sup>15</sup> with burnout and depression in a nursing staff sample,<sup>16</sup> and with inability to complete the detoxification therapy in a drug-addicted sample.<sup>17</sup>

Several studies have shown that those receiving basic military

training actually constitute a high-risk group for suicidal ideation or suicide attempt.<sup>18,19</sup> Mehlum,<sup>3</sup> using the SOC questionnaire in a sample of male conscripts, found that respondents with suicidal ideation or behavior had on average significantly lower SOC scores compared with respondents with no suicidal ideation or behavior. The present study was designed to study the prevalence of suicidal ideation and behavior and the comorbidity of suicide and substance use in young male conscripts as well as to investigate the continuity of these behaviors during the basic training and to analyze the association between personal coping resources and the severity of these behaviors.

## Methods

From 18 to 22 months, depending on the military branch, military service is compulsory in all men in Greece, and it usually begins between age 18 and 24 years. Individuals suffering from serious physical and mental disorders and/or those who apply to join the civil service are exempted. Conscripts from five major Army training bases in southern Greece were selected randomly and were asked to participate on a voluntary basis. These conscripts had come from all over the country and they represented all sociodemographic categories of Greece. The study was conducted between the 30th and the 35th day of their basic training.

A total of 1,098 trainees with a mean age of 21.5 (SD = 3.1) years actually agreed to participate in the study and completed anonymously the following questionnaires: (1) a questionnaire concerning the basic sociodemographic data; (2) the Antonovsky's sense of coherence questionnaire (SOC-13),<sup>10,11</sup> which is a self-reported measure of the SOC (the Cronbach  $\alpha$  of different studies using the SOC-13 range from 0.74 to .91);<sup>11</sup> (3) a questionnaire concerning the suicidal ideation and behavior at any time before the conscription as well as during the first month in the Army (the items were: "Have you ever thought that life is not worth living?" "Have you ever wished you were dead?" "Have you ever thought about killing yourself?" "Have you ever tried to kill yourself?"); and (4) a questionnaire concerning the drug use or abuse at any time before as well as during the first month in the Army (with questions: "Is any member of your family a substance user or abuser?" "Have you ever used a drug yourself?" "Have you ever consumed a large quantity of alcohol?" "Have you ever used hashish or pills?" "Have you ever used heroine or cocaine?").

In the questionnaires concerning suicide and drug use/abuse, the conscripts had to choose one of the following options: "yes," "I don't know/I don't want to answer," and "no." Only "yes" was considered to be a valid response. Statistical analyses were performed using the SPSS 8.0, and the procedures included  $\chi^2$  and independent sample Student's *t* test (with 95% confidence intervals) for the differences between the mean values).

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
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TABLE I

SUICIDAL IDEATION/BEHAVIOR AND SUBSTANCE USE/ABUSE AT SOME TIME IN THE PAST, AS WELL AS DURING THE BASIC TRAINING IN 1,098 CONSCRIPTS

	Past N (%)	Current N (%)
Suicidal ideation or behavior		
"Felt that life is not worth living"	129 (11.7%)	263 (24.0%)
"Wished I was dead"	98 (8.9%)	101 (9.2%)
"Thought about killing myself"	91 (8.3%)	83 (7.6%)
"Tried to kill myself"	26 (2.4%)	32 (2.9%)
Drug use or abuse		
Alcohol	250 (22.8%)	102 (9.3%)
Hashish/pills	103 (9.4%)	79 (7.2%)
Heroin/cocaine	54 (4.9%)	43 (3.9%)

### Results

Subjects with suicidal ideation or behavior and substance use or abuse at any time before as well as during the first month of the military service are shown in Table I. A proportion of 11.7% and 24% stated that they "felt that life is not worth living" before and during the service, respectively. There were not any significant differences between the previous and the current wishes of death (8.9% vs. 9.2%), suicidal thoughts (8.3% vs. 7.6%), and suicidal attempts (2.4% vs. 2.9%). A proportion of 25% stated that they had tried a drug before the service (data not shown in the table). At the end of basic training, there was a great reduction in alcohol abuse (22.8% vs. 9.3%), but there were not significant differences in the use of hashish or pills (9.4% vs. 7.2%) and cocaine or heroine (4.9% vs. 3.9%) before and after conscription.

Table II shows the SOC score that manifested suicidal ideation or behavior in the whole sample as well as in the different subgroups. All of the subgroups showed significantly lower mean SOC scores ( $p < 0.00$ ) in comparison with the whole sample.

Subjects who continued to have suicidal ideation or behavior as well as substance use during their military service are shown in Table III. All of the subgroups that had a previous suicidal behavior, as well as a previous substance use, had significantly increased incidence to demonstrate such behaviors during their first month in the army as compared with those without a such previous behavior.

The comorbidity of suicidal thoughts and substance use is

shown in Table IV. We can see that the comorbidity of past and current suicidal thoughts and substance use ranged from 16.4% to 33.3% and 31.4% to 44.2%, respectively, depending on the kind of the substance. The subjects with past as well as current substance use were found to have significantly higher incidence of past or current thoughts of killing themselves, respectively, in comparison with those without history of drug use/abuse ( $p < 0.05$ ). It is noteworthy that similar results (data not shown in the table) came from the other three suicidal subgroups of the study (i.e., those with feelings of unworthiness, those wishing to die, those with suicide attempts).

### Discussion

We consider it useful to outline some illuminating information on the Greek military service. Military service in Greece is obligatory and lasts, depending on the Army branch, between 18 and 22 months. After the 1974 Turkish invasion in Cyprus, the Greek army has been particularly alert standing on the side of Cyprus within an international regulations context. Moreover, during the last decade, the Greek army has been actively involved in peacemaking missions, such as in Somalia, Bosnia, Albany, Kosovo, and lately, Afghanistan. The development, in the near future, of a European Army is expected to intensify the staff's efforts for further flexibility, effectiveness, as well as compliance with the new needs.

The main limitations of the present study include the lack of a female control group and the lack of a follow-up evaluation during the rest of the military service. The present study was conducted anonymously, which is thought to encourage the participants to report on sensitive data. The current as well as the lifetime incidences of suicidal ideation and behavior were found to be lower than that in many other studies, which were conducted in late adolescents or young adults<sup>1</sup> and in conscripts.<sup>3</sup> Mehlum,<sup>3</sup> studying Norwegian conscripts but not carried out anonymously, found a lifetime and current incidence of "wishes to be dead" at 35.0% and 11.6%, "felt that life is not worth living" at 40.7% and 15.0%, and "thoughts about killing myself" at 35.8% and 10.0%, respectively. However, the findings of our study are in agreement with that of Mehlum,<sup>3</sup> who found low SOC score in conscripts with suicidal ideation or behavior. We found that low SOC score, which implies a tendency for the individual to regard life as purposeless or to believe that difficulties cannot be overcome, was associated with high levels of suicidal ideation and suicidal behavior. This finding can be

TABLE II

MEAN SCORES AND SD OF THE SOC QUESTIONNAIRE IN THE WHOLE SAMPLE, AS WELL AS IN THE DIFFERENT SUBGROUPS THAT MANIFEST SUICIDAL IDEATION OR BEHAVIOR

	n	Mean (SD)	t	df	p
Whole sample	1,098	59.75 (10.8)			
"Felt that life is not worth living" (past)	129	53.59 (10.5)	-6.0	128	0.000
"Felt that life is not worth living" (current)	263	52.28 (10.9)	-10.1	262	0.000
"Wished I was dead" (past)	98	52.21 (11.6)	-5.8	97	0.000
"Wished I was dead" (current)	101	49.78 (11.8)	-7.9	100	0.000
"Thought about killing myself" (past)	91	53.48 (11.2)	-4.8	90	0.000
"Thought about killing myself" (current)	83	48.28 (11.3)	-8.7	82	0.000
"Tried to kill myself" (past)	26	51.69 (11.6)	-3.2	25	0.003
"Tried to kill myself" (current)	32	51.13 (15.1)	-3.0	31	0.005

TABLE III

CONSCRIPTS REPORTING CURRENT SUICIDAL IDEATION OR BEHAVIOR AND SUBSTANCE USE OR ABUSE BY PREVIOUS SUCH BEHAVIORS

	(N)	Current Suicidality	
		N (%)	Odds Ratio (95% confidence intervals)
Past			
"Felt that life is not worth living"			
No	969	198 (20.4%)	3.9 (2.7-5.7)*
Yes	129	65 (50.4%)	
"Wished I was dead"			
No	1,000	64 (6.4%)	8.8 (5.4-14.3)*
Yes	98	37 (37.8%)	
"Thought about killing myself"			
No	1,007	54 (5.4%)	8.2 (4.9-13.8)*
Yes	91	29 (31.9%)	
"Tried killing myself"			
No	1,072	20 (1.9%)	45.0 (18.5-109.6)*
Yes	26	12 (46.2%)	
Current substance use			
Alcohol			
No	848	20 (2.4%)	20.2 (12.0-33.8)*
Yes	250	82 (32.8%)	
Hashish/pills			
No	995	14 (1.4%)	120.0 (61.8-232.4)*
Yes	103	65 (63.1%)	
Heroin/cocaine			
No	1,044	13 (1.2%)	99.1 (46.0-213.3)*
Yes	54	30 (55.6%)	

Levels of statistical significance for estimated odds ratios: \*,  $p < 0.05$ .


TABLE IV

CONSCRIPTS REPORTING PAST OR CURRENT SUICIDAL THOUGHTS BY PAST AND CURRENT SUBSTANCE USE/ABUSE

Substance use/abuse	N	Thought about killing myself"			
		Past		Current	
		N (%)	Odds Ratio (95% confidence interval)	N (%)	Odds Ratio (95% confidence interval)
Family member					
No	1,029	77 (7.5%)	3.1 (1.6-5.9)*	61 (5.9%)	7.4 (4.2-13.1)*
Yes	69	14 (20.3%)		22 (31.9%)	
Alcohol (past)					
No	848	50 (5.9%)	3.1 (2.0-4.8)*	40 (4.7%)	4.1 (2.6-6.6)*
Yes	250	41 (16.4%)		43 (17.2%)	
Alcohol (current)					
No	996	75 (7.5%)	2.2 (1.2-4.0)*	51 (5.1%)	8.4 (5.1-14.0)*
Yes	102	16 (15.7%)		32 (31.4%)	
Hashish/pills (past)					
No	995	68 (6.8%)	3.9 (2.3-6.6)*	52 (5.2%)	7.8 (4.7-12.9)*
Yes	103	23 (22.3%)		31 (30.1%)	
Hashish/pills (current)					
No	1,019	72 (7.1%)	4.1 (2.3-7.3)*	55 (5.4%)	9.6 (5.6-16.4)*
Yes	79	19 (24.1%)		28 (35.4%)	
Heroin/cocaine (past)					
No	1,044	73 (7.0%)	6.6 (3.6-12.2)*	67 (6.4%)	6.1 (3.2-11.5)*
Yes	54	18 (33.3%)		16 (29.6%)	
Heroin/cocaine (current)					
No	1,055	78 (7.4%)	5.4 (2.7-10.8)*	64 (6.1%)	12.2 (6.3-23.5)*
Yes	43	13 (30.2%)		19 (44.2%)	

Levels of statistical significance for estimated odds ratios: \*,  $p < 0.05$ 

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discussed also in accordance with previous studies that found low SOC scores to be associated with reduced activities in patients with physical diseases,<sup>14</sup> with psychopathology in psychotic patients,<sup>15</sup> and with depression in distressed healthy individuals.<sup>16</sup>

A high lifetime as well as current comorbidity of suicide and substance use was found. The conscripts with past or current history of substance use had a significantly increased incidence of suicidal ideation or behavior in comparison with those without such a history (Table IV). Furthermore, the conscripts with only current substance use had increased incidence of having current suicidal behavior in relation to those with only past substance use. These findings are in agreement with many previous studies from different countries,<sup>4,5,7,9</sup> which have shown that substance use, even in the absence of abuse or dependence are significant risk factors for suicidal behavior.<sup>20</sup>


We can see that both suicidal and substance-use behavior show a tendency to be continued during the military service because significantly more subjects with current suicidal or substance-use behavior had had in the past such behaviors in comparison with those who manifest such behaviors first during the service (Table III). However, it is noteworthy that during the first month in the Army, approximately one-fifth of the conscripts felt for the first time that life is not worth living. Also, a proportion of 6.4%, 5.4%, and 1.9% were "new cases" for the items concerning the "wishes to be dead," the suicidal thoughts, and attempts of suicide, respectively. Similarly, a proportion of 2.4%, 1.4%, and 1.2% were "new cases" for alcohol, hashish/pills, and heroin/cocaine use, respectively. Thus, it seems that suicide and substance use in otherwise healthy young men under stressful conditions, as in the present setting, cannot be sufficiently predicted. It is known that conscription entails many adaptation difficulties for young soldiers. Conscription is a stressful period because of the sudden suspension of all previous social activities, the deprivation of the previous social support system, such as family and friends, and the expectation to abide by an inflexible schedule in a period of life when the drive for independence is intense. Under these conditions in predisposed individuals, depressive and suicidal symptoms can be developed easily, whereas substances can be used as self-medication.<sup>3,9</sup>

The present sample of our study represents the general late adolescent and young adult Greek population, and the findings are in accordance with previous ones in the general Greek population.<sup>21</sup> Despite the systematic medical and psychiatric evaluation and examination, as well as the close monitoring during conscription, a large proportion of the conscripts manifested suicidal and substance-use behaviors. It is necessary for early detection of such behaviors. In this study, personal coping resources proved to be a prognostic factor for suicidal behavior, whereas in a recent study on Greek conscripts, adverse childhood experiences proved to be a prognostic factor for adjustment disorder.<sup>22</sup> We suggest that multidimensional psychomet-

ric instruments as well as systematic monitoring will help in the future with early detection and prevention of such behaviors during the army service.<sup>23-25</sup>

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