Drivers of suicidal ideation among Greek military personnel

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Drivers of suicidal ideation among Greek military personnel

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ABSTRACT
Background and Objectives: The aim of this study is to explore the effects of drug use, alcohol use, and psychiatric conditions on suicidal ideation among Greek military personnel. Design and Methods: A quantitative correlational survey design was applied, using data collected between January and September 2014 in the 414 Army Hospital in Athens. A number of officers and soldiers (n = 155) who were outpatients of the military psychiatric department completed a self-assessment questionnaire (CISQ-1 Triantafyllou, F., Giotakos, O., Tsouvelas, G., & Athanasiadou, A. (2014). CISQ-1: Primary findings from the questionnaire for the detection of critical psychopathological indicators in military personnel. E-poster presented at the World Federation for Mental Health Congress ‘Living with Schizophrenia’, Athens, Greece), which primarily focuses on the detection of critical psychopathological indicators and suicidal thoughts. An additional diagnosis was made by a psychiatrist. Results: A regression model revealed that participants who use drugs were more likely to exhibit suicidal thoughts. Moreover, those with affective disorders were more likely to exhibit suicidal ideation compared to persons with a negative diagnosis. The ones who drink occasionally were also more likely to display suicidal thoughts. Furthermore, in our predictive model affective disorder, personality disorder, and drug use associated with low wages were the strongest factors related to suicidal ideation. Conclusions: The Greek Armed Forces should undertake concentrated efforts in psychiatric and substances screening and develop suicide prevention programs with a focus on awareness and skill building.

1. Introduction
Suicide has been a controversial subject of philosophical thought in human cultures and civilizations since antiquity (Pridmore & McArthur, 2009; Van Hooff, 2002). In Western classical antiquity, suicide was perceived as an act of existential doubt and a moral response to disgrace. This perception has, though, given its place to a condemnation of self-murder as a crime and a sin, during the medieval prevalence of Christian morality. In the post-Renaissance and Enlightenment era suicide was viewed as an individual right (Ferngren, 1989; Hecht, 2013). Nowadays, suicide is being thought of as a complex, multi-factorial phenomenon and as the end step of suicidal behavior. Suicidal behavior can be defined as a process which evolves over time and includes suicidal ideation, deliberate self-harm (DSH), and suicide attempt resulting in some cases in completed suicide...
Therefore, most suicides can be viewed as the endpoint of persistent difficulties and less as impulsive acts (Appelqvist-Schmidlechner et al., 2011, p. 1).

Within the last decades the debate on the medicalization of suicidal behavior (Pridmore, 2011) has shifted the interest of researchers towards the association between suicide and mental disorders, as well as drug/alcohol use. In two meta-analyses, Harris and Barraclough (1997) and Arsenault-Lapierre, Kim, and Turecki (2004) have concluded that diagnosed mental disorders can be considered as a significant risk factor for suicide attempts and completed suicides. These findings have been strengthened by recent epidemiological studies (Nock, Hwang, Sampson, & Kessler, 2010). Psychotic disorders which are severe mental disorders and more specifically first psychotic episodes and schizophrenia are also associated with suicidal thoughts and attempts (DeVylder, Lukens, Link, & Lieberman, 2015).

whereas the suicide risk is even higher whenever there exists comorbidity with depressive disorders (Siris, 2001; Westermeyer, Harrow, & Marengo, 1991).

Additionally, findings have shown a strong relationship between personality disorders and suicidal ideation (Brodky, Malone, Ellis, Dulit, & Mann, 1997; Yen et al., 2003) while they have indicated that the suicide risk is higher in patients with dramatic and emotional personality disorders (Erkki, 1996) which are included in cluster B of personality disorders, according to DSM-V (American Psychiatric Association, 2013).

Numerous studies have underlined the strong relationship between affective (mood) disorders and suicidality (Goodwin & Jamison, 1990; Guze & Robins, 1970). Anxiety disorders, especially panic disorder and Post-Traumatic Stress Disorder (PTSD), have been found to be closely associated with an increased suicide risk (Hawgood & De Leo, 2008; Khan, Leventhal, Khan, & Brown, 2002; Sareen et al., 2005). In addition, suicidal ideation correlates especially with bipolar disorders (Chen & Dilsaver, 1996) and major depression (Dumais et al., 2005). In this context Murphy (2000) highlights the relationship between depression and the increased risk of suicidal thoughts, particularly if depression is related to drug addiction.

Additional epidemiological studies (Borges & Loera, 2010; Borges, Walters, & Kessler, 2000) have shown a strong relationship between drug use and suicidal ideation which leads to an increased risk of suicidal attempts among drug users (Johnsson & Fridell, 1997). Empirical data indicates that adolescents, young adults, and men have an overall higher risk of suicidal attempts than other groups, especially in the case of comorbidity of drug addiction and suicidal ideation (Berman & Schwartz, 1990; Crumley, 1990).

As far as the association between suicidal behavior and alcohol use and abuse is concerned, there is strong evidence from various studies (Moreira, Marinho, Oliveira, Sobreira, & Aleixo, 2015; Vijayakumar, Kumar, & Vijayakumar, 2011; Wilcox, Conner, & Caine, 2004) that alcohol abuse is an independent risk factor both for fatal and non-fatal suicidal behavior and a stronger risk factor for suicidal behavior than drug use (Cherpitel, Borges, & Wilcox, 2004; Sher, 2006). A diagnosis of an Alcohol Use Disorder (AUD), as well as self-reports of drinking levels and frequency can be used as predictors of suicidal behavior (Darvishi, Farhadi, Haghtalab, & Poorolajal, 2015; Sung et al., 2015).

Suicidal behavior in the military environment has been a matter of concern for national Armed Forces worldwide (Desjieux, Labarère, Galoisy-Guibal, & Ecochard, 2004; Fear et al., 2009; Mancinelli, 2003; Okulate, 2001). A variety of studies have underlined the predictive value of drug/alcohol use in association with a diagnosed psychiatric condition for suicides in the military (Bachynski et al., 2012; Black, Gallaway, Bell, & Ritchie, 2011; LeardMann et al., 2013).

Drug use and alcohol consumption in the Armed Forces are considered to be entirely incompatible with the military service per se, even though occasional drinking habits and their effects have not yet been fully examined in this context (Jones & Fear, 2011). Recent studies in the US Armed Forces between 1980 and 2005 indicate a steady decrease in illicit drug use and an increase in heavy drinking habits (Bray et al., 2010). A study by Marimoutou et al. (2010) within the French Army indicated high consumption of alcohol and elevated rates of occasional and regular cannabis
use among military personnel, while studies in the Armed Forces of Israel (Lerman, Israelshvilli, Vardi, & Slepon, 1993) and Kuwait (Bilal, Khatar, Hassan, & Berry, 1992) showed low drug and alcohol use in the military environment which can be traced back to strict rules against substance use and to the dominant cultural and religious traditions of these countries. Greek studies concerning drug and alcohol use in the military population have not been conducted so far, since the Greek Armed Forces do not publish official data concerning substance use in the military.

Over the last 10 years suicides among recruits (in Greece, a nine-month military service is mandatory for men) and professionals within the Armed Forces have been a concern for the military health services and a subject of social and political debates over time. The Greek military authorities do not publish yearly information on committed suicides and the official information published has often been criticized as being inaccurate. Only a limited number of studies (Dimitriou & Manaios, 1986; Giotakos, 2003; Vasileiou, 1994) have explored the phenomenon of military suicides. The study by Giotakos (2003) confirmed previous findings in foreign Armed Forces by indicating a strong correlation between drug/alcohol use and suicidal thoughts in young male conscripts.

Greece had, traditionally, low suicide rates compared to other EU and non-EU countries, as reported in previous studies (Antonakakis & Collins, 2014; Madianos, Madianou-Gefou, & Stefanis, 1993; WHO, 2012; Zacharakis, Madianos, Papadimitriou, & Stefanis, 1998). However, the Greek debt crisis, which led to the imposition of strict austerity measures from 2009 onwards, was followed by a severe social degradation. There was an increase in the use of alcohol and drugs (Kondilis et al., 2013) and thus the degradation has affected factors closely related to suicidal ideation (an increase by 184.9% between 2008 and 2011) and attempts (an increase by 161.5% between 2008 and 2011) (Economou et al., 2013) among the general population. The suicide rates rose (Branas et al., 2015; Kontaxakis et al., 2013; Madianos, Alexiou, Patelakis, & Economou, 2014; Rachiotis, Stuckler, McKee, & Hadjichristodoulou, 2015) by 35% between 2010 and 2012. The suicide mortality rate for men increased from 5.75 in 2010 to 7.43/100,000 between 2011 and 2012 (Rachiotis et al., 2015, p. 1). The suicide rate for women within the same years rose from 1.17 to 1.55. The loss of income for men and the insecurities associated with it has contributed to the vulnerability of their social role (Economou et al., 2013, p. 57). The age groups affected the most among both sexes were the age groups between 20–59 and the ones over 60 (Rachiotis et al., 2015, p. 1). Suicide is an important cause of death in the male age group that makes up the majority of the military population (Zamorski, 2011, p. 173).

The investigation of drug and alcohol use as predictive and risk factors of suicidal ideation among active military personnel (officers and recruits) is of great importance, especially for the design and implementation of effective prevention strategies. To date, there is no official and structured suicide prevention program implemented by mental health experts in the Greek Armed Forces. Therefore, the aim of this study is twofold: (1) to assess the predictive ability of the combined group of independent variables (drug use, alcohol use, psychiatric conditions) on suicidal ideation; and (2) to examine the effects of drug and alcohol abuse along with psychiatric conditions on suicidal thoughts in a sample of military personnel. We hypothesize that: (1) the combined set of independent variables will explain a proportion of the scores on suicidal ideation; and (2) alcohol and drug use, as well as a diagnosed personality disorder, will be the strongest predictors of suicidal thoughts.

1.1. Methods
1.1.1. Participants
Participants were recruited in the outpatient department and the inpatient clinic of the 414 Military Hospital of Special Diseases which they voluntarily visited in order to ask for psychological support. While women do not serve in the Greek military they are employed as staff members. In the first phase 234 persons (211 men and 23 women) were asked to complete the questionnaire, whereas a total number of 79 persons (66 men and 13 women) refused to do so. There was no feedback on the reasons for refusal. We underlined the confidentiality of the research and the anonymity of
the questionnaire. Furthermore, we emphasized that the study was being carried out in order to produce scientific knowledge and we provided detailed information in the consent form. Nevertheless, there could be a misconception among the participants that the questionnaire would be used as a mental evaluation tool from their supervisors. Because the total number of women \( (n = 23) \), as well as the high rates of refusal to complete the questionnaire \( (n = 13 / 56.5\%) \) compared to men \( (n = 211 / refusal n = 66 / 26.6\%) \) did not contribute to the homogeneity of our sample, women were excluded from the final sample.

One hundred and twenty-five soldiers and eighty-six officers (non-commissioned and commissioned) were examined by a psychiatrist from the psychiatric department who assessed the fulfillment of inclusion criteria for the participation in the survey by asking intake questions.

The inclusion criteria were: (1) being active military personnel (either professionals – officers, junior officers, or recruits); and (2) being outpatients of the psychiatric department of the 414 Military Hospital. The current research targeted individuals who were attending mental health services, independently of the severity of their condition. It was assumed that the prevalence of drug/alcohol use, psychiatric conditions, and suicidal ideation would be higher among the ones who attend mental health services.

Individuals who did not meet the inclusion criteria could not participate in the survey. The exclusion criteria were: (1) non-active military personnel and non-military (veterans, retired, family members); (2) use of illicit drugs or of a significant amount of alcohol before the completion of the questionnaire; (3) cognitive dysfunctions due to psychiatric disorders (e.g. psychotic delusions or manic symptoms); and (4) very low intellectual ability which was assessed by a clinical examination and an interview with a psychiatrist and focused mainly on conscripts, since all officers have been through intellectual ability tests by the time of their employment. The main assessment criteria were as described in DSM-V: (1) poor motor skills; (2) limitations in speech and language skills which could not be attributed to cultural differences; and (3) difficulties with self-help and self-care skills.

Once the inclusion criteria applied, the individuals were asked by a member of the research team (low to medium rank nurse officer) whether they would like to voluntarily complete the anonymous questionnaire. One hundred and fifty-five persons met the inclusion criteria and took part in the study, after giving their written informed consent. The mean completion time of the questionnaire was 10 minutes. The age of the participants ranged from 18 to 44 \( (M_{age} = 26.29, SD = 4.97) \). Power analysis of the sample was calculated by GPower Version 3.1 based on a confidence level of 95%, confidence interval of 7.84% with power at 0.95.

1.1.2. Measures

We used a questionnaire (CISQ-1 by Triantafyllou, Giotakos, Tsouvelas, & Athanasiadou, 2014) which consists of 69 demographic items (gender, age, family history, marital status, socioeconomic status) and 116 items on psychopathological symptoms related to psychotic disorder, anxiety disorder, affective disorder, and personality disorder in a multichotomous answer format (yes/maybe/no). The questionnaire additionally includes questions on suicidal ideation and alcohol habits.

Due to the fact that alcohol abuse disorder could not be measured by the self-assessment questionnaire, the items concerning alcohol habits were tested in order to create a factor on ‘alcohol use.’ Based on the interpretability of the produced factor structure, all items \( (n = 4) \) concerning alcohol habits and use (‘For a long period of time I have had an alcohol abuse problem,’ ‘I believe that I am addicted to alcohol,’ ‘Two or more times per week I drink a lot, while having fun with my friends’, ‘I like drinking alcohol alone to relax from the tension of the day’) were tested. The four-item factor provided a moderate estimate of reliability (Cronbach’ alpha = .677). However, after excluding the item ‘I believe that I am addicted to alcohol’ the internal consistency of the factor was acceptable (Cronbach’ alpha = .708). This factor was subsequently labeled ‘alcohol use.’
Suicidal ideation (‘I have thought of committing suicide’) was used in the bivariate regression analysis. Data concerning psychiatric conditions were in addition extracted directly from the psychiatric diagnosis. We have not formed a factor concerning *drug use* as the questionnaire included only one relevant question on drug abuse. Therefore data regarding this item was extracted from the diagnosis. After completion of the questionnaire and the clinical examination by a psychiatrist, the individual’s diagnosis was noted on the questionnaire sheet.

### 1.1.3. Statistical analysis

SPSS v.22 was used for the statistical analysis. AMOS v.21 was used in order to conduct Structural Equation Modeling for suicidal ideation. For the exploration of the relationships between drug use/alcohol use/psychiatric conditions and suicidal ideation, logistic regressions were conducted. Missing data was not included in the analysis. We have used the three-item factor as one variable for ‘alcohol use.’ Furthermore, the individual diagnosis allowed us to form one variable for each ‘psychiatric condition’ and one for ‘drug use.’ The logistic regression explored the odds ratios of each independent variable (with a positive and a negative diagnosis) and suicidal ideation in order to assess the relationship between independent and dependent variables. In a next step a model of suicidal thoughts which illustrates the relationships between the predictors was created.

### 1.1.4. Results

A logistic regression was performed to ascertain the effects of psychotic disorder, anxiety disorder, affective disorder, personality disorder, alcohol and drug use on the likelihood that participants display suicidal ideation. The model was statistically significant, $\chi^2(6) = 19.33, p < .005$. It explained 37.4% (Nagelkerke $R^2$) of the variance in suicidal thoughts and correctly classified 95.3% of cases (cf. Table 1).

Individuals with an affective disorder were 16.761 times more likely to exhibit suicidal ideation compared to those without an affective disorder. Those who use drugs were 19.673 times more likely to exhibit suicidal thoughts. Alcohol use presents limited statistical significance, and those who drink occasionally (two times a week or more frequently), tend to have (9.95 times) more likely suicidal thoughts. Psychotic disorder and anxiety disorder showed no statistical significance in this regression model (cf. Table 2).

A predictive model was constructed in order to illustrate the relationships between the variables that predict suicidal ideation. Based on the bivariate regression analysis, the variables eventually involved directly or indirectly in the emergence of suicidal ideation were tested. Following the procedure (Baron & Kenny, 1986; Hu & Bentler, 1999) concerning the construction of predictive models, a suicidal thoughts prediction model with very good fit was created ($p > .1$, $CFI > .95$, $TLI > .90$, $RMSEA < .08$). This model includes suicidal ideation, as well as affective disorder, personality disorder, and drug use which, according to the literature, is a predictor of suicidal ideation (Cherpitel et al., 2004; Sher, 2006) (cf. Table 3).

As illustrated in Figure 1, the socio-demographic variable ‘low wage’ predicts drug use ($R = .104, p < .05$) which in turn predicts suicidal ideation ($R = .376, p < .001$). In addition, suicidal ideation is being predicted by affective disorder ($R = .296, p < .001$) and personality disorder ($R = .198, p < .05$).

<table>
<thead>
<tr>
<th>Table 1. Model summary.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
</tr>
<tr>
<td>$\chi^2$</td>
</tr>
<tr>
<td>df</td>
</tr>
<tr>
<td>$p$</td>
</tr>
<tr>
<td>Nagelkerke $R^2$</td>
</tr>
</tbody>
</table>
Our results indicate that age does not predict suicidal ideation in this sample. Moreover, the dimensions ‘soldier’/‘officer’ do not act as a main or intermediate variable in the prediction of suicidal thoughts.

1.2. Discussion

Our findings support the results of previous studies in the Armed Forces concerning the relationship between drug/alcohol use, psychiatric disorders, and suicidal thoughts in the military personnel worldwide. The combined set of drug use, psychiatric conditions, and alcohol use explained a proportion of the scores on suicidal ideation. In contrast to the findings of various studies on anxiety disorders, especially panic disorders and Post-Traumatic Stress Disorder (PTSD) (Hawgood & De Leo, 2008; Khan et al., 2002; Sareen et al., 2005) and psychotic disorders (DeVylder et al., 2015), our results indicate that stress disorders, psychotic, and adaptive disorders do not predict suicidal behavior in the sample. The results of this study confirm previous findings which showed a strong relationship between affective disorders and suicidal ideation, as well as between personality disorders and suicidal ideation (Brodsky et al., 1997; Yen et al., 2003).

Moreover, the results of the present study confirm the conclusions of previous studies which have underlined the high association between drug use and suicidality. Drug consumption was the most significant factor associated with the likelihood of expressed suicidal ideation. As indicated by Borges et al. (2000) drug use can be a predictor of suicidality with effects mostly on suicidal thoughts and non-planned attempts, reinforcing the hypothesis that drug use is also associated with increased impulsiveness, self-aggression, and cognitive distraction. (Similar results on military populations were found by Allen, Cross, & Swanner, 2005; Conner et al., 2012; Bachynski et al., 2012.)

While the psychological pathways which explain the association between alcohol intoxication and suicidal thoughts and behavior have not yet been examined sufficiently (Pompili et al., 2010), there is evidence that the main psychological mechanisms for the association between alcohol abuse and suicidality are: (1) increase in impulsiveness; (2) facilitation of aggression/self-aggression; (3) increase of depressive feelings such as pessimism, helplessness, loneliness; and (4) constriction of attention – cognitive constriction (Hufford, 2001). However, alcohol use appears to have only limited significance for the emergence of suicidal thoughts, compared to drug use in our regression model. Similar results regarding the significance of alcohol use were indicated in the study of Appelqvist-Schmidtlechner et al., 2011.

Certain factors, including personality disorder, affective disorder, and drug use strongly associated with low wage, emerged as the main risks for suicidal thoughts in our predictive model.

Table 2. Rates of variables in the equation.

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE</th>
<th>p</th>
<th>Exp(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychotic Disorder</td>
<td>.387</td>
<td>1.774</td>
<td>.827</td>
<td>1.472</td>
</tr>
<tr>
<td>Anxiety Disorder</td>
<td>1.527</td>
<td>1.322</td>
<td>.248</td>
<td>4.605</td>
</tr>
<tr>
<td>Affective Disorder</td>
<td>2.819</td>
<td>1.396</td>
<td>.043</td>
<td>16.761</td>
</tr>
<tr>
<td>Personality Disorder</td>
<td>2.619</td>
<td>1.682</td>
<td>.119</td>
<td>13.718</td>
</tr>
<tr>
<td>Drug Use</td>
<td>2.979</td>
<td>1.307</td>
<td>.023</td>
<td>19.673</td>
</tr>
<tr>
<td>Alcohol Use</td>
<td>2.298</td>
<td>1.176</td>
<td>.051</td>
<td>9.950</td>
</tr>
<tr>
<td>Constant</td>
<td>−20.561</td>
<td>8.875</td>
<td>.021</td>
<td>.000</td>
</tr>
</tbody>
</table>

Note: Variable(s) entered on step 1: Adjustment Disorder; Psychotic Disorder; Anxiety Disorder; Affective Disorder; Personality Disorder; Drug Use; Alcohol Use.

Table 3. Goodness-of-fit indices of suicidality model.

<table>
<thead>
<tr>
<th>df</th>
<th>X²</th>
<th>p</th>
<th>CFI</th>
<th>TLI</th>
<th>RMSEA</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>3.629</td>
<td>.727</td>
<td>1.000</td>
<td>1.194</td>
<td>.000</td>
</tr>
</tbody>
</table>

Note: df: Degrees of Freedom, Goodness-of-fit of the model: X²; p: Probability level, CFI: Comparative fit index, TLI: Tucker-Lewis Index, RMSEA: Root Mean Square Error of Approximation.

Our results indicate that age does not predict suicidal ideation in this sample. Moreover, the dimensions ‘soldier’/‘officer’ do not act as a main or intermediate variable in the prediction of suicidal thoughts.
A limitation of the present study is that a generalization of the results is not possible as the participants were outpatients of the Psychiatric Department of the Military Hospital who voluntarily asked for psychological support. Although the sample included a high number of outpatients of the Military Psychiatric Hospital, a larger sample of more than 300 participants would provide more accurate results, ensuring the representative distribution of the population. In addition, there is no evidence concerning the internal consistency, reliability, and validity of the CISQ-1 questionnaire which has only been tested in pilot studies so far. This could have affected the findings. Furthermore, the diagnosis of psychiatric disorders was not categorized according to international classifications of mental disorders such as ICD-10 (World Health Organization, 1992) and DSM-5 (American Psychiatric Association, 2013) and was not accurate in defining the specific disorder. A further limitation is that we did not distinguish between various personality disorders due to an inherent deficiency of the diagnostic questionnaire used in this study. Moreover, the fact that 79 persons refused to take part in the study could indicate decreased trust and a misconception that there is no distinction between research and clinical care in the military setting.

Even though we have not examined specific risk factors related to childhood adversities and adverse life events, it is obvious that personality disorders, affective disorder, and drug use have their roots in adverse childhood and life events. The majority of people who suffer from these disorders have experienced negative life events.

Moreover, the comorbidity of personality and affective disorders and its relationship with suicidality was not examined, even though this comorbidity is closely associated with a higher risk of completed suicide (Black, Blum, Pfohl, & Hale, 2004; Erkki, 1996). In addition, the comorbidity of psychiatric disorders and substance use was not explored. Finally, the specific personality traits in individuals with psychiatric disorders and the underlying psychological mechanisms which could

Figure 1. Predictive model of suicidal ideation.
mediate the emergence of suicidal thoughts in substance users and heavy drinkers should be examined in future studies.

Taking into consideration the findings of the present study and the existing literature in the field of psychiatric conditions, drug/alcohol use and suicidality, as well as the present policy framework in the Greek Armed Forces concerning substance use, psychiatric prevention, and the phenomenon of suicide, useful conclusions could be drawn concerning the suicide prevention policies and programs in the Greek Armed Forces. The candidates at military schools undertake a psychological evaluation with respect to psychopathological symptoms before their enrollment, although the officers (commissioned or non-commissioned) rarely undertake a psychological evaluation during their annual general medical examination. As far as recruits are concerned, they are examined by a psychologist and if necessary by a psychiatrist on the first day of their recruitment and when transferred to another unit.

While psychiatric disorders are among the leading health-related causes for not serving, the psychological evaluation during military service is insufficient. Therefore, the suicide prevention strategy of the Greek Armed Forces health care system should, first of all, focus on the further development, systematization, and intensification of psychiatric evaluation by using both psychiatric assessment tools and clinical examinations by psychiatrists on a monthly basis for recruits and a yearly basis for professionals. The examinations should additionally include questions on suicidal ideation or intent. This would contribute to the constant evaluation of changes in the mental health status of recruits and personnel in order to recognize timely psychiatric conditions which have been found to increase the risk of suicidal ideation. For those who show psychiatric conditions, a direct intervention and frequent monitoring, in terms of psychological support, should be planned.

In addition, the legal and administrative framework concerning the control of substance and alcohol use should be implemented as designed and described in existing military regulations, according to which both professionals and recruits ought to have frequent examinations (blood and urine tests) for the identification of drug use and heavy drinking. Currently, officers have to take blood tests which can reveal frequent substance and alcohol use every two years and there is also no periodic examination for substance use concerning recruits. Psychological interventions should be planned for the ones whose alcohol and substance use is classified as problematic, before work-related sanctions are applied.

Although the control of the prevalence of psychiatric disorders and substance use can be useful for decreasing suicide risk in the military, the present findings also highlight the need for a multifactorial suicide prevention program in the Greek Armed Forces based on prevention programs applied in other countries (Bagley, Munjas, & Shekeile, 2010; Gordana & Milivoje, 2007; Rozanov, Mokhovikoav, & Stiliha, 2002), since the reduction of risk factors is only one aspect of an integrated approach. Other important aspects are skill building (problem-solving and conflict resolution) and awareness with respect to the sensitive issue of suicidality. Awareness can be raised through briefings for military leaders, soldiers, and professionals. They can include background information on suicidal behavior (risk factors, warning signs, implications for help-seekers) and helpful actions and behaviors in case of suicidal ideation. It is essential that the information entails available resources e.g. psychosocial support after life crises, and access to high-quality confidential psychiatric care and encouragement for help-seeking behavior among conscripts and professionals. It is possible that such an approach could reduce the suicide rate, since suicide is the endpoint of a process, a fact that makes timely intervention possible.

Future research should examine the relationship between socioeconomic factors and suicide risk in the military environment, and concentrate on the mediating role of various socioeconomic factors in the prevalence of psychiatric disorders and substance use associated with high risk of suicidality, as well as on the occupation-specific risk factors of suicide in the workplace of the Armed Forces, as the peculiarities of the military have been found to influence the suicide method chosen (Mahon, Tobin, Cusack, Kelleher, & Malone, 2014). Besides, it is essential for future
research to focus more on protective instead of risk factors in order to strengthen suicide prevention programs.

The present study contributes to the Greek literature concerning suicidality by examining the relationship of both psychiatric conditions diagnosed by psychiatrists and substance and alcohol use associated to suicidal ideation. In addition, this study included a military sample of both recruits and professionals, while previous studies (Dimitriou & Manaïos, 1986; Giotakos, 2003; Vasileiou, 1994) examined only samples of recruits, thus ignoring the suicide risk from drug/alcohol use and psychiatric disorders in the population of military professionals. It is expected that the present study will not only raise awareness in the Greek Armed Forces Medical Services concerning substance use rates and the prevalence of psychiatric conditions among the military population as well as its association with the increased risk for suicidal thoughts, but will also lead to initiatives regarding the more regular screening of psychiatric disorders, the control of substance use, and the development of suicide prevention programs in the Greek Armed Forces.

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**Notes on contributors**

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Fotini Athanasiadou is a PhD candidate in the field of Mental Health and Behavioral Science. She has pursued undergraduate studies in the School of Nursing of the Greek Armed forces. In addition, she has pursued undergraduate studies in Italian and Spanish Philology. Furthermore, she holds a Master’s degree in the field of Mental Health.

Orestis Giotakos is the former Director of the Psychiatric Clinic of the Army Hospital of Athens. He graduated in 1985 from the Military Medical School, University of Thessaloniki, Greece, and he has been working as a Military Psychia-trist since 1992. In 1998, he obtained a M.Sc. in Neuroscience at the Institute of Psychiatry, University of London. In 2003 he received his doctorate at the Medical School, University of Athens. He is the founder of the non-profit organization ‘obrela – Neuroscience & Mental Health’ (www.obrela.gr). He has conducted several investigations and has written a number of articles and books on psychopathology and prevention strategies.

**References**


Appendix. CISQ-1 Questionnaire

(Triantafyllou et al., 2014, adapted and translated to English by Vlazakis Alexandros)

This is a voluntary and anonymous survey concerning the psychopathological indicators in users of mental health services, under the responsibility of 414 Military Hospital Psychiatry. The data and results of this survey will be used exclusively for scientific purposes.

Please indicate whether you agree or disagree with all the following statements by placing an X:


The following questions concern your life as a whole. Please indicate whether you agree or disagree with all the following statements by placing an X:


If there is a history of drug misuse, please specify:

BP. Age of first drug use: ...
BQ. Age of first cannabis use: ...
BR. Age at first use of cocaine or pills: ...
1. My mouth gets dry
2. Various noises surprise me a lot
3. When I leave the house I check several times if I have turned off switches or if I have locked the door
4. I find it difficult when I use public transport
5. I feel embarrassed or ashamed, when I am in front of people
6. Some mornings it is very difficult to get out of bed
7. I am a person with special skills
8. Most of the time I feel that others criticize me
9. I forget very easily
10. A family member has committed suicide
11. Someone has challenged me so much that he pulled me beyond my limits and made me beat him
12. I always think positively of people around me
13. I feel that I am not getting enough air to breathe
14. I may sit for long without doing anything (like I have lost my concentration) and I don’t know how time passed
15. Recently, it is been difficult to make ends meet due to severe financial difficulties
16. I periodically express my anger by breaking things
17. I have a problem in my appearance that makes me feel uncomfortable
18. I have undergone cosmetic surgery in order to improve my appearance
19. I find it hard to gain other people’s attention
20. For a while I was really unusually active and happy
21. I find it difficult to travel by plane
22. I am very careful about diseases and germs
23. I find it impossible to be at rest, I feel hyperactive and my body experiences intensity
24. I treat everyone kindly
25. It has happened to me to go back home to check on the door or on switches and/or electric devices
26. I am really so shy, that I sometimes do not look others in the eyes
27. My appetite has increased
28. Sometimes I am so low on energy, that I do everything very slowly
29. My sex drive is low
30. I often scold others who do not respect me
31. Generally I have pains in my body
32. A family member used drugs
33. I have used drugs in the past
34. I use some drugs
35. I have a heart problem
36. I have a problem with my thyroid
37. I have some respiratory problems
38. I have a neurological problem
39. I have a problem with my digestive system
40. I always tell the truth
41. My hearing is so good that I hear noises more intense than other people do
42. Sometimes I hear a buzzing in my ears
43. It has happened to me to hear noises or voices in my head while other people around me were not able to hear them
44. When I am concerned on something, I think about it so strongly that I hear my thoughts as voices in my head
45. It has happened to me to see something like a vision
46. I sleepwalk
47. It has happened to me to see something like a vision, while I was half asleep
48. I find it difficult to stay in closed rooms, e.g. in an elevator
49. I have been sentenced in the past
50. My appetite has decreased
51. I often feel worthless
52. I have been a victim of a natural disaster (e.g. earthquake, fire)
53. Most people around me are malignant
54. I have gone to courts to find justice
55. Generally I feel intensity, as if waiting for something bad to happen
56. I have lived a period in my life during which I didn’t need sleep and I stayed awake / or I was hyperactive
57. I feel like I have a knot in my throat and a difficulty in swallowing
58. Because of the way life is nowadays, I can no longer trust my own people
59. I can hold my nerves, but occasionally I have an outburst of crying and breaking things
60. Sometimes my thoughts are so fast that I don’t have time to express them
61. I get angry easily
62. I feel a weakness in my body

(Continued)
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<tbody>
<tr>
<td>63.</td>
<td>I often think repeatedly of specific things that concern me, so that my thoughts ruminate for a while</td>
<td>Yes Maybe No</td>
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<tr>
<td>64.</td>
<td>I get easily moved</td>
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<td>65.</td>
<td>I feel embarrassed or ashamed when I eat in front of others</td>
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<td>66.</td>
<td>With so many things going on around us, I fear that something could affect my health</td>
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<td>67.</td>
<td>I have been accused in court of something I have done</td>
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<td>68.</td>
<td>I hear the beating of my heart</td>
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<td>69.</td>
<td>I often feel guilty or remorseful</td>
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<td>70.</td>
<td>My abdomen gets swollen</td>
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<td>71.</td>
<td>Sometimes unpleasant images and thoughts come into my mind</td>
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<td>72.</td>
<td>In order not to get fat, sometimes I vomit after eating and so I have managed to control my weight</td>
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<td>73.</td>
<td>I have experienced such intense days that I could not sleep</td>
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<td>74.</td>
<td>I have beaten myself / got self-injured during an anger outburst</td>
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<td>75.</td>
<td>Recently I have witnessed important changes in my personal or family life (e.g. marriage, problems in my relationship, divorce, childbirth)</td>
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<td>76.</td>
<td>I always think positively and benevolently of others</td>
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<td>77.</td>
<td>Sometimes I feel like I would faint</td>
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<td>78.</td>
<td>It has happened to me to faint and hear others around me, while being unable to react</td>
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<td>79.</td>
<td>It has happened to me to faint and not having any contact with the environment around me</td>
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<td>80.</td>
<td>I have been sexually harassed</td>
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<td>81.</td>
<td>I have been raped</td>
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<td>82.</td>
<td>I swear when I am angry</td>
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<td>83.</td>
<td>At some point I felt that life is meaningless</td>
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<td>84.</td>
<td>Sometimes I wish I had died</td>
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<td>85.</td>
<td>I have thought of committing suicide</td>
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<tr>
<td>86.</td>
<td>I have attempted to commit suicide</td>
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<td>87.</td>
<td>Sometimes I feel that I shiver</td>
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<td>88.</td>
<td>Twice a week or more often I drink a big amount of alcohol while having fun with my friends</td>
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<td>89.</td>
<td>I have been victim of a serious injury (e.g. car accident, assault)</td>
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<td>90.</td>
<td>I feel really hopeless</td>
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<td>91.</td>
<td>I feel something heavy on my chest that doesn’t let me breathe</td>
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<td>92.</td>
<td>Sometimes I think that I could do something that scares me, however I know that I will not do anything</td>
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<td>93.</td>
<td>I find it difficult to be in big crowded places, such as in a cinema or a night club</td>
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<td>94.</td>
<td>Sometimes I feel like being estranged from myself and observing me from a distance</td>
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<td>95.</td>
<td>A very important person for me died recently</td>
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<td>96.</td>
<td>There have been times when I have neglected myself so much, that it was difficult even to take a shower</td>
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<td>97.</td>
<td>I find it difficult to relax</td>
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<td>98.</td>
<td>I like drinking alcohol alone to relax from the tension of the day</td>
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<td>99.</td>
<td>Sometimes I make certain movements or tell myself some specific words and I feel that this will exorcise something bad</td>
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<td>100.</td>
<td>I have headaches</td>
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<td>101.</td>
<td>Sometimes I think that maybe some people around me can read my thoughts</td>
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<td>102.</td>
<td>I experience bulimic crises</td>
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<td>103.</td>
<td>If I get irritated, I can easily see red</td>
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<td>104.</td>
<td>My sleep is intermittent and stressful</td>
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<td>105.</td>
<td>Recently I encountered a serious health problem</td>
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<td>106.</td>
<td>I have felt suddenly something like panic with tachycardia and I thought that I would faint</td>
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<td>107.</td>
<td>I use to count things such as bars on a fence, the paving slabs etc.</td>
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<td>108.</td>
<td>Sometimes I empty my mind and my thoughts suddenly stop</td>
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<td>109.</td>
<td>Sometimes I feel dizzy and instable</td>
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<td>110.</td>
<td>Even if I get angry with someone, I treat him politely and try to understand him</td>
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<td>111.</td>
<td>Sometimes I eat so much, that I feel discomfort and I vomit to get my stomach relieved</td>
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<td>112.</td>
<td>For a while I spent a lot of money, as if I had lost control</td>
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<td>113.</td>
<td>I find it hard to fall asleep</td>
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<td>114.</td>
<td>Recently I had a serious accident</td>
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<td>115.</td>
<td>I suffer from nausea and vomits</td>
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<tr>
<td>116.</td>
<td>Others tell me that I am thin, but I think that I have a problem with my weight</td>
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