

## Research article Ερευνητική εργασία

# Factor analysis and normative scores of Alcohol Use Disorders Identification Test (AUDIT) in a representative sample of the general population of Greece

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The most widely used screening instrument for alcohol use disorders (AUD) is the Alcohol Use Disorders Identification Test (AUDIT) which, although initially developed for use in primary care, is increasingly used in general population studies. Previous studies that have assessed the screening properties and the factorial structure of AUDIT were mostly based on clinical samples and did not take into consideration the possible differences in AUDIT factorial properties between subgroups according to age, sex and mental health status. Aim of the current study was to explore the distribution of AUDIT and AUDIT-Consumption (AUDIT-C) scores and the factorial structure of AUDIT in subgroups of participants according to sex, age and the presence of mental health disorder. Descriptive statistics and Exploratory/Confirmatory Factor Analysis of AUDIT were extracted in a general population representative sample of 4,894 Greek participants. Different cut-offs are suggested in order to screen 10% of the population with the highest severity of AUD into the aforementioned subgroups. Generally, a cut-off between 10–12 at AUDIT score is suggested for screening the 10% with the highest severity of alcohol use problems in subgroups of frequent alcohol consumers (e.g. younger males) and a cut-off between 4–5 would screen the 5% with the highest severity of alcohol use problems in subgroups of low alcohol-consumers (e.g. older women). A cut-off of 3 in AUDIT-C score is suggested for screening 25% of individuals with the heaviest alcohol consumption. The traditional three-factor model does not explain better the factorial structure of AUDIT compared to the 2-factors model. The AUDIT is a reliable instrument for assessing AUD and heavy alcohol consumption in the Greek general population. Age, sex and the presence of mental health disorders should be taken into consideration when selecting cut-offs for screening purposes in non-clinical samples.

**Key words:** Alcohol Use Disorders Identification Test (AUDIT), AUDIT-C, validation, community sample, factorial structure, Exploratory/Confirmatory Factor Analysis (EFA/CFA), Greece.

## Introduction

Alcohol use disorders (AUD) are among the most prevalent mental disorders with an increasing health and social burden.<sup>1</sup> During the past decade, intensive research has led to the development of a range of effective treatments for AUD in primary care.<sup>2,3</sup> Screening with structured instruments for AUD is recognized as an essential step,<sup>4</sup> not only for identifying patients who are eligible for the available interventions but also for specifying the intensity or the type of these interventions.<sup>5–8</sup> However, despite the extensive research on screening instruments, AUD often remain unrecognized in clinical practice.<sup>9</sup>

The most widely used screening instrument for AUD is the Alcohol Use Disorders Identification Test (AUDIT) which consists of 10 questions, each scored using a five-point Likert scale (from 0 to 4). AUDIT two types of assessment: (1) a continuous (dimensional) measure of alcohol use problems and (2) a dichotomous assessment of the presence or absence of AUD (“abuse” and/or “dependence”).<sup>10</sup> In the dimensional approach, cut-offs of AUDIT-score correspond to percentiles of the ascending (from less to more) total distribution of alcohol problems on the sampled participants, while in dichotomous approach cut-offs of AUDIT-score correspond to the presence (or absence) of an AUD diagnosis. Both types of measures are useful in screening alcohol use problems, for slightly different reasons.

The dimensional use of AUDIT-score is more useful from a public health perspective as it allows categorization of individuals in groups of increasing severity of AUD, taking into account the full spectrum of the distribution of alcohol related behaviors in a population (“levels of risk”). Additionally, it can serve as a valuable tool for counseling and prevention purposes.<sup>5,8</sup> On the other hand, the traditional use of dichotomizing the AUDIT-score, may be more useful in clinical settings where the need is to discriminate patients who meet the criteria for a specific diagnosis of AUD (“positive”) from those who do not (“negative”).

Several studies have tried to establish optimal AUDIT cut-offs for diagnosing AUD in various samples of patients and their differences imply that the

use of universal AUDIT-cut offs for diagnosing AUD may be questionable.<sup>11–14</sup> The major differences in cut-off points for diagnosing AUD were observed between subgroups based on sex, age,<sup>11,15,16</sup> or the presence of another psychiatric diagnosis.<sup>17,18</sup> Moreover, an additional disadvantage of considering AUDIT score as a dichotomous measure has been raised by the inconsistency in the results from studies which examined the factorial structure of AUDIT. Most of these studies support that variations in the AUDIT items are explained by two latent factors, i.e. “consumption” (items 1–3) and “alcohol use problems” (items 4–10), arguing that there is no need to further differentiate “alcohol use problems” in “dependence” and “abuse”.<sup>19–28</sup> Other studies argued for a three-factor model by considering two separate factors for items 4–10 (“abuse” and “dependence”) rather than into one common factor.<sup>29–31</sup> The above findings cast doubts in the traditional approach where AUDIT corresponds to two distinct AUD diagnoses and indirectly support the dimensional approach of AUDIT score.

Examining the distribution of AUDIT score as well as the structural properties of AUDIT across populations with heterogeneity in alcohol consumption/norms could provide adequate information about the patterns of alcohol use and AUD in those populations.<sup>11</sup> Only one study from Greece examined the screening properties of AUDIT in a convenient clinical sample of patients and healthy controls.<sup>32</sup> This study concluded a relatively high<sup>11</sup> sensitivity and specificity using a cut-off of 8 for diagnosing AUD but did not examined possible differences between subgroups, according to sex or the presence of mental disorders as well as the factorial structure and score distribution of AUDIT.

Our aim is to validate AUDIT in the Greek general population by examining its factorial structure and the distribution of AUDIT score in a national representative sample of Greek participants as well as in subgroups based on sex, age and the presence of mental health problems. To our knowledge, there is no other study having used AUDIT with a large representative sample of the general population of Greece.

## **Material and method**

### ***General description of the dataset***

The dataset was collected in the framework of the 2009–2010 “National Psychiatric Morbidity Survey”, which was carried out in Greece, using a nationally representative sample of the adult population (18–70 years). The study was organized by the Ministry of Health and carried out by the Department of Psychiatry, University of Ioannina. Eligible for participation were all adults living in private households in Greece.

### ***Sampling procedure***

A three-stage sampling design was used with: (1) enumerator areas (one or more unified city blocks based on the 2001 census survey) selected at the first stage, (2) households within the selected areas at the second stage and (3) individuals within the households at the third stage.

The primary sampling units (enumerator areas) were first stratified according to the degree of urbanization (3 strata). The two major cities, Athens and Thessaloniki, were stratified different into 31 and 9 strata of equal size, respectively. The projected sample size for the whole survey was 9,800 individuals with a constant 0.085% sampling fraction for each stratum 0.085%.

Details of the sampling procedure can be found elsewhere.<sup>33</sup>

### ***Data collection and response rate***

Data was collected from lay-trained researchers/interviewers. All instruments used were computerized and responses to the questions were entered directly to a laptop computer. Overall response rate was 54% with a range between 51% and 60% among regions. Refusals were more common in the subgroups of women and middle-aged participants (40–55 years old). Differences between the sample and the 2001 census population data were small. A total number of 4,894 participants were included in our analysis.

### ***Assessment of alcohol use Disorders***

Alcohol use disorders were assessed with AUDIT 10 and alcohol consumption with AUDIT-C (Consumption subscale) comprised by the first three questions of

AUDIT (consumption, frequency, binge drinking).<sup>34</sup> Total AUDIT score is ranging from 0 (totally abstain) to 40 and AUDIT-C score is correspondingly ranging from 0 to 12.

### ***Assessment of sufferers from Depression/Anxiety***

Psychiatric morbidity was assessed with the Greek version of the Revised Clinical Interview Schedule (CIS-R), a fully structured psychiatric interview designed to be used by trained lay-interviewers,<sup>33</sup> assessing the presence and severity of 14 different common psychiatric symptoms. Additional questions, including questions assessing the impairment of functioning and duration of symptoms, enable the diagnosis of six common mental disorders (depressive episode, generalized anxiety disorder, all phobias combined, panic disorder, obsessive compulsive disorder, mixed anxiety and depression disorder) according to the ICD-10. The participants who implement criteria for at least one of the previous diagnosis are labeled as sufferers from “Depressive/anxiety disorders” in our analysis.

### ***Statistical analysis***

The factorial structure of AUDIT was assessed using Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA).

The EFA was conducted using “principal factor analysis” method to examine the number of dimensions warranted to better explain the observed variability in responses. Initially, all the possible factors were extracted and eigenvalues were represented in relation to the number of extracted variables in scree-plots. In order to further compare the fitness of data between 2-factors and 3-factors models, we estimated the “factor loadings” of each question in the considered factors, after an orthogonal rotation of the loadings matrix. The “uniqueness” of each AUDIT-question was calculated separately into the 2-factor and 3-factor models, as a measure of “model fitness”. Generally, questions with factor loading <0.4 in one factor, are considered as poorly correlated with this factor. Changes <10% in “uniqueness” of each question after the addition of one extra factor, indicate that the addition of this extra factor does not substantially improve the explanation of the structure of an instrument.

CFA was conducted to assess whether the 3-factors model ["consumption" (questions 1–3), "dependence" (questions 4–6) and "harmful use/abuse" (questions 7–10)] offer better fitness to the inter-relation of AUDIT questions (explain better the observed variability of the data) comparing to the 2-factors model ["consumption" (questions 1–3), "Alcohol use problems/disorders" (questions 4–10)].

The analyses were performed separately in subgroups based on sex, age and the presence of mental disorders. EFA was conducted using Statistical Package for Social Sciences (SPSS), Vol 10 (SPSS Inc., Chicago, IL, USA). CFA was performed with LISREL statistical package using «underlying variable approach» (UVA) method.

## Results

### ***Distribution of AUDIT score across subsamples of the general population***

Males, sufferers from depression/anxiety disorders and younger participants (<35 years old) presented higher AUDIT-scores and consequently more alcohol related problems, comparing to

women, participants without depression/anxiety and older individuals (>55 years old), respectively. Abstinence or occasional alcohol use were more common in women and older individuals (table 1). In general, the distribution of AUDIT score varies between subgroups according to sex, age group and the presence of psychiatric morbidity (figure 1).

Considering participants without depression/anxiety disorders, in the subgroup of higher alcohol consumption (i.e. younger males), a cut-off point of 11 in AUDIT-score would effectively screen around 10% of the participants with the highest severity of AUD. In the subgroup of lower alcohol consumption (i.e. older women) a cut-off point of 4 was needed to screen 5% of the participants with the highest severity of AUD. Considering mental health sufferers, the above-mentioned cut-off points would screen 25% and 10% of participants with the highest severity of AUD, respectively (table 2).

Regarding AUDIT-C, in the subgroup of participants without depression/anxiety diagnosis, a cut-

**Table 1.** Prevalence of AUD and AUDIT (or AUDIT-C) cut-offs for ascending percentiles of the total AUDIT (AUDIT-C) score according to age group, sex and the presence of Depressive/anxiety disorders.

	Presence of AUD		Cut-offs of AUDIT (or AUDIT-C) in Percentiles of severity of Alcohol Use Problems				
	Abuse (AUDIT $\geq$ 8) <sup>i</sup>	Dependence (AUDIT $\geq$ 15) <sup>i</sup>	25th	50th	75th	90th	95th
Age group							
18–35	12.8%	2.7%	1 (1)	2 (2)	4 (4)	9 (5)	12 (7)
36–55	11.0%	3.4%	1 (1)	2 (2)	4 (3)	8 (6)	13 (7)
56–70	6.9%	1.7%	0 (0)	1 (1)	3 (3)	6 (5)	9 (6)
Sex							
Male	19.0%	5.1%	2 (1)	3 (3)	6 (5)	11 (7)	15 (9)
Female	2.6%	0.5%	0 (0)	1 (1)	2 (2)	4 (3)	6 (4)
Psychiatric disorder <sup>ii</sup>							
Yes	13.8%	6.0%	0 (0)	2 (1)	4 (3)	10 (6)	15 (8)
No	10.2%	2.2%	1 (1)	2 (2)	4 (3)	8 (5)	11 (7)

Note: cut-off in parentheses refer to AUDIT-C scores

(i) cut-offs proposed by the developers of the AUDIT and a previous study in a Greek sample (Moussas et al 2009:32), (ii) Any Anxiety/Depressive ICD-10 Diagnoses according to CIS-R

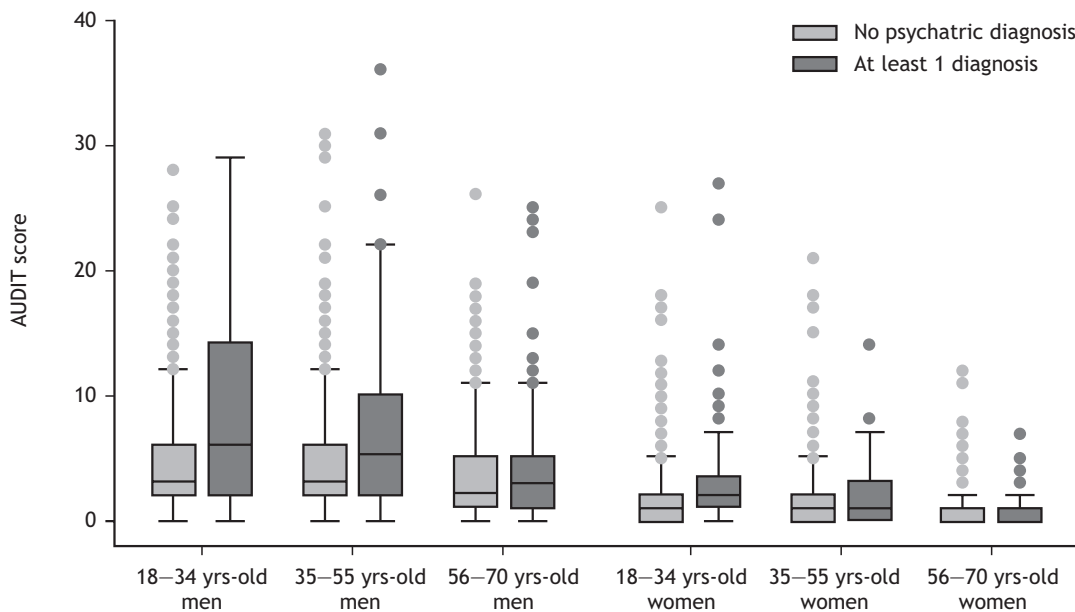


Figure 1. Boxplot of AUDIT score distribution.

Table 2. Cut-off values of AUDIT (or AUDIT-C) score of 75th 90th and 95th percentile of severity of Alcohol Use Problems in subgroups based on Age Sex and the presence of Depression/Anxiety Diagnosis in a nationally representative sample of Greek participants.

Percentiles of AUDIT (or AUDIT-C) score		75th	90th	95th	75th	90th	95th	
<b>Age</b>	<b>Men</b>		<b>Women</b>					
	18-35	7 (5)	12 (7)	14 (8)	3 (2)	5 (4)	6 (5)	
	36-55	6 (5)	12 (7)	16 (9)	2 (2)	4 (3)	5 (4)	
	56-70	5 (4)	9 (6)	13 (8)	1 (1)	2 (2)	4 (3)	
<b>Sex</b>	<b>No Psychiatric Diagnosis</b>			<b>Psychiatric Diagnosis</b>				
	Male	6 (5)	10 (6)	14 (8)	9 (5)	17 (8)	21 (10)	
	Female	2 (2)	4 (3)	5 (4)	3 (2)	4 (3)	7 (4)	
<b>Sex</b>	<b>Age</b>	<b>No Psychiatric Diagnosis</b>			<b>Psychiatric Diagnosis</b>			
		Men	18-35	6 (5)	11 (6)	14 (8)	13 (7)	19 (8)
		36-55	6 (5)	11 (7)	14 (9)	10 (6)	19 (9)	21 (10)
		56-70	5 (4)	9 (6)	12 (8)	5 (4)	11 (5)	15 (9)
Women	18-35	2 (2)	4 (4)	6 (5)	3 (3)	7 (4)	9 (6)	
	36-55	2 (2)	3 (3)	5 (4)	3 (2)	4 (4)	7 (4)	
	56-70	1 (1)	2 (2)	4 (3)	1 (1)	2 (2)	4 (3)	

Note: cut-off in parentheses refer to AUDIT-C score

off score of 6 would effectively screen 10% of the male individuals with the heaviest alcohol consumption while a cut-off of 4 would screen 5% of the females with the heaviest consumption. In the

subgroup of participants with depression/anxiety disorders, the previously mentioned AUDIT-C cut-offs would screen 20% of the males and 5% of the females presenting the heaviest alcohol



consumption. The variability in the distribution of scores across subgroups of the total sample is less for AUDIT-C scale comparing to AUDIT (table 2). Generally, an AUDIT-C score of 3 or less could be considered as a cut-off point of moderate use (<75th percentile of alcohol consumption distribution) across the studied subgroups, with the exception of women, where an AUDIT-C score of 3 corresponds to 90th percentile (table 1).

### **Factorial Structure of AUDIT score across subsamples of the general population**

Based on the scree-plots, it is not clear whether a 3-factor solution explains sufficiently better the observed variability of the answers compared to a 2-factor solution (figure 2).

#### *Exploratory factor analysis*

The consideration of 3 subsequent factors in the factorial structure of AUDIT does not yield better values for the “uniqueness” of each item, comparing to the 2-factors solution. The variability of the “uniqueness” of each item between the two models (bi-factorial & tri-factorial) is <10% for all items (table 3). The same results can also be concluded when the EFA was performed separately in subgroups based on sex, age and the presence of depression/anxiety disorders. Taken into account the above, the two factors solution is considered adequately to explain factorial structure of AUDIT.

In the 1st factor, items 1–3 present the higher loadings, corresponding to “consumption”. In the 2nd factor, items 4–8 present the higher “loadings”, corresponding to “alcohol use problems”. Items 9 (alcohol related accidents) and 10 (advice to quit drinking) present relatively lower “loadings” in both previously mentioned factors. Item 9 is better correlated with the “alcohol problems” factor (2nd factor) and item 10 with “consumption” factor (1st factor). The 3 first AUDIT questions are correlated more strongly with the “consumption” factor (1st factor) comparing to the correlation of the items 4–8 with the “alcohol problems” factor (2nd factor).

Especially for the subgroup of participants with “depression/anxiety disorders”, item 4 (unable to stop), item 7 (guilt) and – secondarily – item 5 (role

failure) and item 10 (advice to quit drinking) are associated more strongly with the “consumption” factor comparing with the “alcohol problems” factor. Reversely, items 6 (morning drinking) and 8 (blackouts) are more strongly associated with the “alcohol problems” factor. Item 9 shows low relevance (“loading”) with each of the 2 considered factors in women, older individuals and sufferers from depression/anxiety.

#### *Confirmatory factor analysis*

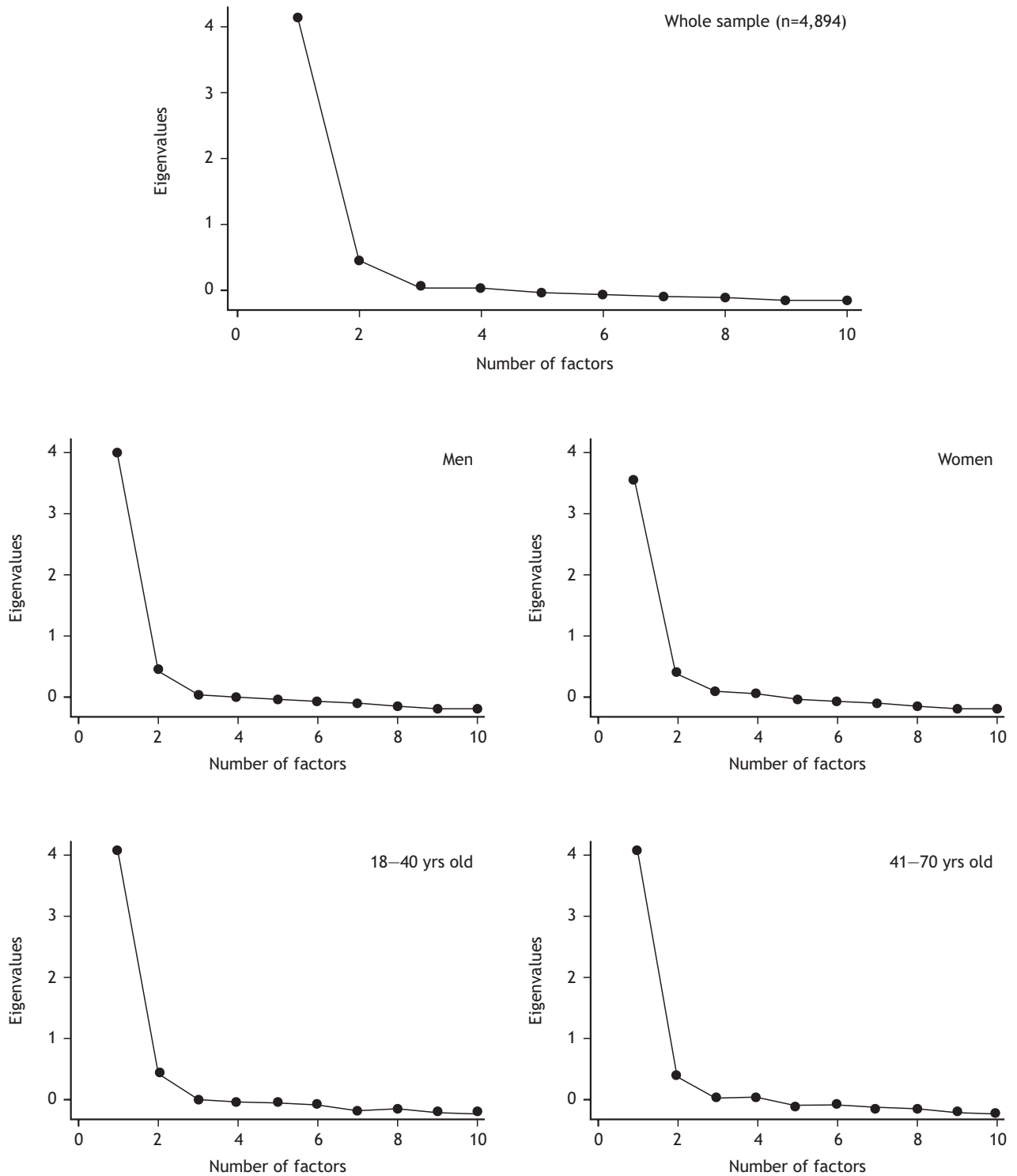
Factor loadings for each AUDIT-question for the bi-factorial (factor 1: items 1–3, factor 2: items 4–10) and tri-factorial model (factor 1: items 1–3, factor 2: items 4–6, factor 3: items 7–10) were estimated. All items present similar factor-loadings in both models after confirmatory analysis performed in the whole sample as well as in subgroups based on sex (table 4). This non-significant change in factor loadings after the inclusion of one additional factor at the bi-factor model, illustrates that the separation of items 4–10 into two further factors does not improve factorial structure of AUDIT.

Regarding the “consumption” factor, item-3 (binge drinking) presents the higher factor loading followed by item-2 (frequency) and item-1 (quantity in each session). Concerning “alcohol use problems” factor, items with higher loadings are in descending order: 4 (unable to stop), 5 (role failure), 7 (guilt), 8 (blackouts), while items 6 (morning drinking), 10 (advice to quit) and 9 (accidents) present the lowest loadings comparing to the other items.

The results of CFA confirm the previously mentioned results of EFA. An exception is Item-10 (advice to quit) which presents acceptable factor loading to the “alcohol use problems” in CFA, while in EFA the loading of item-10 was marginally unacceptable.

### **Discussion**

AUDIT and AUDIT-C are valid instruments for assessing AUD and alcohol consumption, respectively, in the Greek general population. Distribution of AUDIT scores varies across subgroups with different levels of alcohol consumption: Generally, a cut-off



**Figure 2.** Scree plots of eigenvalues and number of extracted factors after Exploratory Factor Analysis.

point ranged between 10 and 12 at AUDIT score is adequate to screen 10% of participants with the higher severity of AUD in the subpopulation of

highest alcohol consumers (e.g. younger males). Respectively, a quite different cut-off, ranging between 4 and 5, screens 5% of the population with

**Table 3.** Factor Loadings and Uniqueness of 10 AUDIT questions in 2- & 3-factors model in a Greek general population representative sample of 4894 participants performing Exploratory Factor analysis.

AUDIT Questions	bi-factorial model			tri-factorial model			
	factor 1	factor 2	Uniqueness	factor 1	factor 2	factor 3	Uniqueness
1	0.16	0.56	0.668	0.15	0.55	0.09	0.666
2	0.31	0.72	0.390	0.31	0.72	0.04	0.388
3	0.31	0.78	0.291	0.32	0.78	0.04	0.289
4	0.63	0.40	0.430	0.64	0.40	0.03	0.424
5	0.66	0.36	0.441	0.66	0.36	0.05	0.437
6	0.51	0.21	0.689	0.51	0.21	0.07	0.689
7	0.57	0.41	0.508	0.57	0.40	0.09	0.508
8	0.61	0.34	0.512	0.61	0.33	0.10	0.512
9	0.36	0.18	0.840	0.33	0.17	0.22	0.813
10	0.39	0.45	0.643	0.36	0.44	0.22	0.621

the higher severity of AUD in the subpopulation of relatively low alcohol consumers (e.g. older women). The above cut-off points would screen 25% of the population with the higher severity of AUD in the subpopulation of sufferers from depression/anxiety. Such an increase in the percentage of the positive screened individuals with the same cut-offs (from 10% to 25%), is justifiable and useful for screening purposes due to the increased vulnerability on alcohol use problems that depression/anxiety sufferers may present.<sup>35</sup>

Concerning the factorial structure of AUDIT, the two-factor solution explains the structure of alcohol-related symptoms equally well as the three-factor solution, implying that the further separation of "alcohol use problems" factor (Items 4–10) into 2 subsequent factors, namely "dependence" and "harmful use", is not necessary. Our finding that the 3 first AUDIT questions are strongly correlated with the "consumption" factor across all subgroups of participants, indirectly confirms the high validity of AUDIT-C<sup>34</sup> in assessing alcohol consumption.

Interestingly, items 9 (alcohol related accidents) and 10 (advise to quit drinking), are poorly correlated with the "alcohol use problems" factor, demonstrating the lower relevancy that these items may have with AUD. A possible explanation of this finding is that due to the fluctuation that AUD exhibit over the life-span<sup>36,37</sup> the presence of "alco-

hol-related accidents" and the "concern of others" in the past may be underreported or overlooked by the patients during their self-assessment of current alcohol use problems status. Thus, extra attention may be needed during the assessment of patients with possible AUD in order to elicit the association between current alcohol use and involvement in accidents or other hazardous situations in the past.

Moreover, in the subgroup of participants with depression/anxiety disorders, the items 4 (unable to stop), 5 (role functioning), 7 (guilty), and 10 (advise to quit drinking) are more strongly correlated with the "consumption" factor compared to the "alcohol use problems" factor. This finding may imply that alcohol use may have different determinants among psychiatric cases: Specifically, depressed individuals may use alcohol to alleviate their symptoms ("self-medication" hypothesis),<sup>38</sup> leading them to increase the amount of alcohol consumed, without necessarily facing other "alcohol use problems". Moreover, mental health sufferers may more easily feel guilty or report restrictions in role-functioning after a drinking session, even at the absence of other signs of alcohol use problems, due to the depressive ideation or because of the direct pharmacological properties of alcohol on psychiatric symptoms. Thus, the presence of guilty and role-function restriction after alcohol consumption in a



Table 4. CFA for tri-factorial and bi-factorial model of AUDIT structure in a nationally representative sample of Greek participants.

Factor Loading	3-factor model <i>i</i>			2-factor model <i>ii</i>			3-factor model <i>iii</i>			2-factor model <i>iv</i>		
	factor 1	factor 2	factor 3	factor 1	factor 2	factor 3	factor 1	factor 2	factor 3	factor 1	factor 2	factor 3
AUDIT Question												
Total sample (n=4894)												
1	0.57		0.57	0.64		0.64	0.64		0.38		0.38	0.38
2	0.80		0.80	0.79		0.79	0.79		0.71		0.71	0.71
3	0.89		0.89	0.87		0.87	0.87		0.81		0.81	0.81
4		0.79		0.77		0.77		0.73		0.79		0.76
5		0.78		0.75		0.79		0.75		0.71		0.70
6		0.55		0.54		0.56		0.53		0.48		0.49
7			0.73	0.72		0.74		0.74		0.82		0.77
8			0.71	0.70		0.67		0.69		0.82		0.78
9			0.39	0.39		0.37		0.39		0.28		0.26
10			0.60	0.58		0.52		0.54		0.57		0.54
Men (n=2425)												
Women (n=2469)												

(i) factor 1: "alcohol consumption" (items 1-3) & factor 2: "Alcohol Use Disorders" (items 4-10), (ii) factor 1: "alcohol consumption" (items 1-3), factor 2: "alcohol dependence" (items 4-6) & factor 3: "harmful alcohol use" (items 7-10)

patient with anxiety/depression may be primarily associated with the quantity of alcohol consumed –or the severity of depression– and secondarily with the presence of “alcohol use problems”. Similarly, regarding item 10, sufferers of depression/anxiety are more possible to attract the concern of others based on the total amount of alcohol consumed, independently of the presence of other alcohol-related behavioral problems while in non-sufferers from mental disorders the advice to quit alcohol comes mainly after the development of AUD, especially in countries where alcohol consumption is socially acceptable like Greece.

Although AUDIT was originally designed for use in primary care settings, it has been increasingly used in general population samples,<sup>15,39</sup> which are quite different from clinical samples.<sup>19</sup> The use of AUDIT as a dichotomous measure in the general population may deprive useful information for symptoms distribution and sub-threshold cases<sup>40</sup> while the consideration of AUDIT score as a continuous/dimensional measure may be more consistent with evidence supporting that AUD lie in a continuum of severity rather than represent distinct situation with clear cut-offs.<sup>41,42</sup>

The observed differences in alcohol use and the factorial structure of AUDIT across subgroups based on age, sex and the presence of depression/anxiety, may imply corresponding differences in the presentation of AUD across subpopulations and cultures.<sup>39,43</sup> Those differences highlight the usefulness of subgroups- or culture- specific data for planning cost-effective treatment interventions, as the application of global cut-off points for screening AUD may have questionable diagnostic efficacy across subgroups.<sup>44,45</sup> Special attention needs to be paid in the subgroup of individuals with mental health problems, where alcohol use may have different rationale and meaning, comparing to the general population.

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# Παραγοντική ανάλυση και κατανομή βαθμολογιών στο εργαλείο Ανίχνευσης Διαταραχών Χρήσης Αλκοόλ (Alcohol Use Disorders Identification Test, AUDIT) σε ένα αντιπροσωπευτικό δείγμα του ελληνικού πληθυσμού

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Το Alcohol Use Disorders Identification Test (AUDIT) αποτελεί το πλέον διαδεδομένο εργαλείο διαλογής για τις διαταραχές χρήσης αλκοόλ (ΔΧΑ) το οποίο, αν και αρχικά αναπτύχθηκε για να χρησιμοποιηθεί στην πρωτοβάθμια φροντίδα υγείας, παρουσιάζει ολοένα και αυξανόμενη χρήση σε μελέτες του γενικού πληθυσμού. Οι προηγούμενες μελέτες που ασχολήθηκαν με τη μελέτη των ιδιοτήτων του εργαλείου ως μέσου διαλογής, βασίστηκαν κυρίως σε κλινικά δείγματα και δεν έλαβαν υπόψη τις πιθανές διαφορές στην παραγοντική δομή του εργαλείου μεταξύ υποομάδων συμμετεχόντων με διαφορές ως προς την ηλικία, το φύλο και την κατάσταση ψυχικής υγείας τους. Στόχος της παρούσας μελέτης είναι η μελέτη της κατανομής της συνολικής βαθμολογίας του εργαλείου AUDIT και του εργαλείου μέτρησης κατανάλωσης αλκοόλ AUDIT-C καθώς και της παραγοντικής δομής του AUDIT σε υποομάδες συμμετεχόντων που ορίζονται με βάση το φύλο, την ηλικία και την παρουσία ή μη ψυχικής νόσου. Παρουσιάζεται η κατανομή της βαθμολογίας του AUDIT και η Διερευνητική/Επιβεβαιωτική Παραγοντική Ανάλυσή του σε ένα δείγμα 4.894 συμμετεχόντων, αντιπροσωπευτικό του ελληνικού γενικού πληθυσμού. Διαφορετικές βαθμολογίες στο AUDIT (διαγνωστικό κατώφλι/"cut-off") προτείνονται για τη διάγνωση του 10% του πληθυσμού με την υψηλότερης βαρύτητας ΔΧΑ στις προαναφερόμενες ομάδες συμμετεχόντων. Ειδικότερα, συνολική βαθμολογία στο AUDIT μεταξύ 10–12 αντιστοιχεί στο 10% του πληθυσμού με την υψηλότερη βαρύτητα προβλημάτων χρήσης αλκοόλ στις υποομάδες του γενικού πληθυσμού που παρουσιάζουν συχνότερη χρήση αλκοόλ (π.χ. νέοι άνδρες), ενώ AUDIT-score μεταξύ 4–5 οδηγεί, αντιστοιχεί στο 5% του πληθυσμού με την υψηλότερη βαρύτητα ΔΧΑ στην υποομάδα των συμμετεχόντων με λιγότερο συχνή κατανάλωση αλκοόλ (π.χ. γυναίκες μεγαλύτερης ηλικίας). Βαθμολογία 3 ή μεγαλύτερη στο AUDIT-C αντιστοιχεί στο 25% των συμμετεχόντων με τη βαρύτερη κατανάλωση αλκοόλ. Το κλασικό μοντέλο 3 παραγόντων δεν ερμηνεύει καλύτερα την παραγοντική δομή του AUDIT σε σύγκριση με το μοντέλο των 2 παραγόντων. Το AUDIT αποτελεί ένα αξιόπιστο εργαλείο για τον προσδιορισμό των ΔΧΑ και της βαριάς κατανάλωσης αλκοόλ στον ελληνικό γενικό πληθυσμό. Η ηλικία, το φύλο και η παρουσία ψυχικών διαταραχών πρέπει να λαμβάνονται υπόψη προκειμένου να προσδιοριστεί το διαγνωστικό κατώφλι του AUDIT που θα οδηγήσει στην αποτελεσματικότερη διαλογή των ατόμων με ΔΧΑ σε μη-κλινικά δείγματα.

**Λέξεις ευρετηρίου:** Alcohol Use Disorders Identification Test (AUDIT) - Εργαλείο Μέτρησης Διαταραχών Χρήσης Αλκοόλ, AUDIT-C, κοινοτικό δείγμα, κατώφλια διαλογής, Παραγοντική Δομή/Ανάλυση, Ελλάδα.

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