REVIEW

From Assoc. Prof. Georgi Panov, MD, PhD, DCs

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Member of the academic jury for the defense of a dissertation based on order № P-109-217/25.05.22 of the Rector of Medical University "Prof. Dr. Paraskev Stoyanov"– Varna

Dissertation thesis "Screening questionnaire application in the assessment of alcohol-using patients in a clinical sample" for awarding the academic degree "Doctor" in the higher education field 7. Healthcare and sports, professional field 7.1 Medicine to Svetla Milcheva Borisova, enrolled in a full-time PhD program, specialty "Psychiatry".

Academic advisor: Prof. Hristo Kozhuharov, MD, PhD

This statement is prepared in accordance with the requirements of the Academic Staff Development Act of the Republic of Bulgaria and the Academic Staff Development Regulations of Medical University "Prof. Dr. Paraskev Stoyanov" – Varna for awarding the academic degree" Doctor".

Brief presentation of the candidate: Dr.Svetla Milcheva Borisova graduated as a medical doctor in 2002 and worked as a general practitioner after graduation. In 2008 she started working as a resident in the second psychiatric clinic of UMHAT „Sveta Marina" – Varna and after defending her specialty in Psychiatry, she hold the position of a psychiatrist at the same department of UMHAT" Sveta Marina" - Varna. She received different trainings in Bulgaria, and she spent a year on a

fellowship program on addictions treatment and prevention in the US. Since 2019, she was enrolled in teaching activities of the Department of Psychiatry and Medical Psychology at Medical University - Varna as a teaching assistant for English speaking students. She was enrolled in research activities and projects of the Department of Psychiatry and Medical Psychology at Medical University – Varna related to addictions and alcohol use disorders.

Regarding the relevance of the dissertation topic, the dissertation focuses on the critical issue of alcohol use and more specifically, on the alcohol related disorders screening, using a questionnaire named Alcohol Use Disorders Identification Test (AUDIT). The test is designed to screen for alcohol-related disorders and thus, to identify individuals with risky, harmful alcohol use and dependence. Therefore, the screening process is essential to prevent future condition worsening and complications. In this way, this dissertation brings into attention not only the alcohol use issue but the need for alcohol use assessment and screening which is essential for prevention in the light of current existing demographic trends in Bulgaria. The Bulgarian translation of this test is available in the country and used by professionals without prior identification of its psychometric properties. With the very specific aim to validate the above-mentioned questionnaire, the dissertation is topical and has not only theoretical but practical implications as well. The validation of a screening questionnaire is a critical step before use in the practice and confirms the value of the instrument.

The structure of the dissertation is designed according to the requirements and contains 166 pages with 29 figures, 45 tables and 4 annexes. It contains a literature review; methodology; results; discussion; conclusions and contributions. The bibliographic sources cited are 156, of which 16 are in Bulgarian and 140 are in English.

The summary covers 46 pages, 19 tables and 12 figures, and reflects the thesis accordingly, presenting the most important design and result elements of the study as well as the conclusion and contributions of the study.

The literature review covers 45 pages of different aspects of alcohol consumption including the standard drink concept, the spectrum and patterns of alcohol use. The development of brain disorder in the light of a change from the use of alcohol to dependence is investigated in detailed brain mechanisms including the reward system, the system of executive functions, the motivation system and the memory system. Special attention is paid on anxiety and its implications on alcohol use in the light of the COVID pandemic. The epidemiological aspects related to alcohol use are investigated in terms of alcohol consumption, current trends in demographic parameters and alcohol use disorders' distribution. The last two sections of the literature review are dedicated to the questionnaire AUDIT and the screening significance for future prevention strategies i.e., early intervention. Detailed description is provided for the designing process of the questionnaire and the Bulgarian part in this process.

In the methodology section the aim and objectives of the study are described. The aim is the AUDIT screening methodology validation for identification of cases of risky, harmful alcohol use and alcohol dependence and thus stated, it is very specific. The tasks are precisely defined - to identify the factor structure of the AUDIT screening instrument for the Bulgarian population; to conduct external and internal validity analysis of the AUDIT questionnaire and additional analyses to demonstrate the screening value of the questionnaire in relation to other screening questionnaires for alcohol use/dependence. There are four hypotheses suggesting: a three-factor structure of the questionnaire, relations between the questionnaire and other screening methodologies, high internal consistency of the questionnaire, and high sensitivity of the questionnaire. In the study 161 individuals aged 18-75 years

were enrolled and two groups were formed - a group of individuals with harmful alcohol use/dependence and a control group of healthy volunteers. The group of individuals with harmful alcohol use/dependence was formed of patients discharged from the University hospital "Sveta Marina" – Varna based on inclusion/exclusion criteria and randomization. They were enrolled in the study in two phases with 12 months between the first and second phase. The control group consisted of 128 healthy volunteers included again in accordance with inclusion/exclusion criteria and randomization. The data collecting methods included the self-reported AUDIT, CAGE questionnaires and state-trait anxiety inventory. The methods to analyze data included descriptive statistics; correlation analyses; internal consistency testing using Cronbach's alpha; exploratory factor analysis; identification of the factor structure of the AUDIT; sensitivity and specificity analysis of the methodology (ROC curve).

The results' section covers 55 pages. Age and gender distribution is presented for the two groups. In terms to avoid the influence of the COVID pandemic, the demographic data of the individuals from the group with harmful alcohol use/dependence is compared not only to the control group but to a larger patient sample hospitalized at the same hospital in 2019. Age and gender distribution are compared between groups with frequency tables and histograms presented. The results from screening questionnaires are analyzed, presented again in frequency tables and histograms. The AUDIT test result distribution is analyzed and comparison between the two groups is provided. The group with harmful alcohol use/dependence show higher AUDIT score results in comparison with healthy controls. Anxiety is identified in state and trait aspect and results showed higher values found in the group with harmful alcohol use/dependence. The internal consistency analyses revealed high reliability of the screening instruments used including the AUDIT test, the short version AUDIT-C, CAGE questionnaire and

anxiety inventory. The correlation analyses revealed significant correlations between state anxiety and trait anxiety, between the regular and short versions of the AUDIT, and between the two screening questionnaires AUDIT and CAGE – in the group with harmful alcohol use/dependence and in the control group. High test-retest reliability of the instruments used was also found after 12 months in 22 patients of the group with harmful alcohol use/dependence. The most important part of results' section is dedicated to factor analysis with all conditions verified and the three-factor model of the Bulgarian version of the scale confirmed. The three factors are consumption, risky/harmful use and dependence. ROC curves for the first three questions of the AUDIT questionnaire are shown with high sensitivity and high values of the parameter area under the curve (AUC).

The discussion part covers 16 pages where all the results are analyzed. The demographic data with wider involvement of the male gender and working age for harmful alcohol use/dependence is highlighted. The comparability between AUDIT and CAGE questionnaires is analyzed with similar proportions of positive screening results for the two questionnaires. The high sensitivity and high values of the area under the curve (AUC) are analyzed proving the interchangeability of the two versions of the AUDIT questionnaire (10-item and short).

The conclusions and contributions' sections summarize the study results, analyses and discussion. There are 10 conclusions and 3 contributions not only with theoretical implication but also with applicability in medical practice.

Evaluation of submitted materials: Dr. Borisova was a co-author in the creation of textbooks and manuals for nurses and medical students. She submitted 3 publications including in journals with an impact factor. In one of her publications she is the only author, which satisfies the requirements of the Regulations for the Development of Academic staff at Medical University -Varna for a PhD degree acquisition.

In conclusion Dr. Borisova's dissertation named "Screening questionnaire application in the assessment of alcohol-using patients in a clinical sample" is topical and undoubtedly has theoretical and practical contributions. The psychometric properties of the Bulgarian version of the AUDIT questionnaire showing high internal consistency and high sensitivity are identified. Significant correlations between different screening tools for alcohol-related disorders such as the AUDIT questionnaire and the CAGE questionnaire are discovered. The three-factor model of the Bulgarian version of the AUDIT questionnaire is confirmed and proves the screening value of the instrument.

I believe this work satisfies the requirements of the Law on the Development of Academic Staff in the Republic of Bulgaria and the Regulations for its implementation, as well as the requirements of the Regulations for the Development of Academic Staff at Medical University-Varna for the "Doctor" degree acquisition. I give my positive review to this dissertation of Dr. Svetla Borisova. I recommend the members of the academic jury to vote in favor of awarding the academic degree "Doctor" to Dr. Svetla Milcheva Borisova in the field of higher education 7. Healthcare and Sports, professional division 7.1. Medicine, scientific specialty "Psychiatry".

Date: 04.07.22   Reviewer:

Assoc. Prof. Dr Georgi Panov, MD, PhD, DSc