General Hospital Psychiatry 35 (2013) 561–564

Contents lists available at ScienceDirect

General Hospital Psychiatry

journal homepage: http://www.ghpjournal.com

Estimating the prevalence of drinking problems among physicians

Friedrich M. Wurst, Prof. Dr. [a,*], Hans-Jürgen Rumpf, P.D. Dipl. Psych. [b], Gregory E. Skipper, M.D. [c], John P. Allen, Ph.D. [d,e], Isabella Kunz, M.Sc. [a], Petra Beschoner, Dr. [f], Natasha Thon, M.Sc. [a]

[a] Department of Psychiatry and Psychotherapy II, Christian-Doppler-Hospital, Paracelsus-Medical University, A-5020, Salzburg, Austria
[b] Department of Psychiatry and Psychotherapy, University of Lübeck, D-23538, Lübeck, Germany
[c] Promises Treatment Centers, Physician Health Program, Santa Monica, CA 90403-4615, USA
[d] Mental Illness Research, Education, and Clinical Center, Durham Veterans Administration Medical Center, Durham, NC, USA
[e] Division of Addictions Research and Treatment, Department of Psychiatry and Behavioral Sciences, Duke University, Durham, NC, USA
[f] Department of Psychosomatic Medicine and Psychotherapy, University Clinic of Ulm, D-89081, Ulm, Germany

ARTICLE INFO

Article history:
Received 31 January 2013
Revised 25 April 2013
Accepted 30 April 2013

Keywords:
Physician
Alcohol Use Disorders Identification Test
Correction
Prevalence
Bias

ABSTRACT

Objective: Surveys assessing alcohol use among physicians have most commonly employed the Alcohol Use Disorders Identification Test (AUDIT) or the AUDIT-C, the most common short version of the AUDIT. As with other screeners, prevalence estimation is dependent on the accuracy of the test as well as choice of the cutoff value. The aim of the current study is to derive more precise prevalence estimates of alcohol problems in physicians by correcting for false-positive and false-negative results.
Method: In the context of a survey, the AUDIT was sent out via email or standard postal service to all 2484 physicians in Salzburg, Austria. A total of 456 physicians participated. A published correction formula was used to estimate the real prevalence of alcohol use problems.
Results: Applying a cutoff of 5 points for the AUDIT-C, 15.7% of female and 37.7% of male physicians screened positive. Use of a correction based on general population data and the sensitivity and specificity of the AUDIT-C resulted in much lower prevalence rates: 4.0% for female and 9.5% for male physicians. Using the full AUDIT, 19.6% of the female physicians and 48% of the male physicians were screened positive. Using the correction, the estimated prevalence rates for females and males were 6.3% and 15.5%, respectively.
Conclusions: Our findings demonstrate that uncorrected screening results may markedly overestimate the prevalence of physicians drinking problems.

1. Introduction

Substance abuse among medical practitioners is, by its very nature, a sensitive, albeit critical, issue. The estimated lifetime prevalence of substance-related disorders among physicians ranges between 10% and 15%, a rate similar to that of the general population [1–6].

There is a growing body of evidence that, with treatment and long-term monitoring, their prognosis is excellent, with up to 90% of physicians with previous substance abuse disorders remaining abstinent at 5-year follow-up [5,7–10]. A cohort study showed that 95% of the physicians who completed monitoring were licensed and working as physicians at the 5-year follow-up point [5]. These promising results underscore the importance of early identification, treatment and monitoring. Accordingly, the impact of physician wellness to the individual, to healthcare systems and as a quality indicator has been discussed [11].

Alcohol remains the most common substance of abuse among physicians [5]. Consequently, numerous surveys assessing alcohol intake as one of the major health hazards among physicians have been conducted. Most studies have employed the Alcohol Use Disorders Identification Test (AUDIT) [12] or the AUDIT-C, a well-validated short version of the AUDIT. For the AUDIT, initially, a cutoff of 8 points or more for both sexes was applied (for review, see Ref. [13]). Findings from subsequent studies have argued for a host of "optimal" cut points, and quite a number have suggested that a lower cutoff is more efficient [14]. In addition, gender-specific cut points have been suggested, with lower scores for women [13,15]. For the AUDIT-C, cutoffs used have varied between 3 points and 6 points [13,16–21]. The variability in proposed cutoffs highlights the need for thresholds that have been developed in comparable populations (region, setting, expected prevalence, etc.). Absent consistent, valid cutoffs, prevalence estimates of alcohol problems among physicians differ dramatically. Up to 67% of physicians have been reported to score positive when low cutoff points have been adopted [22,23]. In light of the tremendous variability in these prevalence rates and the recent debate of the influence of physicians being impaired in their performance of healthcare

* Corresponding author. Tel.: +43 6624483 4601; fax: +43 6624483 4604.
E-mail address: f.wurst@salk.at (F.M. Wurst).

0163-8343/$ – see front matter © 2013 Elsevier Inc. All rights reserved.
http://dx.doi.org/10.1016/j.genhosppsych.2013.04.018

activities, elucidating the influence of different instruments and cutoffs is vital.

The current study strives to more accurately estimate the prevalence of alcohol problems among physicians by using appropriate cutoffs and correcting for bias due to sensitivity and specificity of the screening measure used [24]. These estimations are contrasted with uncorrected data having alternative cutoff points for the AUDIT and the AUDIT-C.

The 10-item AUDIT is a screening questionnaire developed by the World Health Organization to identify harmful or hazardous alcohol consumption [12]. Response options for each item range from 0 to 4, resulting in a total possible score of 40. Normally, a cutoff value for risky drinking is set at 8 or greater [12], but several studies have recommended lower cut points. In Germany, one study suggested a gender-specific cutoff of 5 or greater for women [15,25]. However, this study was conducted in a specific emergency room setting. A German general population study ($n=4075$) found a cutoff of 5 to be optimal for women and men [26]. This was confirmed in a large German general practice sample ($n=10{,}803$) [27] and in a German general hospital study ($n=2077$) [28]. Based on these findings, a cut point of 5 was chosen for the current analysis.

At the recommended cutoff of 8, most studies have shown very favorable sensitivity and usually lower, but still acceptable, specificity for identifying *International Classification of Diseases, 10th Revision,* (ICD-10) alcohol use disorders [29–31] as well as for predicting the risk of future harm [31]. AUDIT has been studied extensively, and its validity and reliability have been well demonstrated [14,32,33].

The AUDIT-C, consisting of the first three questions of the AUDIT, was developed as a brief, easy-to-administer screening measure. The US standard cut score is 4 points for male patients and 3 points for female patients [16]. The AUDIT-C has also been recommended by expert groups for use in general practices in Germany [34], but Rumpf et al. [26] found 5 points as the preferred cutoff in a population in northern Germany. This value was confirmed in two other German studies from a general clinical practice and a general hospital [27,28]. Using data from the National Epidemiologic Survey on Alcohol and Related Conditions, Dawson and colleagues [18] suggested a cutoff score of 5 or 6 for men and 4 for women. A cutoff of 5 points or more using the AUDIT-C screening has also been recommended by the Institute of Health & Society at the Newcastle University in the United Kingdom [20].Three large-scale German studies [26–28] set a cutoff of 5 for the AUDIT and AUDIT-C to detect risky drinking, alcohol abuse or alcohol dependence.

To control for bias in prevalence estimation due to unbalanced proportions of false-negative and false-positive results, the current study adopted the formula of Gambino [24].

2. Method

2.1. Participants

Potential participants for this study were all 2484 physicians in Salzburg, Austria. The survey was distributed via email or standard postal service. A reminder was sent out after 4 weeks. After complete description of the study to the subjects, informed consent was obtained from all participants. Anonymity was assured. The study was approved by the ethics committee of Salzburg. Characteristics of the respondent sample are provided in Table 1.

2.2. Measure

The 10-item AUDIT is a screening questionnaire developed by the World Health Organization to identify harmful or hazardous alcohol consumption [12]. The questions of the AUDIT may be categorized according to the following conceptual domains [35]:

Table 1
Descriptive statistics of the sample (median, minimum, maximum and standard deviation are given if not otherwise indicated).

	Women ($n=204$)	Men ($n=244$)	Total ($n=456$)[b]
Age (years)[a]	42.6, 24, 79, 10.2	46.9, 26, 77, 10.4	45.02, 24, 79, 10.5
Family status			
Single	$n=77$	$n=43$	$n=121$
Married/living in partnership	$n=103$	$n=181$	$n=288$
Divorced	$n=20$	$n=17$	$n=37$
Widowed	$n=2$	$n=1$	$n=3$
MD	$n=2$	$n=2$	$n=7$
Work experience (years)	24.5, 3, 30, 9.6	20, 1, 52, 10.6	18.8, 1, 52, 10.9
Employment			
Full time	$n=156$	$n=232$	$n=394$
Part time	$n=45$	$n=11$	$n=57$
MD	$n=3$	$n=1$	$n=5$
Speciality			
General practitioners	$n=50$	$n=59$	$n=113$
Internal medicine	$n=30$	$n=35$	$n=65$
Surgery	$n=9$	$n=32$	$n=41$
Psychiatry and psychotherapy	$n=16$	$n=9$	$n=26$
Gynacology	$n=13$	$n=10$	$n=24$
Others	$n=79$	$n=72$	$n=173$
MD	$n=7$	$n=6$	$n=14$
Working hours per week	48, 11, 100, 16.4	52, 12, 120, 14.5	50, 11, 120, 15.5

MD: missing data.
[a] Mean is given because of normal distribution.
[b] Missing data regarding gender: $n=8$.

1. hazardous alcohol use (questions 1 to 3): frequency of drinking, typical quantity, frequency of heavy drinking
2. dependence symptoms (questions 4 to 6): impaired control over drinking, increased salience of drinking, morning drinking
3. harmful alcohol use (questions 7 to 10): guilt after drinking, blackouts, alcohol-related injuries, others concerned about drinking.

Response options for each item range from 0 to 4, resulting in a total possible score of 40. Normally, a cutoff value for risky drinking is set at 8 or greater (Saunders et al., 1993), but several studies have recommended lower cut points.

The AUDIT-C, consisting of the first three questions of the AUDIT, was developed as a brief, easy-to-administer screening measure [16].

To control for bias in prevalence estimation due to unbalanced proportions of false-negative and false-positive results, the current study adopted the following formula [24]:

$$\text{true prevalence} = [\text{screening prevalence} \times (1-\text{specificity})]/[\text{sensitivity} \times (1-\text{specificity})]$$

Data for sensitivity and specificity were abstracted from a German general population study in which all screening results were validated against a diagnostic interview [26]. The sensitivity and specificity of the AUDIT were .78 and .81, respectively, for a cutoff of 5 for detecting at-risk drinking, alcohol misuse or alcohol dependence. At the same cutoff, the AUDIT-C yielded respective values of .74 and .85. These data were used to correct for bias in prevalence estimation of the present study.

3. Results

Of a total of 2484 physicians, we received 456 (18.4%) completed questionnaires.

Respondents had a mean age of 45.02 years (standard deviation [S.D.]: ±10.5) and a mean professional experience of 18.8 years (S.D.: 10.9). Of the physicians, 394 (86.4%) were employed in a full-time job