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Alcohol Use Disorders in Primary Health Care: What Do We Know and Where Do We Go?

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Abstract

Aims: To analyze the current paradigm and clinical practice for dealing with alcohol use disorders (AUD) in primary health care.
Methods: Analyses of guidelines and recommendations, reviews and meta-analyses.
Results: Many recommendations or guidelines for interventions for people with alcohol use problems in primary health care, from hazardous drinking to AUD, can be summarized in the SBIRT principle: *s*creening for alcohol use and alcohol-related problems, *b*rief *i*nterventions for hazardous and in some cases harmful drinking, *r*eferral to specialized *t*reatment for people with AUD. However, while there is some evidence that these procedures are effective in reducing drinking levels, they are rarely applied in clinical practice in primary health care, and no interventions are initiated, even if the primary care physician had detected problems or AUD. Rather than asking primary health care physicians to conduct interventions which are not typical for medical doctors, we recommend treatment initiation for AUD at the primary health care level. AUD should be treated like hypertension, i.e. with regular checks for alcohol consumption, advice for behavioral interventions in case of consumption exceeding thresholds, and pharmaceutical assistance in case the behavioral interventions were not successful. Minimally, alcohol consumption should be screened for in all situations where there is a co-morbidity with alcohol being a potential cause (such as hypertension, insomnia, depression or anxiety disorders).

Conclusions: A paradigm shift is proposed for dealing with problematic alcohol consumption in primary health care, where initiation for treatment for AUD is seen as the central element.

INTRODUCTION: PREVALENCE OF ALCOHOL USE DISORDERS IN PRIMARY HEALTH CARE SETTINGS

Alcohol use disorders (AUD) are prevalent around the world (Rehm *et al.*, 2009; World Health Organization, 2014), especially in high-income countries with small Muslim populations (World Health Organization, 2014; for recent regional publications from high-income countries see: Europe, specifically for EU countries Rehm *et al.*, 2015d; for Russia: World Health Organization, 2014; Americas, for the USA: Grant *et al.*, 2015; for Canada: Pearson *et al.*, 2013, http://www.statcan.gc.ca/pub/82-624-x/2013001/article/c-g/11855-c-g-02-eng.htm; for Chile: Vicente *et al.*, 2004; Asia, for Japan: Ishikawa *et al.*, 2015; for South Korea: Han *et al.*, 2015; Oceania for Australia: Teesson *et al.*, 2010). In 2012 the prevalence of AUD for adults (defined as 15 years of age and older based on ICD 10) (World Health Organization, 1993) was 4.2% for the total adult population (a 1.8% prevalence of the harmful use of alcohol and a 2.3% prevalence of alcohol dependence—people with alcohol dependence and harmful use were only included under dependence), 7.1% for the adult male population and 1.2% for the adult female population (World Health Organization, 2014). In high-income non-Muslim countries, where less than 50% of the population identified as Muslim, the prevalence of AUD was 7.2% for the total adult population (a 3.2% prevalence of the harmful use of alcohol and a 4.0% prevalence of alcohol dependence), 11.4% for the adult male population and 3.2% for the adult female population.

For primary health care (PHC) samples, the prevalence of AUD is even higher for several reasons (Üstün and Sartorius, 1995; Ansseau *et al.*, 2004; Manthey *et al.*, in press). First, PHC samples comprise patients, and as heavy use of alcohol and AUD are associated with many disease and injury categories attended for in PHC, prevalence of heavy use and AUD should be higher among PHC patients. The most prominent PHC disease categories associated with heavy alcohol use are hypertension, insomnia, liver problems, depression and anxiety disorders (Chakravorty *et al.*, 2013; Rehm *et al.*, 2015c; http://www.nationaldrugstrategy.gov.au/internet/drugstrategy/publishing.nsf/Content/FE16C454A782A8AFCA2575BE002044D0/$File/mono71.pdf). Second, the age distribution of PHC patients over-represents people 40 years and older; in this age group, in many countries, alcohol dependence has the highest prevalence, at least for severe dependence (Rehm *et al.*, 2005; an exception is the USA—Rehm *et al.*, 2014b—where prevalence of AUD is highest in younger adults; for a critical discussion of the USA see Caetano and Babor, 2006). Third, many of the people not responding or outside the sampling frame for general population surveys (Shield and Rehm, 2012) can be found in PHC; and this includes people without a permanent living address in some instances.

Given the high prevalence of AUD in PHC, the main question concerns how these patients should be handled, and what empirical evidence there is for different forms of interventions and their clinical application. Before reporting on potential interventions, separated in screening, brief advice, treatment and referral to specialized care, we will first answer the question, whether PHC physicians can recognize people with AUD. For all discussion in all sections, we consider systematic reviews and meta-analysis first, and, if not available, we report large-scale studies.

RECOGNITION OF PEOPLE WITH AUD IN PHC

In a recent meta-analysis, Mitchell *et al.* (2012) estimated the diagnostic sensitivity of PHC physicians (general practitioners) in the identification of AUD to be 41.7% (95% CI 23.0–61.7), but alcohol problems were recorded correctly in only 27.3% (95% CI 16.9–39.1) of primary care records. These estimates were based on 12 studies mainly carried out in the USA (three studies from Germany and one from Australia), with varying definitions of AUD, often wider than the definitions in medical-psychiatric classifications (such as ICD-10 and DSM-5) by partially including hazardous drinkers as identified with CAGE (Ewing, 1984) and AUDIT (Babor *et al.*, 1992). Based on a prevalence of 20% of AUD, a primary care practitioner would typically identify 8 cases, missing 12, within a sample of 100 patients. They would correctly identify 75 people without AUD, falsely diagnosing 5. Thus, the fraction correctly identified would be 83%.

All of the above numbers are based on the assumption that standardized assessment instruments such as the Composite International Diagnostic Interview (CIDI) in its different variations are the gold standard (for a discussion Manthey *et al.*, 2015). While such an assumption is common, and based on some empirical evidence regarding reliability and validity (Üstün *et al.*, 1997), there are also some doubts (in general Wittchen, 1994; for alcohol use disorders see Caetano and Babor, 2006; Babor and Caetano, 2008; Rehm *et al.*, 2015b). In the largest representative study to date in 6 EU countries with different drinking patterns, Rehm *et al.* (2015b) asked 358 PHC physicians whether their patients from a randomly selected day could be classified as people with AUD. Of the 13,003 patients assessed by the GP, 8,476 also filled in the standardized CIDI interview (Kessler and Üstün, 2004); the patient sample interviewed was smaller by design, and the response rate on the individual level was 81.1%. On first view, the results looked like those of other studies. If the CIDI was considered the gold standard, PHC physicians diagnosed only 32.4% (95% CI: 28.5–36.4%) of the DSM-5 AUD cases (Manthey *et al.*, 2015) and 29.4% (95% CI: 25.4–33.5%) of the DSM-IV alcohol dependence cases diagnosed via CIDI (Rehm *et al.*, 2015b). However, overall they diagnosed about the same proportion as via CIDI, and closer comparisons of physician vs. CIDI diagnosis showed, that PHC physicians actually diagnosed older patients with more severe somatic co-morbidities, in particular liver problems and hypertension (Rehm *et al.*, 2015b). With respect to mental co-morbidities, both diagnostic approaches yielded similar results. In other words, the results could be interpreted, that physicians established the gold standard for diagnosing AUD, and the CIDI had less severe and younger cases (Caetano and Babor, 2006; Babor and Caetano, 2008). While the best gold standard is difficult to determine, based on the above the following can be cautiously concluded from the entirety of the literature:

- PHC physicians recognize many patients with AUD, especially older patients with more severe AUD including somatic co-morbidities.

- PHC physicians however seem to miss a substantial portion of patients with AUD in their practice, especially if the patients are younger and without somatic co-morbidities. A substantial number of these people could be identified with systematic screening for AUD, for which adequate and short instruments exist (e.g. Audit C—Bush *et al.*, 1998).

POTENTIAL INTERVENTIONS FOR PEOPLE WITH AUD IN PHC

The classical paradigm for interventions for people with AUD in PHC can be described in the following steps: *s*creening, *b*rief *i*nterventions or advice for people with hazardous and harmful drinking, and *r*eferral to *t*reatment for people with alcohol dependence (SBIRT; Babor *et al.*, 2007, 1986). This paradigm, at least as it concerns the effectiveness of the first two steps (screening, brief interventions), is based on many studies including randomized controlled clinical trials in different countries (WHO Brief Intervention Study Group, 1996; http://www.who.int/substance_abuse/activities/sbi/en/); supported by Cochrane (Kaner *et al.*, 2007) and numerous other reviews (Berthelot *et al.*, 2005); and by now there are even secondary systematic reviews of reviews (O'Donnell *et al.*, 2014; but see also Saitz, 2015). There are two caveats, however. First, screening and brief interventions are rarely implemented in current PHC. For instance, the recent five-country ODHIN study that recruited 120 PHC units from Catalonia, England, Netherlands, Poland and Sweden, found that over 5 weeks of measurement, patients were screened and given advice for their heavy drinking in only 1.4% out of about 900,000 adult consultations (Anderson *et al.*, 2015a; Bendtsen *et al.*, 2015). In other words, we have an evidence-based procedure recommended by guidelines (e.g. http://pathways.nice.org.uk/pathways/alcohol-use-disorders/brief-interventions-for-alcohol-use-disorders; Rehm *et al.*, 2013b), which all the same has not found its way into clinical practice of PHC. Second, utilization of specialized care seems to be unrelated to the delivery of brief interventions—despite referral-specific components within the interventions—according to a meta-analysis of randomized controlled trials (Glass *et al.*, 2015). So one element of the SBIRT paradigm, the referral to treatment after brief interventions, does not seem to work.

Why are screening and brief interventions not practiced in routine PHC? There are multiple reasons (Roche and Freeman, 2004; Drummond *et al.*, 2013; Anderson *et al.*, 2014) including lack of education and financial reimbursement, and fear of losing patients. Two very important additional reasons have to do with the current workload and the identity of physicians. With an average time of often less than 10 min per client in countries such as the UK or the Netherlands (Boerma, 2003), and not much longer in others (Gottschalk and Flocke, 2005), and many preventive services necessary (Yarnall *et al.*, 2003), there is just not enough time for secondary prevention of hazardous and harmful drinking which may take up to 15 min (Babor *et al.*, 2007), unless it is delegated to non-physicians in a larger practice (Altschuler *et al.*, 2012). Moreover, and this may be part of the explanation of slow adaptation even when reimbursed: brief interventions, composed of elements of motivational interviewing and/or cognitive behavioral therapy, are not core to the job description of physicians. Another barrier might be situated in the PHC physicians' own drinking habits. However, no associations between PHC physicians' drinking levels and attitudes or skills to deliver brief interventions were found either in a Swedish (Geirsson *et al.*, 2005) or in a Finnish sample (Kääriäinenm *et al.*, 2001), except for Swedish physicians' with moderate to high drinking levels, who reported higher role adequacy scores in treating hazardous or harmful drinkers (Geirsson *et al.*, 2005), meaning that they were more open to discuss risky drinking if they drank more themselves.

In summary:

- The classic paradigm for interventions for AUD at the PHC level has been screening, brief interventions and/or brief advice, and referral to treatment.
- Even though this model is evidence-based with support from randomized clinical trials in several countries, as summarized in a Cochrane and other systematic reviews, it is rarely applied in current clinical practice in PHC.
- Among major barriers for the adaptation of the paradigm by PHC physicians are lack of education and financial incentives, fear of losing patients, time constraints and role definition of PHC physicians.

THE CLINICAL PRACTICE OF HANDLING AUD IN PHC

How are AUD dealt with in PHC in the absence of SBIRT? The answer is, that they are not dealt with at all, with the result, that the treatment rate for AUD is the lowest of all mental disorders (EU: Alonso *et al.*, 2004; Rehm *et al.*, 2013c; USA: Cohen *et al.*, 2007; globally: Kohn *et al.*, 2004). Many studies show treatment rates around 10%, and the only exception has been the already mentioned EU study in six countries, which found 17.7% of all AUD (95% CI: 15.4–20.0%; Manthey *et al.*, in press) and 22.3% of all alcohol dependence cases (95% CI: 19.4–25.2%; Rehm *et al.*, 2015c). However, this higher number may be due to the specific assessment methodology with using two independent sources of information as well as a wide definition of treatment and/or the nature of the PHC sample (as opposed to the above cited general population studies). The situation in Germany seems typical (see also Mitchell *et al.*, 2012): PHC physicians recognize slightly under 50% of the patients with AUD (Trautmann S, Pieper L, Kuitunen-Paul S *et al.* (submitted) Prävalenz von Alkoholkonsumstörungen in der primärärztlichen Versorgung. SUCHT), and they make notes in health records of about 35% of all people with alcohol dependence (Kraus *et al.*, 2015). Markedly less than half of the people identified, about 16% of all people with alcohol dependence, end up in treatment, mainly in outpatient specialized treatment, with slightly more than 10% of those treated going into specialized inpatient care (Kraus *et al.*, 2015).

The people in specialized treatment are clearly worse off than other people with AUD, with the following odds ratios for key indicators: drinking at least 100 g/day: 3.46 (95% CI: 2.05–5.84); binge drinking as defined by having at least one binge with 200 g/week: 2.22 (95% CI 1.30–3.81); liver problems: 3.88 (95% CI: 2.51–5.99); depression: 2.22 (95% CI: 1.44–3.41); anxiety disorder: 2.38 (95% CI: 1.62–3.50); at least one inpatient night in an acute care hospital: 1.48 (95% CI: 0.95–2.29); at least 1 day with functional disability (WHODAS-H2): 1.65 (95% CI: 1.17–2.33; own calculations based on Rehm *et al.* (2015a,e)). In other words: people only entered or were being referred to specialized care in EU countries, if their AUD are quite severe.

Of course, the above does not imply that the low treatment rate is attributable to PHC physicians alone. Treatment seeking is a large factor (Grant, 1997; Wallhed Finn *et al.*, 2014; Probst *et al.*, 2015), as well as the larger society, especially the degree of stigmatization for AUD. AUD are among the more, if not the most stigmatized mental disorder (Schomerus *et al.*, 2011), and this may impact on people to

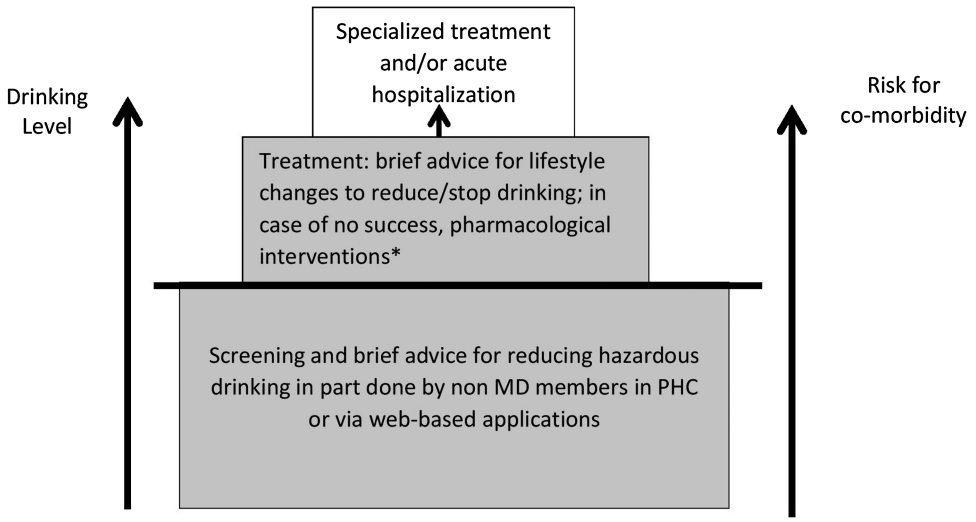

Fig. 1. Suggested role of PHC physicians in management of alcohol use disorders. Thick horizontal line indicates threshold for AUD. Size of box indicates number of people affected. Shading indicates suggested interventions in PHC. *Pharmacological interventions: in case of detoxification—benzodiazepines; otherwise assistance for relapse prevention or reduction of drinking.

seek treatment late, and to try to deal with AUD themselves in earlier and less severe stages of the disease (Probst *et al.*, 2015). When people with AUD finally seek treatment, it is often linked to severe levels of AUD (Rehm *et al.*, 2015e), and they encounter a number of barriers in the health care systems, including lack of information about the most suitable treatment, lack of non-abstinence-based treatment, and high financial costs in some societies (Wallhed Finn *et al.*, 2014; Probst *et al.*, 2015).

How could this situation be changed? The easiest way would be to start treatment of less severe AUD at the primary care level, rather than waiting for severe AUD to be referred to specialized care. Identification of hazardous/harmful drinking or AUD can be initiated as part of disease management for comorbid conditions. For instance, if screening is routinely initiated for each incident comorbid condition such as hypertension (Rose *et al.*, 2008; Ornstein *et al.*, 2013), insomnia, depression or anxiety disorder, this may not only improve management of these conditions, but also reduce stigma, as alcohol consumption is routinely addressed as part of managing other diseases.

But can physicians treat AUD? It is indeed not only possible but desirable, that treatment for people with low to moderate alcohol dependence or other AUDs is at the PHC level (Day *et al.*, 2015; Spithoff and Kahan, 2015). If misconceptions and prejudices about alcohol treatment among PHC physicians such as the need of additional therapeutic skills were targeted and corrected (Seppa, 2011), alcohol consumption and AUD could be handled similar to treatment of blood pressure and hypertension (Mancia *et al.*, 2013; Nutt and Rehm, 2014): regular checks for drinking levels (Rehm *et al.*, 2013a, 2014a); advice on lifestyle, if drinking levels are above a threshold (analogously to hypertension, where guidelines specify advice on lifestyle first before medication (Mancia *et al.*, 2013; https://www.nice.org.uk/guidance/cg127)); and prescription of medication in addition to advice and/or psychosocial interventions, if heavy drinking over time persists (for the possibility of pharmacological-based AUD treatment in PHC: Day *et al.*, 2015; Lee *et al.*, 2015; Spithoff and Kahan, 2015). The suggested approach seems not only feasible in PHC; it is in accordance with management of other diseases at this setting, and the focus on drinking levels rather than formal diagnosis promises to reduce stigmatization for people with AUD as well (Schomerus *et al.*, 2013). Drinking levels do not need to be monitored by self-report alone; blood tests as biomarkers could serve as additional information (Miller and Anton, 2004), providing another element of routine clinical PHC. While blood based biomarkers for measuring drinking levels are feasible, knowledge about some of these markers currently seems to be lacking (Miller *et al.*, 2004). A focus on disease management for AUD as described, as well as a new handling of comorbid conditions such as hypertension, insomnia and mental disorders, may be a more acceptable approach for PHC physicians than the present major prevention focus on screening and brief advice for reducing hazardous drinking, in which PHC physicians do not fully engage (Anderson *et al.*, 2015b). Screening could be used additionally in identifying people with AUD, especially younger people.

New digital tools could potentially help PHC physicians in their work. Access to and integration of websites to reduce drinking into PHC offer the possibility to increase brief intervention rates without the face to face interactions with the PHC physician or other members of the practice. A recent systematic review of electronic interventions for hazardous drinkers concluded the general effectiveness of this approach with significant reductions in alcohol consumption for up to 1 year (Donoghue *et al.*, 2014).

However, details on integration of electronic interventions into PHC routines are not clear. A number of initiatives are underway to test the acceptability of these approaches (Struzzo *et al.*, 2013; López-Pelayo *et al.*, 2014). The website approach has substantially wider implications, as it has the potential to be applied for the management of a much broader range of health conditions by PHC physicians, and it could also be crucial in the development of innovative health systems approaches for management of AUDs (Colom *et al.*, 2014).

Thus, PHC physicians should not necessarily conduct formal brief interventions themselves, but they should focus on the treatment of AUD, and as they are accountable for the health of their patients, failing to treat or address AUD is part of failing their responsibility. Not treating AUD is in no way different than not treating hypertension, and will lead to serious negative health outcomes including but not limited to premature mortality (Roerecke and Rehm, 2013; Rehm *et al.*, 2014b, 2015e). Thus, the above described

gap between the number of patients with AUD recognized and the number of patients with AUD treated or referred to specialized treatment should be minimized.

Figure 1 summarizes the suggested role of PHC physicians (see also more traditional pyramids on severity of disorder and treatment: Anderson *et al.*, 1986; Raistrick *et al.*, 2006; Strobbe, 2014).

AUTHORS' CONTRIBUTIONS

Study concept and design: J.R. and P.A. Drafting of the manuscript: J.R. Critical revision of the manuscript for important intellectual content: all authors. Statistical analysis (own calculations): J.M. and K.D.S. Approval of the final manuscript: all authors.

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CONFLICT OF INTEREST STATEMENT

A.G.: reports grants and personal fees from Lundbeck and D&A Pharma during the conduct of the study and grants from TEVA and personal fees from AbbVie outside the submitted work. J.M.: reports receiving personal fees from Lundbeck, outside of the submitted work. J.R.: reports grants, personal fees and travel support from Lundbeck outside of the submitted work. K.D.S.: no potential conflict of interest stated. M.W.: reports personal fees from AOP Orphan, Berlin Chemie, Janssen, Lundbeck, D&A Pharma, Reckitt Benckiser outside the submitted work. P.A.: no potential conflict of interest stated. P.S.: reports grants from University of Dresden and being primary care board member for Lundbeck outside the submitted work.

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