International Journal of Mental Health and Addiction (2023) 21:1139–1156
https://doi.org/10.1007/s11469-021-00648-2

ORIGINAL ARTICLE

Perceptions of Patients' Alcohol Use and Related Problems Among Primary Care Professionals in Rio de Janeiro

Sean J. Haley[1] · Renata Vargens[2] · Ana Alice da Silva Sudré[2] · Flavia Ferreira[2] · Kali Alves[2] · Vitor Aguiar Lobato de Carvalho[2] · Daniel Storti Netto Puig[2] · Karen Athié[2] · Sandra Fortes[2]

Accepted: 8 September 2021 / Published online: 19 October 2021

Abstract
Alcohol screening and brief intervention in primary care reduce harmful alcohol use but are rarely conducted in Brazil. This study describes health professionals' perceptions of patients' harmful alcohol use. A modified grounded theory approach drawing on purposive sampling was used to secure interviews from thirty-three primary care professionals between September and November 2018. Data analysis was iterative; initial coding was developed by the full research team and refined using formative and axial coding. Alcohol symptomology varied and professionals associated harmful alcohol use with patients' economic hardship. Although health professionals rarely identified alcohol-related problems among their patients, when alcohol problems were identified, it was often through consultations about other symptoms. Compared to drug use, low to moderate alcohol use was not considered harmful, supported in part by a widespread acceptance of alcohol use. Brazil's universal primary care system uses a collaborative care model to support integrated treatment of medical and mental health conditions, but alcohol screenings often occur only after problems manifest. Given limited early identification of harmful alcohol use in primary care, it is necessary to improve professionals' training related to alcohol screening and brief intervention to reduce alcohol-related disability-adjusted life years.

In 2017, the prevalence of lifetime, last year, and the last 30 days of alcohol consumption among the Brazilian population was 66%, 43%, and 30%, respectively. Specifically, binge drinking, defined as 5/4 (men/women) drinks on one occasion in the past month, was approximately half of those who consumed alcohol in the last 30 days (16% of total population) (Bastos et al., 2017). Alcohol and drug use remain the leading contributor to Disability-Adjusted Life Years (DALYs) for men and the 6th leading contributor for women

✉ Sean J. Haley
Sean.Haley@sph.cuny.edu

[1] Department of Health Policy and Management, City University of New York's Graduate School of Public Health and Health Policy, 55 West 125th Street, New York, NY 10027, USA

[2] Interdisciplinary Research Laboratory On Primary Care, Universidade Do Estado Do Rio de Janeiro, Rua Manoel de Abreu 444 6th Floor - Maracanã, Rio de Janeiro 20551-030, Brazil

(Marinho et al., 2018). Among the 27 Brazilian states, Rio de Janeiro has the highest rate of alcohol-related deaths (Institute for Health Metrics & Evaluation, 2019).

Brazil is a high-middle-income country that was home to 210 million people in 2018. Brazil's universal health care system integrates mental health screening and treatment services into primary health care using the Collaborative Care Model to manage patients' co-occurring medical and mental health disorders (D'Amour et al., 2005). The model is recommended for LMICs by health service researchers to meet mental health demands (Collins et al., 2011; Eaton et al., 2011; Thornicroft, 2012) and has improved medical outcomes (Thota et al., 2012).

Primary health care services delivered through the Brazilian National Health Service (Sistema Único de Saúde-SUS) rely on health teams, consisting of a primary care physician, nurse, nurse technician, and community health workers (Lindelow & Araujo, 2014). Until recently, health teams in Rio de Janeiro included 5 community health workers and were responsible for defined geographic territories representing approximately 3,500 people. In 2018, publicly funded primary health care had a national coverage rate of 74% of the population, albeit with considerable regional variation (Ministério da Saúde, 2019).

Matrix support professionals, officially called Núcleo de Apoio a Saúde da Família (NASF), deepen the collaborative care approach and include a range of medical and mental health providers. NASF members are assigned to multiple units and visit each primary care team to help medical personnel manage patients' treatment needs including substance use and mental health disorders (Leite et al., 2013; Ministério da Saúde, 2010). In addition, primary care services are complemented by a parallel system of community-based free-standing outpatient mental health service centers including those dedicated to alcohol and other drug treatment known as Centros de Atenção Psicossocial (CAPS). The extensive availability of primary care services, coupled with NASF matrix support, and community-based mental health centers create the foundation for early detection and treatment of medical conditions and mental health disorders.

Alcohol screening and brief intervention in primary care reduce alcohol use among adults without dependence in both high- and middle-income countries (Guimarães et al., 2015; Joseph & Basu, 2016; Kaner et al., 2018; Kaner et al., 2007; Pereira et al., 2013; Soares & Vargas, 2019; Wakida et al., 2018). Although it is recommended for primary care (World Health Organization, 2001, 2010), alcohol screening is rarely conducted in Brazil (Amaral et al., 2010; Graever, 2013; Macinko et al., 2015). Both harmful alcohol use, defined by the International Classification of Diseases (ICD-10) as use that causes damage to physical or mental health (World Health Organization, 1992), and hazardous alcohol use, defined by a pattern of use that greatly increases the risk of physical or mental health harms to the user or to others (World Health Organization, 1992), are conditions appropriate for intervention by health professionals in primary care (Poznyak et al., 2018). Alcohol dependence, defined by a cluster of physiological, behavioral, and cognitive indicators in which alcohol use takes on a much higher priority for a given individual than other behaviors that once had greater value (World Health Organization, 1992), can also be identified in primary care.

Few Brazilian studies have examined primary care professionals' attitudes related to alcohol use, alcohol screening, or intervention (Amaral-Sabadini et al., 2010; Ronzani et al., 2009). For example, a study in the State of Minas Gerais that used survey instruments to determine health professionals' (physicians, nurses, medical technicians, and community health workers) attitudes related to alcoholism (not alcohol use or alcohol use disorders) found that older professionals, nurses, and nursing assistants tended to hold stronger associations between alcoholism and moralization (Ronzani et al., 2009). Another study in the

same state assessed implementation 3 months after an alcohol screening and intervention training and found that while primary care professionals were able to differentiate problem drinking from non-problem drinking, only 10% of trained professionals conducted even a small number of alcohol screenings. Participants identified a lack of time; some discomfort in talking about alcohol with patients, challenges accessing alcohol-dependence treatment, and an unstable political environment (Amaral et al., 2010). Another study found that a screening, brief intervention, and referral to treatment (SBIRT) training combined with 3 months of practice supervision were not sufficient to promote changes in primary care professionals' attitudes toward alcohol screening or to reduce moralization (Ronzani et al., 2012).

The aim of this study is to describe upper-level health professionals' perceptions of their patients' alcohol use, including associations with medical and mental health consequences, as well as their perceptions when comparing alcohol to other drug use. These perceptions are relevant because they form the foundation for how professionals construct differences between alcohol use and the manifestation of problems associated with alcohol use disorders. These differences, and the identification of other potential barriers, may contribute to the low primary care screening rates identified in the literature. We focus on alcohol use generally, without specific criteria related to risk levels or diagnosis.

Methods

Study Design

In August 2018, the researchers, consisting of an American and researchers affiliated with an interdisciplinary primary care and mental health laboratory at the State University of Rio de Janeiro (UERJ), began a Fulbright-supported study to assess whether a 2-day training for upper-level health professionals could be successfully implemented within two of SUS's programmatic health services areas in Rio de Janeiro. To clarify, Brazil's universal health care system was created from a strong collective movement that developed a relatively flat organizational culture. Each member of the team is essential and all members are considered professionals. Upper-level health care professionals are those with a bachelor's degree or higher including physicians, nurses, psychologists, and dentists. They were the primary focus of the study as they are best suited to conduct screenings and provide brief interventions (Brazilian law prohibits community health workers from conducting screenings). A full description of the study protocol is available elsewhere (Haley et al., 2019).

The first phase of the implementation study, and the focus of this paper, involved conducting semi-structured interviews among upper-level health professionals to gather perceptions of their patients' alcohol use and related problems. The information gathered, including barriers to screening for alcohol-related problems, was used to ensure that the WHO manual-based training curriculum reflected professionals' perceptions (World Health Organization, 2017).

Qualitative research methods are appropriate for the collection of sensitive data related to complex topics (Denzin & Lincoln, 2011). Qualitative methods can be especially useful for global public health where health services are embedded within cultural contexts (Tolley et al., 2016). Given the dearth of alcohol screening information in Brazil, we used a modified grounded theory approach to understand professionals' perceptions of their

patients' alcohol use and associated harms (Corbin & Strauss, 1990). Grounded theory relies on participants' own language, beliefs, and behaviors to help explain behavioral influences and describe how actors respond to changing conditions and consequences. Grounded theory includes the following methods: use of emergent design (the ability to adapt the study design to emerging information including but not limited to social conditions, data, and analysis), theoretical sampling (using data analysis from a small initial sample to identify other potential interviewees), axial and open coding (identifying relationships between codes), saturation (stopping recruitment when additional sampling will not lead to new information), and concurrent data collection and analysis (analyzing data from completed interviews while continuing to collect data) (Corbin & Strauss, 1990).

The study followed grounded theory methodology apart from the sampling strategy. Although the authors would have preferred to directly observe health professionals' interactions with patients to support theoretical sampling based on whether professionals discussed alcohol use with their patients, such observations were not possible given the infrequency with which professionals discuss alcohol use with their patients (Gonçalves et al., 2014). Rather, the study relied on purposive sampling (selecting sampling criteria prior to conducting research) to assure heterogeneity of factors important to primary care (e.g., prior training in substance use disorders and professional roles) (Blankertz, 1998).

Recruitment Procedures

All upper-level health professionals (e.g., physicians, nurses, psychologists, and dentists), representing both large ($n \geq 5$ teams) and small medical units from two programmatic areas including members of the 3 NASF groups that were assigned to the two programmatic health service areas, were invited to participate. Importantly, nearly all medical units were located within or were adjacent to favelas (shanty towns). Sampling attended to upper-level health professionals' role, gender, and whether the unit was assigned to either intervention (receive the training) or control. Interviewees were recruited by unit managers by direct communication or through unit staff meetings. All interviews were conducted at the primary care unit.

Participants

Thirty-three upper-level health professionals were interviewed between September and November 2018. Twenty-one participants were physicians (including one psychiatrist). Eight participants were nurses, 2 psychologists, and 2 dentists. Almost 60% of participants were selected from the larger of the two programmatic areas (population = 400,000) and just over 40% from the smaller (population = 300,000). Sixteen physicians, 4 nurses, 3 psychologists, and 2 dentists were recruited from large units. Half of the interviewees were selected from intervention units. The average age of participants was 36.5 years and the average time in the unit was 2 years. Approximately 40% of the participants received additional substance use disorder training after completion of their degrees. Please see Table 1 for a breakout of participants.

It should be noted that while managers were aware of who from their unit participated in interviews, managers were never told which other units were participating. The recruitment of many participants was intentional to help protect participants' identities. Although regrettable, in the time since the interviews were conducted, the health system in Rio has experienced serious financial cuts and transitions in professional staffing with many of the

Table 1 Upper-level professional interview participants ($n = 33$)

Professional roles	Number of participants	Number of health service participants from health service area A (larger)	Number of participants from health service area B (smaller)	Number of primary care health unit with ≥ 5 teams	Number of participants working in a unit identified to receive training	Number of female participants	Age range of participants (years)	Time range that participants worked in the unit (months)	Number of participants with previous substance use disorder training
Physicians	21	14	7	17	8	15	27–64	1–84	8
Nurses	8	2	6	4	7	7	23–45	3–54	2
Dentists	2	2	0	2	0	1	37–53	24–72	1
Psychologists	2	1	1	2	2	2	39–52	9–36	2
Total	33	19	14	25	17	25			13

participants having changed units, taken jobs in the private healthcare system, or left the city of Rio de Janeiro, further obscuring participants' identities.

Interview Questions and Procedures

This study did not begin with an explicit hypothesis to be tested (Corbin & Strauss, 1990). Rather, exploratory questions were developed to understand professionals' perception of patients' alcohol use and to assess potential barriers and facilitators to alcohol problem detection as suggested in the Brazilian literature. In-person individual interviews were used to learn about participants' perception of their patients' alcohol use and related harms. The interview guide included questions about (a) participants' personal information, (b) general experience in the unit treating patients, (c) experience specifically related to patients' alcohol use and related harms, and (d) cultural factors related to alcohol use disorders. (The interview guide is available upon request.)

The guide intentionally did not include questions about specific ICD-10 alcohol-related diagnoses. The review of the literature and researchers' own experiences in the public system suggested that many upper-level health professionals did not ask about alcohol use and were not familiar with screening protocol. Given that the intent of the interviews was to gather information to ensure that the forthcoming training on alcohol screening and brief intervention would be culturally specific to maximize knowledge transfer, it seemed unfair to ask about specific diagnoses. Interview guides were modified after the first few interviews to add one question about gender differences in alcohol use and related effects.

Four trained (1 Masters, 3 Doctoral level) interviewers conducted interviews in Portuguese. All interviews were conducted within the primary care units, digitally recorded, and field notes captured information about the setting and participant disposition. Interviews lasted from 20 min to just over an hour with most lasting 30 min. Recordings of interviews and field notes were transcribed verbatim in Portuguese by trained transcriptionists and with the help of Sonix™ software (Sutherland et al., 2019). Interview transcripts and field note text were analyzed using Dedoose™ software which aids coding and text retrieval (Lieber et al., 2011).

Data Analysis

Data review and analysis began after the first interviews to identify themes and to embed examples within the curriculum training modules that were under development. The coding process was iterative; using one transcript, the full group developed codes over several meetings until consensus was reached. The researchers then formed dyads to review a new transcript using the jointly developed codes. Dyads were instructed to identify passages for potential changes to codes and hypotheses. Partners jointly coded each transcript. As the dyads coded, the full research group met weekly to review progress and to revise established codes consistent with "focused coding" whereby codes were expanded or collapsed. As the dyads completed their coding and themes began to emerge, the researchers developed axial codes to capture distinctions within established categories. To guard against a consolidation of themes to the exclusion of contradictory findings, transcripts were reviewed for negative findings (Denzin & Lincoln, 2011). Ethical permissions were secured from the City University of New York, the City of Rio de Janeiro, area directors from both health service areas, managers from all participating health units, and all participants.

Results

All professionals were able to identify problems among their patients related to alcohol use. Two main themes were identified: (1) the manifestation of alcohol-related problems in clinical practice and (2) perceived similarities and differences between alcohol and drug use.

The Manifestation of Alcohol-Related Problems in Clinical Practice

Among upper-level health professionals, patients' problems associated with alcohol use included physical and mental health consequences. Frequently, these consequences are what alert the professionals, patients, and family members to harmful alcohol use, and the manifestation of problems is at the core of how professionals differentiate "regular" alcohol use from alcohol use associated with alcohol use disorders.

Physical health

Professionals identified alcohol-related morbidity including chronic and acute conditions among their patients. Professionals identified a range of conditions including cirrhosis and hepatitis associated with longtime alcohol use as well as acute conditions such as head trauma and other physical injuries.

> *The patient arrives with cirrhosis and hepatitis, and with diseases caused by alcohol, or because he suffers many falls (...) and because of this head trauma and other sequelae (...) because of alcohol abuse. (Physician, female, age 27)*

A continuum of alcohol-related harms was noted by these professionals. Professionals observed harms that included the direct and indirect consequences of alcohol use such as a reduction in self-care and the inability to follow treatment recommendations for other diseases like hypertension and diabetes.

> *I know there are two ladies ... who can't follow the treatment very well, the medications, (they are) hypertensive, diabetic. And when you check they have a history of alcohol use. (Psychologist, female, age 52)*

In keeping, professionals remarked that even when patients acknowledged that alcohol use was interfering with their health, patients did not necessarily identify it as a problem. For example, one patient experienced issues with erectile dysfunction that he attributed to excessive alcohol use but requested a pharmacological solution.

> *So, something that the man looks for when he arrives and says "I drink a lot." His concern is not the alcohol, because he is becoming powerless. And then he arrives and says "I think it's the drink." but he doesn't want to change his drinking habits, he wants us to deal with his impotence. [laughs] So many men when they come and say that, it's because of impotence, but not because of alcohol, they think we will get some treatment, but without removing the alcohol. (Physician, female, age 64)*

According to the professional, reducing alcohol consumption was not an option considered by the patient. Rather, the patient suggested that intense alcohol consumption

was normal as were the side effects, but that it was the side effects, not the alcohol use, that required treatment.

Mental health

The identification of alcohol-related problems was not limited to physical consequences. Professionals suggested that general mental health symptoms as well as specific mental health disorders were related to harmful alcohol use. General mental health symptoms and conditions that accompanied harmful alcohol use included sadness, apathy, restlessness, anxiety, depression, insomnia, and "unspecific complaints" like headaches, tiredness, and palpitation. These somatic complaints were described by one physician.

> *In general, emotional distress appears first and in general it is not very obvious. People come up with very nonspecific complaints: "I have a headache, tiredness, palpitation." And then when you approach it in a deeper way you realize that they have emotional distress and if you approach the issue of alcohol then you can make that connection. But rarely does one [a patient] present it all together. Sometimes because they themselves do not realize this connection. (Physician, female, age 27)*

When asked to compare patients with harmful alcohol use to people with other mental health problems, professionals perceived that the patients more easily identified mental health problems than problems related to alcohol:

> *The person with depression, she can see it as a health problem faster than alcohol. ... I don't know if it's [the presence in the] media but the person looks for more. "Ah, I'm very sad. Ah, I'm very apathetic, I can't solve my things". ...someone [the patient] comes to talk, you understand?... but they don't seek help because of alcohol, it's very rare. Very rare indeed. I think for those with a problem with alcohol here, coming directly for help, I can only think of two in a whole year. (Nurse, female, age 29)*

The manifestation of mental health symptoms regularly motivated patients to seek health services at which point professionals sometimes asked about alcohol consumption. As with physical diseases, patients with mental health symptoms who also manifested harmful alcohol use were unlikely to name alcohol use as a problem.

> *In an interview it happens that people are not clear about alcoholism as a disease. It [the emotional process] goes through sadness, depression, abandonment, for everything the person starts to drink. (Physician, female, 40)*

Depression was the most discussed mental health disorder related to harmful alcohol use. A psychiatrist discussed the relationship between patients' recurrent depressive disorder and harmful alcohol use where the latter was often longstanding and unidentified:

> *(…) I have heard of few people seeking help with the problem of alcohol use. There was always someone with, the most common episode, with a depressive episode. And then you will see the person had alcohol abuse for many years. The person had recurrent depressive disorder as well as comorbid alcohol use disorder. (Psychiatrist, male, age 31)*

Besides depression, professionals described how a host of mental health disorders including anxiety and social phobias frequently co-occurred with alcohol misuse.

We have little psycho education about the use of alcohol in our population and I believe that in cases of anxiety disorders, especially social phobia, it is a very common comorbidity, and in depression as well. (Psychiatrist, male, age 31)

Professionals' perceptions of the relationship between alcohol and other mental health disorders took several forms. Generally, patients' harmful alcohol use appeared to follow an initiating event or was considered a rational strategy to alleviate mental health symptoms or to deal with traumatic experiences.

(…) I think many patients use alcohol to treat depressive conditions and / or to treat traumas that they have experienced and have identified alcohol as a way out.(Nurse, male, age 37)

In this way, alcohol use was perceived as a coping strategy for other problems, even though professionals acknowledged that patients used alcohol to treat symptoms that might be worsened by alcohol use, including insomnia:

I recently even had a case of a serious depressed woman, a long-standing lousy life story, and she said, "Oh, now I've gotten to the point where I am sleeping on cachaça." (cachaça is an alcoholic spirit made from sugar cane) (Physician, female, age 29)

As in the example above, some professionals suggested that alcohol abuse could be understood as a strategy for patients to address hardships, which in turn may have made identification and intervention more difficult. For many professionals, as with the one above, alcohol misuse was just one part of a larger constellation of problems faced by patients, including poverty, unemployment, and violence. As one participants said, the problematic use of alcohol is "just the tip of the iceberg" since it is often associated with other mental health problems. In the following example, alcohol use was often associated with multiple, complicated issues, and the alcohol use tended to amplify other problems, further complicating treatment among a patient population with few resources:

The [use of] alcohol, as I said, is not a single diagnosis. It always has an anxiety disorder, a depression behind, a conflicting relationship with family members, in short, it is the tip of the iceberg. It is the tip, but also reinforces other problems. It becomes a snowball. (Physician, male, age 31)

The co-occurrence of common mental health conditions with undetected harmful alcohol use appeared to complicate treatment of other conditions, especially when harmful alcohol use was left untreated. For example, one physician discussed the serious role that alcohol was known to play in suicide ideation and suicide. Although alcohol might not be the direct cause of underlying distress, it tended to exacerbate other mental health conditions, especially for patients who did not receive treatment as in this example of a patient who talked about wanting to die:

He did not undergo treatment, it [community health workers] made [an] active search for his appointments, and he did not appear at the post [primary care unit] for follow up, came to express a death wish and ended up committing suicide by ingesting poison for rats. (Physician, male, age 64)

Comparisons Between Alcohol and Drugs Use

Professionals regularly connected harmful alcohol use to drug use. When discussing the similarities between them, professionals spoke about the commonality of personal experiences including problems with family, work, financial issues, violence, and accidents. This nurse discussed commonalities related to the loss of social connections and financial instability:

> *What is the resemblance? I think the issue of abuse. Abuse and this abuse diminishes the capacity of that individual and, as a result, he destroys all his relationships with work, his relations with his family, his financial status, social commitments. (Nurse, female, age 45)*

Professionals also suggested that there were similar motivations for harmful alcohol and drug use. Although professionals identified variations according to the individuality of each patient, several suggested that patients used alcohol and drugs to elude distress, especially emotional pain. This physician suggested that alcohol and drug use was a strategy that patients turned to as an escape:

> *I think that people who abuse alcohol and other drugs are in emotional distress and I think they end up trying to find something that gives them pleasure even if it only momentarily lessens the pain, or that makes them able to endure life the way they are living. (Physician, female, age 38)*

This response and others like it were non-stigmatizing; by suggesting that the patient's motivation was a coping response, they described patients' attempts to find pleasure to help manage hardships in a way that did not blame the patients or suggest moral failure.

Interviewees also identified differences between alcohol and other drug-related problems. Differences included alcohol's broad cultural acceptance, lenient alcohol regulations in comparison to tobacco, faster identification of patients who use illegal substances, and a tendency by medical professionals to downplay the role of alcohol and over-estimate the prevalence of drug use. Most interviewees identified the legal and cultural status of alcohol acceptance as the main difference between alcohol and drug use–related problems.

> *Many think alcohol is not a drug, even though it is a legal drug. So "I'm not addicted, I use alcohol, and I can use it because alcohol is a licit drug", so one of the big differences is this. (Physician, female, age 64)*

It is in these comparisons of similarities and differences related to the motivations and consequences of alcohol and drug use that constructs for acceptable alcohol use and problems associated with alcohol use disorders begin to emerge. Alcohol's legal status allows initiation to begin and use to continue without attracting scrutiny. This social acceptability creates permission for different consumption patterns and may obscure progression to alcohol use that is associated with problems, while illicit drug use is considered problematic at its inception.

> *[Alcohol] it is more chronically persistent in daily consumption, and then he adjusts to daily use as regular and normal and the person himself does not identify that very well, and the family is already preparing for those most critical moments [problems], but it is something consumed daily. Alcohol has this question. The other drugs, people already identify as a problem, [they] come and bring, sometimes families bring [the concerns] more easily. (Physician, female, age 42)*

In this example, the physician discussed daily alcohol use which goes unnoticed until something out of the ordinary happens. Where alcohol's legal status and wide availability limit its identification as a problem, any illicit drug use is often deemed harmful.

People look at it [the use of alcohol] as if it was a lighter thing, as if it were a cool thing to do, and as if it didn't cause so much harm, and drug [use] already has another stigma, let's say. (Nurse, female, age 27)

The perception that any amount of illegal drug use is harmful resulted in faster reporting.

The stigma is different. When the person is a user of other drugs, the population is already alerting the health service, seeking help. The call for help is much faster, I think. (Physician, male, age 31)

Frequently what alerts the patient, the family, or the health professional to a substance-related problem is the presence of illicit drug use, not alcohol use. Patients do not view alcohol use alone as a source of a potential problem. As suggested above, they generally do not report it to or initiate a discussion about concerns with health professionals.

Without active investigation, a substance use disorder can often go unnoticed; it is often not presented as a complaint but in the course of the anamnesis the patient turned out to have a substance use disorder. Alcohol and tobacco, in particular, are disease contributors to substance use disorders less valued for being legally and culturally accepted drugs. I saw that people don't see it as an issue, they don't bring it [alcohol or tobacco use] as a complaint, and it has to be investigated. (Psychiatrist, male, age 31)

Here, the psychiatrist underscores a key difference — that alcohol and tobacco are considered disease contributors, but drug use is considered a disease onto itself. The difference in social acceptance between alcohol compared to other drugs may reduce health professionals' perception of alcohol as a potential problem, which may in turn contribute to the under-detection of alcohol-related consequences and an over-estimation of the prevalence of drug use.

It seems that the biggest problem today is illicit drugs and you [the professionals] just don't spend [time] with alcohol. (Nurse, female, age 29)

As referenced earlier, most of the health units are located either within or near favelas. Some favelas have a long history of reliance on underground economies, including drug trafficking. There was a burgeoning of such activities following Brazil's 2014 economic crisis as people struggled for livelihoods and governmental institutions, like police, lacked usual resources. Federal military police had been called into Rio de Janeiro to suppress narco-drug trafficking prior to the start of the study and remained in the city during the study period. Health professionals' awareness of the proximity of illicit drug trade and associated violence may have created a perception among some professionals that illicit drug use was as common as alcohol abuse. The perception appeared widespread among the interviewees:

The majority [of the population served in the territory] are both alcohol and drug users, and some have a very intensive use (Physician, male, age 64)
… marijuana is more prevalent than alcohol and crack, in our daily perception of routine care. (Physician, female, age 39)

Despite the perceptions of these professionals, epidemiological studies in Brazil indicate that illegal drug use ranks far below alcohol use across the population. The prevalence for alcohol, marijuana/hashish/skunk, cocaine, and crack was, respectively, 43.1%, 2.5%, 0.9%, and 0.3% in the last 12 months and 30.1%, 1.5%, 0.3%, and 0.1% in the last 30 days (Bastos et al., 2017).

Professionals also discussed differences between alcohol and tobacco. When comparing alcohol to nicotine and tobacco, also a legal drug, professionals highlighted policy strategies that control tobacco and nicotine availability remarking that too little is done about alcohol.

> *The problem is not that it [alcohol] is a legal drug, it is not having as many use-limiting or awareness-raising strategies as they have done in tobacco in recent decades. (Psychiatrist, male, age 31)*

According to this interviewee, although both are legal, media campaigns targeting tobacco's health consequences have created greater awareness and stronger censure by the public than has been afforded alcohol. A physician expounded on this sentiment by highlighting the role public laws have had on limiting where people can smoke:

> *Unlike cigarettes [tobacco] which are also a legal drug, but nowadays you have a lot more ways to stop [reduce prevalence] smoking because, for example, you can't smoke indoors [laws forbid it] because if you do you get a bad or unpleasant smell, people have more rejection. (Physician, female, age 27)*

Albeit different substances, the prevalence of alcohol versus tobacco use in Brazil is noteworthy. Alcohol use in the last 12 months was 43.1% compared to 15.4% for cigarettes. Similarly, alcohol use during the last 30 days was 30.1% compared to 13.6% for cigarette products (Bastos et al., 2017). Laws limiting access to and the use of tobacco products appear to play an important role in public acceptability and use (da Costa e Silva et al., 2013).

Discussion

Primary care professionals described the multiple consequences of harmful alcohol use in their patients' lives, including implications for physical and mental health. Physical manifestations included acute consequences like brain injury as well as chronic conditions such as cirrhosis and sexual dysfunction. Interviewees also identified co-morbid mental health conditions including psychological trauma, depression, and anxiety. Interestingly, alcohol was frequently portrayed as either a distraction that patients turned to reduce their psychological trauma and depressive symptoms, or as a strategy to cope with persistent economic hardships and repeated violence. Notably, alcohol use was never described as the precursor to emotional distress.

In professionals' perceptions, patients rarely recognized their own problematic use of alcohol and they did not request help for it directly. Patients' lack of problem identification appears connected to alcohol's legal status and its ubiquitous availability which reinforce the perception that it is a harmless commodity. Interestingly, when asked about the relationship between alcohol and illegal drugs, professionals were quick to identify concerns with any amount of illicit drug use such that family members and patients themselves reported drug use more rapidly than alcohol problems. Compared to tobacco, also a legal

product, professionals noted that access to tobacco was more tightly controlled while alcohol receives greater acceptance even though it is associated with considerable public harms (Griswold et al., 2018).

Professionals' perceptions of the role of alcohol in patients' lives suggest that health professionals were aware of the daily hardships that patients endured, and their non-stigmatizing descriptions often provided a rationale for patients' alcohol use. Several professionals readily identified pre-disposing social and psychological conditions for their patients' regular alcohol use. They often acknowledged that the widespread availability of alcohol and its social acceptability helped to diminish concerns related to alcohol use, even as that use progressed. Professionals tended to identify a patients' harmful use of alcohol—that which aligned with symptoms consistent with alcohol use disorders—once consumption resulted in publicly observable or family identified consequences.

Due to widespread alcohol access, over-estimation of drug use prevalence, and social acceptance of alcohol use, professionals may not identify problems related to alcohol until problems become conspicuous or they are detected in the process of investigating another condition. As such, professionals' detection of harmful alcohol use focuses on publicly observable consequences consistent with more serious alcohol use disorder criterion and not earlier use patterns when research suggests interventions to reduce consumption can be most effective (Kaner et al., 2018). Once identified, early intervention may prevent additional alcohol-related problems. However, the delay in identification may contribute to the constellation of complex medical and mental health problems described by the professionals. The dearth of early detection represents missed opportunities for professionals to intervene before problems intensify.

Professionals' descriptions of problems related to alcohol use were similar to those identified with other drug use. Nevertheless, they distinguished several ways in which alcohol use differs from other drugs used including that alcohol is a licit drug and laws governing sales and use are not as restrictive as they are for tobacco. Also, unlike tobacco, alcohol use is well accepted in the society. Interestingly, the "moralization" associated with professionals' views of alcohol-related problems among patients that was characterized in earlier Brazilian studies did not emerge in the interview data (Ronzani et al., 2009, 2012). On the contrary, professionals often described social and economic hardships and predisposing events to contextualize patients' problematic alcohol use. The differences may be due to instrumentation as the earlier studies surveyed participants.

Embedded in some of the quotations highlighted above were phrases like: "*they don't seek help because of alcohol"* and *"I have heard of few people seeking help with the problem of alcohol use."* Such statements suggest that professionals are aware that patients are either reluctant to identify or that patients have not yet identified their health issues as alcohol related. Alcohol's widespread social acceptability may reduce the ability of patients to connect their problem initiation and manifestation with alcohol use, or to normalize such consequences as with the patient who discussed how his heavy alcohol use interfered but still wanted a medication to compensate for sexual dysfunction. Alcohol's social acceptability may reduce the priority professionals place on alcohol screening even as they describe the complexity patients' alcohol-related problems bring to other medical and mental health conditions. Patients' reticence in identifying problems as alcohol related underscores the need for intentional investigation by health professionals if Brazil is going to reduce alcohol-related DALYs.

The apparent rarity of early detection of alcohol-related problems has several implications. First, rather than providing respite, unchecked alcohol use may exacerbate other

physical, mental health ailments, or hardships. Second, under-detection may reinforce a cognitive rationale that permits professionals to believe that alcohol problems are either rare or benign until serious problems manifest within the individual, family, or community. Third, given that early identification and intervention can reduce alcohol-related problems, the lack of regular screening is inconsistent with SUS's primary care emphasis and represents a lost opportunity to detect harmful alcohol use before problems intensify. Fourth, low detection rates may focus the problem on a small set of easily characterized individuals while obscuring a larger population of patients who might benefit from earlier intervention and treatment.

As with all studies, this study has limitations. Participants were recruited from two SUS health service programmatic areas in Rio de Janeiro. As such, the findings may not be generalizable to other programmatic areas, municipalities, or private health care systems. In addition, all but four of the researchers (American lead author, an interviewer, and two medical students who served as research assistants) were either employed by the public system at the time of the study or had been employed by the system. Although researchers' knowledge of the system helped to create access without which the study would not have been possible, the researchers, including those who coded and analyzed data, may have been influenced in their interpretations by working within the system. The participation of the American researcher, who participated in all coding and data interpretations may have helped balance this influence.

As described in "Methods," the researchers did not ask participants to identify or differentiate criteria related to alcohol use disorders. The researchers debated whether to include clinical terms in the interview questions but felt that professionals who were unclear about diagnostic criteria might feel embarrassed. The potential of such a reaction would neither support the immediate goal to ensure cultural appropriateness of the training materials under development, nor assist planned recruitment efforts to maximize training attendance among participating units. Participants were not asked about their own alcohol use during interviews for similar reasons.

Questions were designed to capture professionals' perceptions about work in the unit, the community surrounding the unit, their patients' use of alcohol, and their perception of and comfort with alcohol screening and intervention generally. The questions were not designed to capture technical knowledge or consultation details. Some of the questions related to patients' alcohol use and related harms attempted to identify barriers to screening that had been identified in the limited Brazilian literature and other international literature. Researchers may have been influenced by the framing of questions when coding and developing themes.

Relationship Between Professionals' Perceptions and International Findings

According to the World Health Organization, the median global treatment gap for alcohol abuse and dependence two decades ago was approximately 78% (ranging from 94% in Mexico City to 53% in São Paulo, Brazil) (Kohn et al., 2004). A more recent study in 2018 by the Pan American Health Organization (PAHO) scored countries on their alcohol policies (Pan American Health Organization, 2018). Among the twenty-five member states reporting, Brazil ranks among the top countries in Latin America for its health services' response to alcohol (indicators include screening and brief intervention for harmful and hazardous alcohol use, special treatment programs, and the availability of pharmacological treatment). The WHO findings appear to contradict this study and other studies done

within other Brazilian states that suggest alcohol screening is rarely conducted in primary care (Amaral et al., 2010; Graever, 2013; Macinko et al., 2015). Results from this study explore the perceptions of patients' alcohol use among upper-level professionals in Rio de Janeiro. This study did not examine how often professionals screened patients for alcohol-related problems or if detected, their procedures for intervening. It is possible that findings from this study point to a gap between the capacity that SUS is designed to provide and what happens in clinical practice.

Training of Brazilian Health Professionals

As stated, health professionals in SUS are trained in the collaborative care model which uses an integrated team approach to detect and manage chronic medical and mental health conditions. The approach creates greater capacity to manage co-occurring medical conditions and mental health disorders in primary care. However, SUS patients often arrive with multiple, complicated health issues and limited resources that usurp less immediate needs. In addition, the widespread availability of alcohol appears to reinforce its perception as an acceptable commodity to manage pain, create respite, and to provide joy. Although not the focus of the study, it is telling that the same policy report that ranked Brazil near the top for health service policies, noted that Brazil ranked below the median of countries in the Americas on the control of illegally or informally produced alcohol and stated that data related to alcohol marketing was unavailable (Pan American Health Organization, 2018). Although Brazil regulates some alcohol advertising and promotion, the legislation is restricted to beverages with an alcohol content above 13% by volume which exempts most beer and wine (Vendrame, 2017).

Although clinical intervention alone will not reduce alcohol-related DALYs in Brazil (Pan American Health Organization, 2018), training the next generation of professionals will be critical to increase earlier detection of alcohol-related problems. Integrating alcohol content into medical and nursing curriculums and teaching students to administer a standard screening instrument (e.g., alcohol use disorders identification test or AUDIT) should be a part of medical education (Babor et al., 2001). Instruction could include how to monitor alcohol use for changes over time, similar to how changes in weight, blood pressure, etc. are monitored. Subsequent professional development sessions related to alcohol use disorders could reinforce foundational knowledge, and as Ronzani et al. (2012) described, content from such trainings must be regularly reinforced.

Implications for our Study

Findings from this study immediately informed several aspects of the training content and offer insight into how alcohol use and related problems are perceived in primary care. In terms of the training, researchers decided that before we could discuss alcohol epidemiology or the effectiveness of SBIRT, participants would need to be able to talk openly about alcohol use. Consequently, a portion of the first day was dedicated to a discussion of the cultural use of alcohol (including songs and popular images) to explore alcohol's social pervasiveness. Next, to increase participants' comfort about asking patients about their alcohol use, participants were paired and asked to administer the AUDIT. The researchers collected the completed instruments and then presented the score frequencies for discussion to further encourage conversation about barriers to asking patients about their drinking habits.

Generally, upper-level professionals tended to perceive alcohol use as a coping strategy and identified alcohol-related problems only when consequences became serious or obvious. Professionals' rationale for patients' alcohol use may reduce early identification and interventions that might otherwise prevent or reduce alcohol-related problems. Finally, the ubiquitous nature of alcohol and late problem detection may reinforce assumptions that alcohol use disorders are uncommon.

Improvement of Screening Procedures

This study offers important insights into health professionals' perceptions of patients' alcohol use and related problems in Rio de Janeiro. Although Brazil appears to have the health system infrastructure, design, and many of the stated policies required to support integrative functions within primary care, early alcohol screening does not appear to be regular practice among most of the professionals interviewed for this study. Changing professionals' practice patterns to encourage regular screening for alcohol problems will require providing greater alcohol education during clinical training and ongoing professional development. Given professionals' clinical perceptions of alcohol, a combination of changes to professionals' clinical education and policies to reduce alcohol availability will likely be needed to drive down alcohol-related disability-adjusted life years in Brazil.

Acknowledgements The authors thank the mental health and addictions staff within the city of Rio de Janeiro, area coordinators, managers, and the staff at the primary care health units in participating programmatic. The authors thank the Fulbright Commission, CAPES, UERJ, Coordinating Study Centers' staff, and the following: Bianca Pereira de Souza, Adriana Teixeira dos Santos, Leandra Urena, Gabriella Souza Oliberia Freitas, and interviewers: Angela Machado da Silva, Alice Lopes do Amaral Menezes, and Natalia Lelou Fazzioni.

Funding Fulbright Scholars Award and in-kind support from Universidade do Estado do Rio de Janeiro.

Declarations

Competing Interests The authors declare no competing interests.

References

Amaral-Sabadini, M. B., Saitz, R., & Souza-Formigoni, M. L. O. (2010). Do attitudes about unhealthy alcohol and other drug (AOD) use impact primary care professionals' readiness to implement AOD-related preventive care? *Drug and Alcohol Review, 29*(6), 655–661. https://doi.org/10.1111/j.1465-3362.2010.00222.x

Amaral, M. B., Ronzani, T. M., & Souza-Formigoni, M. L. O. (2010). Process evaluation of the implementation of a screening and brief intervention program for alcohol risk in primary health care: An experience in Brazil. *Drug and Alcohol Review, 29*(2), 162–168.

Babor, T. F., Higgins-Biddle, J. C., & Organization, W. H. (2001). Brief intervention for hazardous and harmful drinking: A manual for use in primary care.

Bastos, F. I. P. M., de Vasconcellos, M. T. L., De Boni, R. B., Reis, N. B. d., & Coutinho, C. F. d. S. (2017). III Levantamento Nacional sobre o uso de drogas pela população brasileira. In: ICICT/FIOCRUZ.

Blankertz, L. (1998). The value and practicality of deliberate sampling for heterogeneity: A critical multiplist perspective. *19*(3), 307–324.

Collins, P. Y., Patel, V., Joestl, S. S., March, D., Insel, T. R., Daar, A. S., . . . Fairburn, C. (2011). Grand challenges in global mental health. *Nature, 475*(7354), 27

Corbin, J. M., & Strauss, A. (1990). Grounded theory research: Procedures, canons, and evaluative criteria. *Qualitative Sociology, 13*(1), 3–21.

D'Amour, D., Ferrada-Videla, M., San Martin Rodriguez, L., & Beaulieu, M. D. (2005). The conceptual basis for interprofessional collaboration: Core concepts and theoretical frameworks. *Journal of interprofessional care*, *19*(sup1), 116–131.

Denzin, N. K. (2011). *& Lincoln YS*. The Sage handbook of qualitative research: Sage.

da Costa e Silva, V. . L., Pantani, D., Andreis, M., Sparks, R., & Pinsky, I. (2013). Bridging the gap between science and public health: Taking advantage of tobacco control experience in Brazil to inform policies to counter risk factors for non-communicable diseases. *Addiction, 108*(8), 1360–1366.

Eaton, J., McCay, L., Semrau, M., Chatterjee, S., Baingana, F., Araya, R., . . . Saxena, S. (2011). Scale up of services for mental health in low-income and middle-income countries. *The Lancet, 378*(9802), 1592-1603. https://doi.org/10.1016/S0140-6736(11)60891-X

Gonçalves, D. A., Mari, J., & d. J., Bower, P., Gask, L., Dowrick, C., Tófoli, L. F., … Fortes, S. . (2014). Brazilian multicentre study of common mental disorders in primary care: Rates and related social and demographic factors. *Cadernos De Saude Publica, 30*, 623–632.

Graever, L. (2013). *A assistência ao indivíduo com problemas relacionados ao uso de álcool e drogas ilícitas na Estratégia Saúde da Família (Doctoral Dissertation)*. Universidade do Estado do Rio de Janeiro.

Griswold, M. G., Fullman, N., Hawley, C., Arian, N., Zimsen, S. R., Tymeson, H. D., . . . Salama, J. S. J. T. L. (2018). Alcohol use and burden for 195 countries and territories, 1990–2016: A systematic analysis for the Global Burden of Disease Study 2016. *392*(10152), 1015–1035.

Guimarães, F. J., Fernandes, A. F. C., & Pagliuca, L. M. F. (2015). Intervenções para enfrentamento do abuso de álcool: revisão integrativa. *Revista Eletrónica de Enfermagem, 17*(3).

Haley, S. J., Athié, K., Wyka, K. E., Salgado, M. A., Teixeira, D. S., Alves, K., . . . Addiction. (2019). Implementation Protocol To Increase Problematic Alcohol Use Screening and Brief Intervention in Brazil's National Health System. 1–19.

Institute for Health Metrics and Evaluation. (2019). Global burden of disease compare. Retrieved from https://vizhub.healthdata.org/gbd-compare/. Accessed 23 Jan 2020

Joseph, J., & Basu, D. (2016). Efficacy of brief interventions in reducing hazardous or harmful alcohol use in middle-income countries: Systematic review of randomized controlled trials. *Alcohol and Alcoholism, 52*(1), 56–64.

Kaner, E. F., Beyer, F. R., Muirhead, C., Campbell, F., Pienaar, E. D., Bertholet, N., . . . Burnand, B. (2018). Effectiveness of brief alcohol interventions in primary care populations (Publication no. https://doi.org/10.1002/14651858.CD004148.pub4). from Cochrane Library https://www-ncbi-nlm-nih-gov.ccny-proxy1.libr.ccny.cuny.edu/pmc/articles/PMC6491186/. Accessed 23 Jan 2020

Kaner, E. F., Dickinson, H. O., Beyer, F. R., Campbell, F., Schlesinger, C., Heather, N., . . . Pienaar, E. D. (2007). Effectiveness of brief alcohol interventions in primary care populations. *The Cochrane Library*.

Kohn, R., Saxena, S., Levav, I., & Saraceno, B. (2004). The treatment gap in mental health care. *Bulletin of the World Health Organization, 82*, 858–866.

Leite, D. C., Andrade, A. B., & Bosi, M. L. M. (2013). The integration of Psychology in units of support for the Family Health Program. *Physis: Revista de Saúde Coletiva, 23*(4), 1167–1187.

Lieber, E., Weisner, T., & Taylor, J. (2011). *Dedoose software. In*. Sociocultural Research Consultants.

Lindelow, M., & Araujo, E. C. (2014). *Universal Health Coverage for Inclusive and Sustainable Development: Country Summary Report for Brazil* Washington, DC: World Bank Retrieved from http://documents.worldbank.org/curated/en/199721468021280000/pdf/912140WP0UHC0C0Box385329B00PUBLIC0.pdf. Accessed 23 Jan 2020

Macinko, J., Mullachery, P., Silver, D., Jimenez, G., & Neto, O. L. M. (2015). Patterns of alcohol consumption and related behaviors in Brazil: Evidence from the 2013 National Health Survey (PNS 2013). *PloS one, 10*(7), e0134153.

Marinho, F., de Azeredo Passos, V. M., Malta, D. C., França, E. B., Abreu, D. M., Araújo, V. E., . . . Duncan, B. B. (2018). Burden of disease in Brazil, 1990–2016: A systematic subnational analysis for the Global Burden of Disease Study 2016. *The Lancet, 392*(10149), 760-775

Ministério da Saúde. (2010). Diretrizes do NASF: Núcleo de Apoio a Saúde da Família. Cadernos de Atenção Básica. Retrieved from http://189.28.128.100/dab/docs/publicacoes/cadernos_ab/abcad27.pdf. Accessed 23 Jan 2020

Ministério da Saúde. (2019). E-gestor Atenção Básica: Informação e gestão da Atenção Básica Retrieved from https://egestorab.saude.gov.br/paginas/acessoPublico/relatorios/relHistoricoCoberturaAB.xhtml

Pan American Health Organization, (2018). Alcohol policy scoring: Assessing the level of implementation of the WHO Global strategy to reduce the harmful use of alcohol in the Region of the Americas. ISBN: 978–92–75–12045–3. Retrieved from: https://iris.paho.org/bitstream/handle/10665.2/49679/9789275120453_eng.pdf?sequence=2&isAllowed=y. Accessed 23 Jan 2020

Pereira, M. O., Angioni, B. M., Ferreira, N. d. C., Oliveira, M. A. F. d., Vargas, D. d., & Colvero, L. d. A. (2013). Efetividade da intervenção breve para o uso abusivo de álcool na atenção primária: Revisão sistemática.

Poznyak, V., Reed, G., & Medina-Mora, M. (2018). Aligning the ICD-11 classification of disorders due to substance use with global service needs. *Epidemiology and Psychiatric Sciences, 27*(3), 212–218.

Ronzani, T. M., Higgins-Biddle, J., & Furtado, E. F. (2009). Stigmatization of alcohol and other drug users by primary care providers in Southeast Brazil. *Social Science & Medicine, 69*(7), 1080–1084.

Ronzani, T., Oliveira, M., Mota, D., Cruvinel, E., Laport, T., & Martins, L. (2012). Assessing the impact of screening, brief intervention, and referral to treatment implementation on attitudes toward and moralization about alcohol, tobacco, and other drug use. In *Addiction Science & Clinical Practice* (Vol. 7, No. 1, pp. 1–1). BioMed Central.

Soares, J., & Vargas , D. D. (2019). Effectiveness of brief group intervention in the harmful alcohol use in primary health care. *Revista De Saúde Pública, 53*, 04.

Sutherland, J., Nguyen, D., & Hopkins, S. (2019). Sonix. San Francisco, California. Retrieved from https://sonix.ai/. Accessed 23 Jan 2020

Thornicroft, G. (2012). Evidence-based mental health care and implementation science in low-and middle-income countries. *Epidemiology and Psychiatric Sciences, 21*(3), 241–244.

Thota, A. B., Sipe, T. A., Byard, G. J., Zometa, C. S., Hahn, R. A., McKnight-Eily, L. R., ... & Gelenberg, A. J. (2012). Collaborative care to improve the management of depressive disorders: a community guide systematic review and meta-analysis. *American journal of preventive medicine*, *42*(5), 525-538

Tolley, E. E., Ulin, P. R., Mack, N., Robinson, E. T., & Succop, S. M. (2016). *Qualitative methods in public health: a field guide for applied research*: John Wiley & Sons.

Vendrame, A. (2017). When evidence is not enough: A case study on alcohol marketing legislation in Brazil. *Addiction, 112*, 81–85.

Wakida, E. K., Talib, Z. M., Akena, D., Okello, E. S., Kinengyere, A., Mindra, A., & Obua, C. (2018). Barriers and facilitators to the integration of mental health services into primary health care: A systematic review. *Systematic Reviews, 7*(1), 211.

World Health Organization. (1992). The ICD-10 Classification of Mental and Behavioural Disorders: Clinical descriptions and diagnostic guidelines. Retrieved from https://www.who.int/substance_abuse/terminology/ICD10ClinicalDiagnosis.pdf. Accessed 23 Jan 2020

World Health Organization. (2001). *The alcohol use disorders identification test: Guidelines for use in primary care*. World Health Organization.

World Health Organization. (2010). *Atlas on substance use (2010): Resources for the prevention and treatment of substance use disorders*: World Health Organization.

World Health Organization. (2017). *mhGAP training manuals for the mhGAP intervention guide for mental, neurological and substance use disorders in non-specialized health settings, version 2.0 (for field testing)*. Geneva: World Health Organization Retrieved from https://apps.who.int/iris/bitstream/handle/10665/259161/WHO-MSD-MER-17.6-eng.pdf?sequence=1&isAllowed=y. Accessed 23 Jan 2020

World Health Organization. (2018). *Global status report on alcohol and health 2018*. (9241565632). Geneva: World Health Organization Retrieved from https://www.who.int/substance_abuse/publications/global_alcohol_report/gsr_2018/en/. Accessed 23 Jan 2020