

How to Detect Early Harmful and Hazardous Substance Use in Workplace: A Qualitative Study

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Abstract

Purpose: How to detect early harmful and hazardous substance use in workplace: a qualitative study.

Background: Workers under the influence of psychoactive substances are more likely to commit unsafe acts which damage themselves, others' lives, and the organization. A question is how to detect substance misuse early in the workplace, without punitive or coercive actions. This study evaluated the implementation of a screening (S) and brief intervention (BI) of substance misuse through (1) the barriers faced and the solutions presented by occupational health professionals when implementing SBI, and (2) the feasibility to use the SBI in this environment for such a preventive procedure.

Methods: An action research methodology was used in this study in a City Hall in a southern city of Brazil. First, 26 professionals of the Occupational Health Service were trained in a 20 h course about: psychoactive substances' effects, how screening (S) using the Alcohol, Smoking and Substance Involvement Screening Test (ASSIST), and how doing BI. After training, they received supervision in doing the task goal of applying SBI in their routine in a random sample of 5% of the employees (the total was 26,129). One year later, two focus group meetings were held with all professionals.

Results: The trained professionals were 11 psychologists, 12 social workers, one organizational development analyst, one occupational therapist, and one cultural promoter; 99.2% female; 46 ± 4 years old; 80.6% married. During a one-year period, they detected, in a representative sample of employees ($n=1,310$), 144 individuals in risky use and 139 dependents on tobacco, alcohol and/or other substances. At three-month follow-up they observed a significant reduction in ASSIST scores. The action research improved the implementation of SBI for substance use in their routine. Professionals agreed that SBI facilitates talking about substances without prejudice or stigma, enabling earlier detection, intervention, and treatment referral.

Conclusion: SBI was feasible in this workplace to prevent hazardous/ harmful substance use.

Keywords: Substance use; Workplace; Prevention; Early detection; Brief intervention; Implementation; Action-research; Focus group

Introduction

The use of drugs, both licit and illicit, is associated with deleterious effects that lead to several negative health consequences and have implications related to different aspects of life, such as professional life and the workplace. Workers under the influence of psychoactive substances are more likely to commit unsafe acts that cause damage to their own life, others' lives, and the organization [1]. The relationship between drug use behaviour and safety performance in work has been studied in a variety of occupational settings. In civil aviation, for example, the estimated odds ratio, a measure of the strength of the association between drug violations and aviation accidents, suggests that use of illicit drugs may triple the risk of accident involvement [2]. Alcohol and/or other substance use leads to increased absenteeism, reduced productivity, increased accident rates in workplace and in other places, increased health care costs, increased rate of staff turnover, impaired interpersonal relationships, and a worsening of the company's image [1,3-5].

The causes of misusing substances are bio psychosocial and can be influenced by factors specific to the workplace like liability related to the job [6] and stress related to the functional position of the individual [7]. Some authors reported a positive correlation between a stressful work environment and alcohol consumption [8]. Different work environments also should be considered as a contributing factor to use substances, in other words, some occupations promote high consumption levels of alcohol and other drugs. For example,

food service employees have been estimated to be almost nine times more likely to drink alcohol before coming to work and almost three times more likely to work with a hangover when compared with other occupations, because the familiarity with alcohol products and the availability in workplace [9]. A study from Australia indicated significant differential alcohol and drug use patterns related to drug type, worker characteristics and occupational setting. Hospitality industry workers were identified as the highest risk group for alcohol and drug use at work, followed by the financial services industry workers and the workers employed in construction and service industries [10].

The majority of adults at risk for alcohol problems [11] or illicit drug use [12] is employed, thus the workplace becomes a place where prevention can be practiced. Another feature of prevention strategies implemented in the workplace is the great importance of employment in a person's life, considering that the hazardous consequences of substance misuse can motivate behavioural change [11]. In general,

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organizations provide assistance programs directed to dependent individuals, but primary and secondary prevention directed to individuals with harmful or hazardous use of substance are less frequent [11]. A major question is how to detect substance misuse early in the workplace, without punitive or coercive actions, and promote behavioural changes directed toward healthy activities. Professionals working in occupational health services can use preventive practices focusing in health promotion recommended by current legislation including here in Brazil [13].

Several studies have shown the development of instruments that detect substance use that are valid and reliable and can facilitate screening of substance use for preventive actions. The Alcohol Use Disorders Identification Test (AUDIT) is an instrument developed and validated to detect alcohol-related problems and has been used in Primary Health Care (PHC) settings [14]. In 1997, based on the AUDIT, the World Health Organization (WHO) sponsored an international research group on the development of the Alcohol, Smoking and Substance Involvement Screening Test (ASSIST; http://www.who.int/substance_abuse/activities/assist). The ASSIST detects hazardous, harmful, and dependent use of all psychoactive substances including the licit ones. The ASSIST has sensitivity, specificity, internal consistency, and validity for detecting problems related to the use of alcohol, tobacco, marijuana, cocaine, amphetamines, inhalants, sedative/hypnotics, hallucinogens, opiates, and other substances [15-17]. In addition to its use in PHC services, it is also useful for other professionals who work with people who have drug-related problems in different environments [17], such as hospitals, mental health clinics [18], and prisons [19]. The AUDIT and ASSIST can be followed by a session of Brief Intervention (BI), which is based on a motivational interview and lasts from 5 to 30 min. BI was conducted using the Feedback, Responsibility, Advice, Menu of options, Empathy, and Self-Efficacy (FRAMES) model with motivational interviewing to raise awareness of the risks of substance use, to assess motivation for change, and to helping persons commit to utilizing self management skills for changing their substance abuse behaviours [20,21].

With regard to alcohol, the efficacy and effectiveness in reducing excessive drinking when using instruments that detect earlier the hazardous and harmful use followed by BI have been supported by several studies, systematic reviews, and meta-analyses [22,23]. For other drugs, data indicating effectiveness of screening and brief intervention (SBI) for reducing illicit or prescription drug abuse were sparse until some years ago [24-26]. Recently in 2011, the ASSIST group coordinated by the WHO Department of Mental Health and Substance Abuse and the Drug & Alcohol Services South Australia published the WHO-sponsored randomized control, multi-national study, demonstrating that SBI yielded significant reductions (when assessed three months after BI session) in illicit drug (marijuana, cocaine, amphetamine-type stimulants, opioids) use in combined data from 731 participants [27]. Also recently, in several regions of the United States, a federally funded Screening, Brief Intervention, Referral to Treatment (SBIRT) service program including 459,599 patients screened, was initiated by the Substance Abuse and Mental Health Services Administration (SAMHSA) in a wide variety of health care settings. This study compared illicit drug use at admission and six months after drug screening and interventions were administered. They showed that SBIRT was feasible to implement and the self-reported patient status at six months' follow-up indicated significant improvements over baseline, for illicit drug use and heavy alcohol use, with functional domains improved, across a range of health care settings and a range of patients [28].

A professional from the Occupational Health Service of City Hall in a southern city in Brazil had heard of the ASSIST during a Scientific Meeting. Leaders from this service then made contact with the researcher responsible for the ASSIST project at Universidade Federal do Paraná to introduce the ASSIST plus BI in their routine practice for detecting substance-related problems early, intervening, and avoiding the development of dependence in the employees. The team agreed that until that moment they did not have any procedure in place that dealt with the issue of drugs, and they often felt some discomfort when discussing substance use with their employees besides the need to acquire skills to deal with the problem. After a discussion of the proposal in a meeting with the Secretary of Human Resources, the Manager of the Department of Occupational Health, and the leadership within the Division of Psychology and Social Work and after meetings with each manager from each department of City Hall to inform them about the aims and procedures of the study, the professionals and the researcher received permission to conduct the implementation using a action-research protocol.

The present study evaluated the implementation process of early detection using the ASSIST and the promotion of behavioural change through BI in a representative sample of the employees as part of the daily routine of the Occupational Health Service. This study evaluated (1) the barriers faced and the possible solutions presented by occupational health professionals when using BI linked to the ASSIST in workplace, and (2) the feasibility to use the SBI in this environment for such a preventive procedure.

Methods

Training and supervision of occupational health professionals and data collection

The participants included all the professionals (n=26) who have direct contact with employees, except those responsible for medical examination, from the Occupational Health Service of the different departments (n=9, 2-3 professionals per department) of the City Hall. The study was carried on from 2007 to 2010, and during this period three training courses about SBI were offered to the multidisciplinary professionals of the Occupational Health Service to attend to the new admitted professionals. Each 20 h training course with theoretical and practice activities included the following content: the main effects of alcohol and other drugs of abuse, the utility of the ASSIST for detecting risky drug users, the principles of BI and role-playing on the ASSIST and BI procedures. After the training, it was defined a goal for each professional team from each department, i.e. each team had to apply ASSIST in a random and representative sample of 5% of the employees of their department during a one-year period and conduct BI when necessary. The percentage of interviewed employees represented about 1,300 individuals considering that the total number of employees of the City Hall was 26,129. The main objective of the professionals doing the task was to conduct an action-research. The technique of action-research involves conducting the implementation process during which the results are feed backed and aggregated to change the practice gradually and including all participants' suggestions. The ASSIST questionnaire (http://www.who.int/substance_abuse/activities/assist_portuguese.pdf) was applied by professionals according to their training and supervision. In meetings held in their own workplaces and previously scheduled with each team, the researchers supervised the professionals' practice of screening and BI and discussed any occurrence. Two to six meetings, with approximately 2 hours each, were conducted for each team according to their needs.

To contact employees, each organization was oriented to ensure the representativeness (5% of the employees) and the randomness of the sample using the following recruitment strategies: (i) the obligatory periodic medical examination; (ii) individual invitation to participate in a research; (iii) direct contact in workplace or during events held by the organization. The employee was instructed to answer the interview truthfully, without fear of punitive consequences and with a guarantee of anonymity. Employees who received an ASSIST score that indicated no risky use or low risky use (score for alcohol <11 or score for other substances <4) were advised about the general effects of drugs. When an ASSIST score suggested dependence (score >26), the employee was referred to specialized treatment, as usual. When an ASSIST score indicated risky/harmful use (score for alcohol >10 and <27 or score for other substance >3 and <27), the employee received BI lasting 15 to 30 min.

Assessment of implementation process

After the achievement of the goal task, focus group meetings were held with only the participant professionals aiming to evaluate the implementation process. They were invited by the psychological and social managers of the Occupational Health Service. The first meeting assessed the use of the ASSIST for early detection of substance use in the workplace, and the other meeting assessed the use of BI. Each focus group meeting lasted 120 min and was conducted by two researchers (moderator and observer). Open questions based on the study objectives and others derived from discussions during the meeting were asked by the moderator. All declarations of the professionals were recorded and noted. The content analysis of meeting evaluated the ASSIST+BI procedure, the barriers faced during the implementation process, and the suggested solutions. The questions included, accordingly to the objective of each meeting, the following:

- (1) How was your experience with the whole project?
- (2) Which was the best recruitment strategy to invite employees in your department?
- (3) What were the main barriers faced during implementation?
- (4) How did you conduct the interview to ensure that the employee would talk about drug use?
- (5) Do you think using the ASSIST+BI is effective at detecting/ changing drug use in the workplace?
- (6) Which approach did you use to begin the interview before the application of the ASSIST?
- (7) What are the expectations for the ASSIST+BI project?
- (8) Do you think that talking with the employee about how the procedure is part of a research project facilitated the approach?
- (9) At the end of the study, will you still say that the procedure is “part of a research project,” or will you say it is an “occupational health routine”?
- (10) Can you cite examples about real situations you experienced during ASSIST application and BI?

The written recordings from the focus group meetings were analyzed, grouped, and coded by two independent investigators using qualitative content analysis [29].

The ethics committee of Universidade Federal do Paraná approved the study (No. 04-08, December 2, 2008). All study participants

(professionals and employees) signed consent forms that guaranteed anonymity.

Results

In the beginning of 2007, the researcher responsible for the ASSIST project conducted the first training course for 43 professionals from the Occupational Health Service. One year after the training, the researcher was requested to supervise the team in the implementation of detection and intervention procedures. The researcher proposed a partnership that seeks to perform this implementation using an action-research protocol. Two other training courses were then held to train newly admitted professionals (n=27) in 2008 and 2009. From the 70 trained professionals, 26 effectively conducted the research study protocol (11 psychologists, 12 social workers, one organizational development analyst, one occupational therapist, and one cultural promoter; 99.2% were female; aged between 30 and 65 years [mean $\pm$ SD = 46 $\pm$ 4 years] and 80.6% were married). The other 44 trained professionals (physicians, administrators, support services, security) were not involved in direct contact with employees or were responsible for the medical examination, but they all were trained in order to know and to give support to the new implemented practice.

Those 26 professionals interviewed 1,310 employees, achieving the 5% of the total number proposed as a goal task during the action-research process. They detected some employees needing preventive orientation about their used substances, more specifically related to the use during the past three months (17.4% for tobacco; 52.1% for alcohol and 1.0% for other substances). For those reaching risky/harmful use level in ASSIST which received BI totalized the following percentages for each substance: tobacco (8.1%), alcohol (2.4%), marijuana (0.1%), amphetamine-stimulants (0.1%), sedatives (0.1%), hallucinogens (0.1%). Also, some individuals reached levels suggestive of dependence needing referral to specialized treatment. It was detected in this level the following percentages for each substance: tobacco (9.7%), alcohol (0.8%), sedatives (0.1%). Thus, they administered BI to 144 employees, a mean of 6 BIs per professional during one year-period. In the follow-up interview, three months later, they evaluated 130 employees and observed a significant reduction in ASSIST scores evidencing the efficacy of the intervention.

In the first focus group meeting, 21 professionals participated, representing all of the departments. At the second meeting, 22 professionals, from all departments too, participated who were not necessarily the same professionals who participated in the first meeting, in addition to one professional representing the Epidemiological Centre of City Hall. All participants of the study (n=26) attended one of the meetings. The transcripts of the two meetings were grouped and condensed into a single text because their content overlapped. During the meetings, when one or more professionals gave a testimonial, the others agreed (i.e., no disagreements were observed). The topics arising from the qualitative analysis of the statements were grouped according to questions and are presented below.

- (1) How was your experience with the project (the research itself and the SBI procedures)?

- The project was important for promoting changes in practice and helped them learn how to talk about substance-related problems.
- The accomplishment of the ASSIST+BI through the research protocol (action-research procedure) in their routine was considered essential for managing drug-related problems in

the workplace. During the project, the implementation process gave feedback promoting self-motivation to continue doing the new practice.

(2) Which was the best recruitment strategy to invite employees in your department?

- The most practical strategy of recruitment was through the periodic medical examination and introducing the use of the ASSIST routinely.
- The strategy of recruiting employees through the periodic medical examination caused delays in research protocol, and for this reason could not be used as the sole strategy.

(3) What were the main barriers faced during implementation (research protocol and ASSIST+BI procedures)?

- When the recruitment strategy was an invitation to participate specifically in a research, they observed some difficulty of bringing the employees from the workplace to the Occupational Health Service.
- They told that they acquired skills in the training course and supervision to do the ASSIST+BI procedures, thus no difficulty was reported.

(4) How did you conduct the interview to ensure that the employee would talk about drug use?

- The use of the ASSIST facilitates the initial approach and provides elements to be discussed during BI, with emphasis on feedback concerning ASSIST scores that provide the motivation to change behaviour.
- The guidance received in the training course helped in conducting the interviews.
- The application of the ASSIST and BI ensured the confidentiality of all information provided by the employee. The knowledge that the research was partnered with a university was considered by the employees as a guarantee of the seriousness of the study.

(5) Do you think using the ASSIST+BI is effective at detecting/ changing drug use in the workplace?

- The major importance of the ASSIST was broaching the issue without prejudice or fear. Talking about substance use then became easier.
- The instrument allowed the professionals to obtain an individual's history and provide personalized feedback, which are key elements of BI.
- The ASSIST allowed the monitoring of employees accordingly to their necessity.
- Some employees were apprehensive at the beginning of the interview, but the apprehension disappeared during the interview, and the employees even showed interest in receiving help.
- The professionals stated that talking about tobacco use usually has no barriers and the employees speak naturally, while regarding the other drugs, including alcohol, it was different. However, using the ASSIST and BI allowed discussions of behavioural change and the employee's lifestyle, without compromising the work link.

"Even if the employee is resistant to talk about his/her use during the interview, he/she will think about the subject and thus have the possibility of changing the behaviour later." [testimony].

- The use of ASSIST allowed detecting employees involved with substances that the professionals had no idea. Besides, the employee her/himself had not realized having a substance related problem. In these cases, the employees expressed that they wanted help or referral to treatment.

(6) Which approach did you use to begin the interview before the application of the ASSIST?

- The professionals explained to 98.2% of the employees that the questionnaire was part of a research project in partnership with the university before applying the ASSIST. Only in one department representing the remaining 1.8% of the employees, the professionals explained that the procedure was part of a research project in partnership with a university after applying the ASSIST because they already used the instrument as part of a routine.
- Regardless of when the application of the ASSIST was reported as research, all professionals referred to the confidentiality and ethics of the research.

(7) What are the expectations for the ASSIST+BI project?

- The expectation for the ASSIST-BI project was to use it in their routine as a prevention strategy.
- Another expectation was to continue performing research in partnership with the university, mainly to adapt the instrument for application in the workplace to improve the detection all individuals who are involved with substances.

(8) Do you think that talking with the employee about how the procedure is part of a research project facilitated the approach?

- The professionals felt that this approach could have facilitated the interview.
- Beginning the interview by saying that it was part of research project conferred lightness to the confidential questions and demonstrated that the interview was not directly related to the employee's job or personal life. The interview, therefore, could be conducted in a relaxed manner.
- However, the necessity of signing an informed consent form caused some distrust in the employees. Despite citing this problem, only two individuals (0.15%) did not agree to sign the consent form.

(9) At the end of the research, will you still say that the procedure is "part of a research project," or will you say it is an "occupational health routine"?

- The professionals believed that subterfuge will not be needed when they will talk about substance use. The occupational health professionals also always tell the truth to the employees. After the completion of the research, the ASSIST and BI will be implemented as a routine supplemental medical examination.
- Some professionals believed that continuing to say that the procedure is part of a research project would not be problematic because asking about substance use is a type of "research" considering that they are searching for employees'

substance use profiles, although no scientific methodology is used. They argued that saying it is part of a research project confers lightness to the matter, as mentioned above.

(10) Can you cite examples about real situations you experienced during BI?

- Some departments already implemented the ASSIST and BI to all employees in routine practice. They also assumed that the procedure is the best way to talk about substance use.
- Some significant statements of the professionals regarding the effectiveness of the ASSIST+BI were the following:

“Several employees reported they did not stop using the substance but were reducing their use”.

“An employee commented that he/she was proud to participate in a research, and he/she was quitting his/her tobacco use”.

“The research allowed us to contact with an employee who, far from suspicion, was involved in risky alcohol use. The ASSIST made it possible for early detection and intervention. The employee, detected by the ASSIST, became concerned about his/her scores and then asked for help”.

Discussion

The main contribution of this study was the role of the implementation process in promoting changes in practice. Several procedures during implementation were used, such as a training course, supervision of all participants, awareness of leaders and managers, focus group and the use of action-research methodology. These procedures raised awareness and changed the attitudes and skills of the occupational health professionals for the new practice of early detection and intervention in substance-related problems. The professionals concluded at the end of the study that the ASSIST is a useful tool for detecting substance-related problems in this environment, broaching this matter without prejudice or fear, promoting behavioural change directed to the problems arising from drug use, and creating a link between occupational health professionals and employees in the workplace. As result of this interaction, the health professional can monitor the problem, prevent its worsening, and fulfil the role of the Occupational Health Service in promoting health and preventing disease. Regarding the workplace being appropriate for such practices, the professionals believed that the employees did not always answer the ASSIST truthfully, with the exception of tobacco. They thought that some functional positions, such as municipal guards, drivers, and machine operators, would be afraid of losing their benefits related to their activities as a consequence of alcohol or other substance misuse. The present data do not address this issue, and other methodological approaches will be needed to evaluate the reliability of the responses (e.g., biochemical tests), which may be intrusive and coercive when considering the relationship between the company and employees but in some situations might be the best practice. Nonetheless, the professionals emphatically declared that despite a possible underrepresentation of the problem, the ASSIST is effective at broaching the drug issue and initiating intervention in their routine practice as they had intended to do. A limitation of using focus group is that the lack of expressed disagreement within the focus groups indicating consensus might be misinterpreted. Other approaches like individual interviews might be used to avoid this misinterpretation because the professionals might desire to avoid conflict within a group setting. However it is important to highlight that no managers

or supervisors were present in the meetings and the professionals were asked to say trustily what happened during the study and the anonymity was guaranteed.

Probably, the use of ASSIST to obtain the epidemiological profile of substance involvement among the employees could not be reliable mainly in those individuals who would be afraid of losing their benefits related to their activities as a consequence of alcohol or other substance misuse. But, the goal of talking about substances in workplace was achieved and some individuals that did not know yet having a problem could benefit of SBI.

The qualitative method of the focus group with content analysis used to assess the implementation process and subsequent feedback to the professionals about the results of their practice were shown to be effective for changing the routine practice of the Occupational Health Service. This type of methodology permits an understanding of the features and meanings of some of the processes under study and is commonly used in psychiatry, psychology, linguistics, and political science. Cohen et al. [30] define action-research as “a form of collective self-reflective research undertaken by participants in social situations, with purpose to improve the rationality and justice of their own social or educational practices, and understanding these practices and the situations in which these practices are carried out”, so the research provided insight into implementing changes to a pre-established practice for health workers.

Although the workplace is a potential site for primary and secondary prevention for alcohol and other substance misuse [11] this practice is actually rare [12]. The scarcity of programs focused on substance use also has another origin: the difficulty health professionals have when talking about this matter. Study conducted in 2009 with general practitioners in primary health care showed that one barrier to practice early alcohol intervention is that they do not feel trained in counselling patients to reduce the alcohol consumption [31]. Since this a barrier in primary health care it is not a surprise to find the same barrier in occupational health care. The professionals who participated in our study reported that they usually feel uncomfortable discussing substance use with employees, but the training course and the use of the ASSIST helped them in conducting the detection and the intervention. The employees are aware of substance use may cause negative consequences in the workplace and that some sanctions might be applied to them, and for this reason they would only talk about their substance use if they have guarantee of anonymity. Indeed, the use of the ASSIST and the action research implementation process confirmed the utility and efficacy of SBI for this purpose. Of course, the results of this study has limited generalizability mainly because professionals were very motivated to deal with substance-related problems in their routine practice and to be trained in SBI was their initiative and also, the managers gave great incentive to implementation. Anyway, we can suggest the use of the same process in other organizations.

In fact, the use of the ASSIST allowed not only the early detection of risky/harmful/hazardous use, but also the detection of use patterns that suggest dependence. According to Rubin et al. [32], early detection of substance use has been very important when dealing with the problem by allowing intervention and improving the prognosis. Other studies have evaluated BI and also demonstrated its efficacy in reducing substance use [27,28,33-35], including when conducted in workplace. Study with restaurant workers reported reduction in drinking and in alcohol-related problems in workplace after early intervention program, concluding the successful and positive outcome for employees and their employers [9].

Even for those patients who were resistant during the interview, the professionals felt that they benefited from that intervention because they began the process of acquiring the motivation for behavioural change. According to Prochaska and DiClemente [36], using motivational strategies carefully is important, and such strategies are more simplified in patients in the pre-contemplation stage. Thus, the professional must understand the patient's choice at that moment because the impact of intervention might occur only later.

In this Occupational Health Service of the present study, implementing punitive measures for drug users or dependents is not accepted. However, the occupational health professionals have the challenge that some specific workers in certain activities may cause harm to themselves or to others or to the institution itself. The possibility of using objective tests, such as biochemical tests that detect undoubtedly the drug use level, targeted to some categories of employees (e.g., municipal guards, drivers, or machine operators) should be discussed further. A viable alternative would be making the initial approach using the ASSIST+BI to establish a good relationship with the employee, ensuring that no extreme punishments will be taken, and then justifying the necessity for biochemical analysis and a medical examination. In Brazil, some departments conduct drug tests during the admission process, but this practice is based on internal protocols within these companies because no legal regulations have been enacted. The lack of a drug-testing law guarantees that employees will not be subjected to these tests [37]. In the United States, since 1986 the federal drug-free workplace program was implemented which made provisions for testing employees with safety-sensitive functions for illicit drugs and since then, drug testing has become an increasingly common practice in occupational settings [2]. Nowadays in the United States there are protocols for toxicological drug and alcohol testing established by the Department of Transportation for workers linked to all types of collective or industrial transportation, including air, road, and rail [38]. Australia and Brazil have a similar drug-testing program for individuals working directly or indirectly in civil aviation [39,40]. These three countries justify their drug-testing programs for the safety of the general public and offer intervention and treatment for those who need help.

Among the large number of employees recruited to participate in this study, only two did not consent that their data would be used for analyses despite answering the ASSIST and receiving BI. They indicated that the need for signatures on the informed consent form made them uncomfortable. Additionally, three departments needed to invite a greater number of individuals to achieve the required number of the sample. They stated that non-acceptance of the employees to the invitation was attributable to their work demands and not a refusal to participate in the research. The non-acceptance of the eligible for researches has been seen in others studies. A study conducted in Italy using the CAGE instrument, which assesses the prevalence of alcohol-related problems among hospital workers, showed similar rates of non-attendance. The questionnaires were available to 710 professionals in the hospital, and only 450 (63%) answered them, even with the guarantee of anonymity [41]. Employees with substance use-related problems were more afraid of negative consequences related to such a disclosure in the workplace [42] than workers with other health problems [4] even those related to their working situation, such as depression, anxiety, emotional exhaustion, immunodeficiency disorders, and cardiovascular diseases [43]. A study held at the Petrobras Research Centre in Brazil focused on cardiovascular disease and showed that of the 1191 employees invited, 81% attended the interview [44]. Thus,

non-attendance rates observed in the present study (78%) were not different from those previously reported.

Finally, the positive points of our study regarding the implementation process of early detection using the ASSIST and BI need to be emphasized. (1) The use of the ASSIST should be publicized and disseminated at certain events. When doing so, some people attending the event may recognize its utility for both self-application and the application for others. (2) The process of action-research encourages professionals to change their practice. This consideration is relevant mainly because we observed that after 1 year the professionals were trained how to use the ASSIST and how to perform BI, they had not implemented this knowledge into practice doing so only after their engagement in the action-research and after the perception that SBI works. (3) Regardless of the form of recruitment, only two employees refused to participate after the explanation of the intention of the interview. (4) All professionals agreed that the ASSIST was an excellent instrument for allowing discussions about drugs in their workplace and referring individuals to specialized treatment when necessary. (5) Despite some evidence that the SBI was successful in this specific workplace, a detailed larger study about its efficacy will need to be investigated further in future studies in other organizations with other methodologies.

Conclusion

Implementing early detection by using the ASSIST followed by BI for substance use with feedback of the results for the professionals is feasible in the routine of an Occupational Health Service in Brazil. Professionals from the current institution considered the ASSIST an important tool for broaching the topic of drug use with employees without prejudice and stigma and intervening in drug-related problems in the workplace before drug use advances to dependence.

Competing Interests

The authors declare no competing interests.

Authors' Contributions

All authors contributed equally to this article.

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