

# Effectiveness of a telephone-based brief intervention delivered by nurses to reduce risky alcohol use among women in primary care in Brazil: a randomized controlled trial

ANA VITORIA CORREA LIMA

Universidade de São Paulo

JESSICA LIMA DE OLIVEIRA PINHEIRO GAIA

Universidade de São Paulo

DIVANE DE VARGAS

vargas@usp.br

Universidade de São Paulo

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## Research Article

**Keywords:** Brief Intervention, Alcohol Use, Women's Health, Randomized Controlled Trial, Primary Health Care, Telemedicine

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# **Effectiveness of a telephone-based brief intervention delivered by nurses to reduce risky alcohol use among women in primary care in Brazil: a randomized controlled trial**

## **Abstract**

**Background:** Alcohol use, once predominantly higher among men, is rapidly increasing among women. We aimed to assess the effectiveness of a telephone-based Brief Intervention (BI) conducted by nurses in reducing risky and harmful alcohol use among women. **Methods:** This randomized controlled trial evaluated the effectiveness of a telephone-based Brief Intervention (BI) delivered by nurses to reduce harmful alcohol use among women. A total of 151 women from primary care facilities in São Paulo, Brazil, were eligible, all of whom scored between 8 and 19 on the Alcohol Use Disorders Identification Test (AUDIT). Participants were randomly assigned to either an intervention group (IG), which received the electronic BI, or a control group (CG), which received only feedback. The primary outcome was AUDIT scores over five times (baseline and 3, 6, and 24 months). **Results:** The intervention group demonstrated a significant reduction in AUDIT scores up to six months, after which the scores began to increase. In contrast, the control group exhibited a continuous increase in AUDIT scores over time. Socioeconomic factors, such as race and household income, were associated with AUDIT scores, whereas other demographic and health variables showed no significant association. **Conclusions:** These findings suggest that telephone-based BI can be effective in reducing risky alcohol use among women. However, the effects may diminish over time, highlighting the potential need for booster sessions.

**Keywords:** Brief Intervention, Alcohol Use, Women's Health, Randomized Controlled Trial, Primary Health Care, Telemedicine.

**Clinical trial number:** not applicable.

## **Introduction**

Historically, men have tended to consume more alcohol than women. However, this trend has shifted over the years, with an increasing number of women consuming alcohol. According to the World Health Organization, the proportion of women who consume alcohol has increased globally, contributing to a narrowing of the gender gap, with projections indicating comparable consumption levels by 2030 [1]. In the Americas, this

trend is even more pronounced, with more than half (51.9%) of women reporting alcohol consumption [2–3].

Biologically, women are more vulnerable to the effects of alcohol than men, making them more prone to developing alcohol-use disorders at an earlier age. In addition to physiological factors, women often use alcohol as a coping mechanism for stress, trauma, emotional distress, anxiety, and mood disorders [4,5,6,7].

Social factors also influence alcohol consumption among women. There is a prevailing belief that women should not drink or have no need to drink, which may discourage them from seeking health services when experiencing alcohol-related issues [8].

Despite the magnitude of its impact on women's lives, harmful alcohol use is often not reported by women as a primary complaint in healthcare settings and is instead identified through indirect manifestations, such as anxiety, depression, insomnia, nonspecific physical symptoms, gastrointestinal and cardiovascular problems, and reproductive health issues. Psychosocial factors, including family conflict and violence, are also associated with this pattern, often as coping strategies. This contributes to underreporting and hinders early identification of risky alcohol use in healthcare services [9,10].

Because women who seek healthcare services often report diverse and nonspecific complaints and frequently do not associate these symptoms with alcohol consumption, healthcare professionals must be trained to identify patterns of risky and harmful alcohol use and implement interventions aimed at reducing consumption and related harms. In this context, Primary Health Care (PHC), as the main entry point to the healthcare system, plays a key role in the early identification and management of alcohol-related problems among women [11]. Among the preventive strategies recommended for PHC, Screening and Brief

Intervention (SBI) has been highlighted by the WHO as an effective approach for identifying and addressing risky alcohol use [12].

Developed by Sanchez-Craig and colleagues in the 1970s, Brief Intervention aims to promote behavioral change to reduce alcohol consumption, incorporating principles of Motivational Interviewing [13]. It is structured around six components summarized by the acronym F.R.A.M.E.S.: Feedback, Responsibility, Advice, Menu of Options, Empathy, and Self-efficacy, which remain active throughout the intervention [14].

Brief Intervention (BI) can be delivered either face-to-face or through information and communication technologies (ICTs), both showing effectiveness in reducing alcohol consumption, particularly among pregnant and postpartum women [15]. In low- and middle-income countries such as Brazil, telephone-based BI is a feasible and cost-effective strategy due to the widespread availability of mobile phones and internet services, with most households having access to them [16,17]. In this context, the study aimed to evaluate the effectiveness of nurse-delivered, telephone-based Brief Intervention in reducing women's risky and harmful alcohol use. We hypothesized that, compared to feedback only, the intervention would lead to greater reductions in harmful drinking at 3, 6, and 24 months of follow-up.

## **METHODS**

This was a single-blind, two-armed randomized controlled trial.

### **Ethical approval**

This study was approved by the institutional review board of the university where it was conducted (protocol CAAE 38896920.0.3001.0086).

## **Enrollment, Screening, and Randomization**

### **Enrollment and Eligibility**

Participants were recruited through the appointment schedule of four Primary Health Care facilities in the central region of the city of São Paulo, Brazil. The study sites were strategically selected based on the high population density in the city's central region, thereby enhancing the feasibility of participant recruitment.

### **Data collection**

From June 2021 to February 2022, Monthly appointment schedules were provided by the facilities enrolled in the study. Participants were recruited by telephone interviews within 3 days of their medical appointments at the PHC facilities and invited to participate in the study. The inclusion criteria were: 18 years and older, having an appointment scheduled in a PHC facility, scoring between eight and 19 in the Alcohol Use Disorders Identification Test in the interview (AUDIT), having a telephone line, and agreeing to participate in the study. Participants receiving any treatment for psychoactive substance use disorder at the time of data collection were excluded to avoid bias, as well as pregnant women, women with hearing impairments, those with difficulties with the national language (Brazilian Portuguese), and those who refused to receive the intervention and/or follow-ups.

The interviews were conducted by nine trained nurses. Before data collection, all nurses participated in a 20-hour structured training program delivered by the authors. The training consisted of weekly remote synchronous sessions, lasting approximately two hours each, conducted via the Google Meet platform. The training addressed the appropriate use of the online platform for data collection, procedures for accurately completing the study instruments, strategies for approaching participants by telephone, and standardized procedures for conducting the Brief Intervention and Feedback sessions only.

### **Screening Instruments**

To characterize the sample, a questionnaire for sociodemographic and clinical characterization was developed by the authors with questions on age, sexual orientation, race/ethnicity, marital status, religion, educational level, current occupation, housing situation, household income, and physical activities. Clinical variables assessed included hypertension, diabetes, mental disorders such as generalized anxiety disorder, depression, schizophrenia, bipolar disorder, eating disorders, personality disorders, mental health treatments, suicidal thoughts, psychiatric medications, behavioral variables, smoking, and illicit drug use, and questions regarding alcohol consumption preferences, focusing on which type of alcoholic beverage was most frequently consumed by the participants.

The Alcohol Use Disorders Identification Test (AUDIT) was used to assess patterns of alcohol consumption. Standard drink sizes were clearly defined for participants when administering the quantity and frequency items, based on internationally recognized guidelines, to ensure consistent reporting. The minimum score was 0, and the maximum was 40, divided into four zones (I, II, III, and IV). Each zone represents a different consumption pattern: a) Zone I: scores range from zero to seven, indicating low-risk use;

b) Zone II: scores from eight to 15, indicating a risky pattern; c) Zone III: scores from 16 to 19, indicating harmful use; and d) Zone IV: scores above 20, suggesting a probable dependence. According to the WHO, brief interventions should be conducted for those scoring in Zones II and III [18]. The AUDIT has been validated in Brazilian Portuguese [15,16].

### **Randomization**

Participants were randomly allocated to one of the two groups: the Intervention Group (IG) and the Control Group (CG). Randomisation and allocation of participants were computer-generated, conducted using REDCap without researcher interference. Participants were blinded to their group assignment. After randomization, researchers proceeded with the intervention according to the assigned groups.

### **Intervention Group**

#### **Brief Intervention**

Those who were allocated in the intervention group (IG) received a single section of Brief Intervention based on the protocol developed by Lima et al [13] and the following steps of this protocol: 1) Feedback in which the participant reflects on alcohol use and its health impact; 2) Responsibility, whereby the participant assumes responsibility for change her alcohol consumption; 3) Advice, including guidance on risks, benefits of reducing, and harm reduction; 4) Menu of options, involving identification of risk and protective factors and behavior-change strategies that could be adapted according to the participant's routine; 5) Empathy, characterized by a non-judgmental and non-confrontational approach; and 6)

Self-efficacy, focused on reinforcing prior changes and the capacity for improvement. The intervention session had an average duration of 10 minutes.

### **Control Group**

#### **Feedback only**

Participants in the control group (CG) received feedback, indicating that their alcohol consumption exceeded that recommended by the World Health Organization and it was advisable to reduce it. However, no detailed information on recommended doses, quantities, strategies or materials for reducing consumption was provided.

#### **Follow-ups interviews**

Follow-up interview calls were conducted at prescribed intervals for both groups (IG and CG) after 3 months, 6 months and 24 months. The calls were scheduled at the most convenient time for the participant to ensure privacy and to increase the retention rate. During the follow-up calls, only the AUDIT was administered.

#### **Primary Outcome**

Data were collected at baseline ( $T_0$ ), 3-months ( $T_1$ ), 6-months ( $T_2$ ) and 24-months ( $T_3$ ). The primary outcome was the relationship between AUDIT scores throughout the time measured during the three periods.

#### **Secondary Outcomes**

The secondary outcome was to evaluate the relationship between AUDIT scores and study variables, intention to become pregnant, sexual orientation, race, marital status, education,

occupation, household income, welfare programs, hypertension, diabetes, cholesterol, gastritis/gastric problems, mental disorders, suicidal thoughts, smoking, and illicit drugs.

### **Sample Size**

Power analysis indicated that to detect an effect size ( $f = 0.2948839$ ) in the interaction between groups (control and experimental) and time interaction in a repeated measures design, revealed that a total sample of 24 participants would be sufficient to achieve 95% statistical power (Type II error:  $\beta = 0.05$ ) while maintaining the significance level at 5% (Type I error:  $\alpha = 0.05$ ).

### **Data Analysis**

Simple descriptive statistics were calculated for the following sociodemographic, clinical, and behavioural variables: mean, standard deviation, absolute frequency, and relative frequency. Participants were assessed longitudinally with repeated measurements across multiple time points ( $T_0$ ,  $T_1$ ,  $T_2$ , and  $T_3$ ), and it was conducted using mixed-effects models, such as the Linear Mixed-effects Model (LMM). To model the correlation of participants with themselves over three predetermined time periods, a first-order autoregressive covariance structure (AR(1)) was applied. Furthermore, AR(1) was used to verify whether the progression over time was the same in both groups. For the models used in the statistical process, a statistical significance level of  $p \leq 0.05$  was considered. For the secondary outcome, Fisher's exact test and Pearson's chi-square test were used depending on the nature of the variables.

### **Results**

Across the participating facilities, 1.132 women were assessed for eligibility. Of these, 996 (88.3%) agreed to participate in the study, of whom 151 were eligible, randomized, and allocated to the intervention (n = 79) and control (n = 72) groups. The mean age of the included women (n=151) was 32.8 years, white (53.6%), heterosexual (82.7%), single (60,9%), and employed (64.2%). Depression (24.5%) and anxiety (22.5%) were the most common self-reported mental health conditions. Table 1 shows the baseline social and clinical characteristics of the participants.

**Table 1.** Social and clinical characteristics of participants, 2026.

| Variable               | Level                                     | Group   |      |              |      |
|------------------------|-------------------------------------------|---------|------|--------------|------|
|                        |                                           | Control |      | Intervention |      |
|                        |                                           | N       | %    | N            | %    |
| Desire to get pregnant | I am fine that way                        | 11      | 15.2 | 13           | 16.4 |
|                        | I am not sure about it                    | 5       | 6.9  | 6            | 7.6  |
|                        | Not now, but at some point, in the future | 23      | 32   | 29           | 36.7 |
|                        | No, I never intend to get pregnant        | 32      | 44.4 | 31           | 39.2 |
|                        | Yes, I do                                 | 1       | 1.3  | 0            | 0    |
| Sexual Orientation     | Heterosexual                              | 62      | 86.1 | 63           | 79.7 |
|                        | Bisexual                                  | 9       | 12.5 | 10           | 12.6 |
|                        | Homosexual                                | 1       | 1.3  | 5            | 6.3  |
|                        | Asexual                                   | 0       | 0    | 1            | 1.2  |
| Race                   | White                                     | 32      | 44.4 | 49           | 62   |
|                        | Brown                                     | 23      | 31.9 | 23           | 29.1 |
|                        | Black                                     | 15      | 20.8 | 7            | 8.8  |
|                        | Indigenous                                | 2       | 2.7  | 0            | 0    |
| Marital status         | Single                                    | 44      | 61.1 | 48           | 60.7 |
|                        | Live together, but not married            | 11      | 15.2 | 9            | 11.3 |
|                        | Married                                   | 13      | 18   | 11           | 13.9 |
|                        | Divorced/Separated                        | 4       | 5.5  | 10           | 12.6 |
|                        | Widow                                     | 0       | 0    | 1            | 1.2  |
| Education              | Elementary School Incomplete              | 1       | 1.4  | 4            | 5.1  |
|                        | Elementary School Complete                | 3       | 4.1  | 2            | 2.5  |
|                        | High School Incomplete                    | 5       | 6.9  | 4            | 5.1  |
|                        | High School Complete                      | 28      | 38.8 | 30           | 38.4 |
|                        | Undergraduate                             | 31      | 43   | 33           | 42.3 |

|                |                            |    |      |    |      |
|----------------|----------------------------|----|------|----|------|
|                | Post-Graduation            | 4  | 5.5  | 5  | 6.4  |
|                | Employed                   | 41 | 56   | 56 | 70.8 |
|                | Unemployed                 | 18 | 25   | 14 | 17.7 |
| Occupation     | Housewife                  | 2  | 2.7  | 2  | 2.5  |
|                | Other                      | 5  | 6.9  | 4  | 5    |
|                | Student                    | 6  | 8.3  | 3  | 3.8  |
| Household      | 1 minimum wage             | 17 | 26.1 | 9  | 12.1 |
| Income         | From 1 to 2 minimum wage   | 17 | 26.1 | 36 | 48.6 |
| (Brazilian     | From 2 to 5 minimum wage   | 26 | 40   | 23 | 31   |
| minimum        | From 5 to 10 minimum wage  | 4  | 6.1  | 6  | 8.11 |
| wage—R\$       |                            |    |      |    |      |
| 1,412 OR       | From 10 to 20 minimum wage | 1  | 1.5  | 0  | 0    |
| U\$280)        |                            |    |      |    |      |
| Welfare        | No                         | 54 | 75   | 59 | 74.6 |
| programs       | Yes                        | 18 | 25   | 20 | 25.3 |
| Hypertensi     | No                         | 65 | 90.2 | 68 | 86   |
| on             | Yes                        | 7  | 9.7  | 11 | 13.9 |
| Diabetes       | No                         | 70 | 97.2 | 77 | 97.4 |
|                | Yes                        | 2  | 2.7  | 2  | 2.5  |
| Increased      | No                         | 65 | 90.2 | 71 | 89.8 |
| cholesterol    | Yes                        | 7  | 9.7  | 8  | 10.1 |
| Gastritis/ga   | No                         | 60 | 83.3 | 59 | 74.6 |
| stric problems | Yes                        | 12 | 16.6 | 20 | 25.3 |
| Generalize     | No                         | 59 | 81.9 | 58 | 73.4 |
| d Anxiety      |                            |    |      |    |      |
| Disorder       | Yes                        | 13 | 18.0 | 21 | 26.5 |
|                | No                         | 54 | 75   | 60 | 75.9 |
| Depression     | Yes                        | 18 | 25   | 19 | 24   |
| Schizophre     | No                         | 72 | 100  | 79 | 100  |
| nia            |                            |    |      |    |      |
| Bipolar        | No                         | 70 | 97.2 | 76 | 96.2 |
| Disorder       | Yes                        | 2  | 2.7  | 3  | 3.8  |
| Eating         | No                         | 71 | 98.6 | 73 | 92.4 |
| Disorders      | Yes                        | 1  | 1.3  | 6  | 7.6  |
| Personality    | No                         | 71 | 98.6 | 79 | 100  |
| Disorders      | Yes                        | 1  | 1.3  | 0  | 0    |
| Mental         | No                         | 47 | 65.2 | 56 | 70.8 |
| Health         | In the past                | 5  | 6.9  | 3  | 3.8  |
| Treatment      | Yes                        | 20 | 27.7 | 20 | 25.3 |
| Suicidal       | No                         | 51 | 70.8 | 61 | 77.2 |

|              |                  |    |      |    |      |
|--------------|------------------|----|------|----|------|
| behavior     | Yes              | 17 | 23.6 | 15 | 18.9 |
| history      | I have attempted | 4  | 5.5  | 3  | 3.8  |
| Use of       | No               | 55 | 76.3 | 60 | 75.9 |
| psychotropic | In the past      | 4  | 5.5  | 4  | 5    |
| drugs        | Yes              | 13 | 18   | 15 | 18.9 |
| Smoking      | No               | 62 | 86.1 | 66 | 83.5 |
|              | Yes              | 10 | 13.8 | 13 | 16.4 |
| Illicit      | No               | 65 | 90.2 | 69 | 88.4 |
| Drugs        | Yes              | 7  | 9.7  | 9  | 11.5 |

Table 2 presents the AUDIT scores for both groups across the four measurement periods. In the intervention group, the lowest AUDIT score was observed at T2, with a nearly 2-point difference compared to the other periods. In the control group, the lowest score was observed at T<sub>0</sub>. The intervention group showed a significant decrease in AUDIT scores through the 180-day follow-up, whereas the control group showed an increase during the same period.

**Table 2.** Mean AUDIT scores for the control and intervention groups across the four assessment periods, 2026.

| Group        | Time          | N  | Missing | Mean |
|--------------|---------------|----|---------|------|
| Controlled   | Screening     | 72 | 0       | 6,1  |
|              | Follow up 90  | 54 | 7       | 7,4  |
|              | Follow up 180 | 45 | 19      | 6,8  |
|              | Follow up 720 | 19 | 22      | 7,9  |
| Intervention | Screening     | 78 | 1       | 7,8  |
|              | Follow up 90  | 47 | 20      | 5,7  |
|              | Follow up 180 | 23 | 49      | 5,3  |
|              | Follow up 720 | 25 | 17      | 9,1  |

Analysis of deviance revealed significant temporal dynamics and interaction effects (Table 3). While the group variable alone showed no significant effect ( $p = 0.666$ ), time ( $p < 0.001$ ) and the interaction between group and time ( $p < 0.001$ ) were highly significant. This

interaction (Group and Time) suggests that temporal patterns varied across the groups, implying that the intervention effect changed over time. These findings underscore the importance of considering temporal and group differences in future analyses.

**Table 3.** Analysis of Deviance Table (Type III Wald chisquare tests)

|             | <b>Chisq</b> | <b>Df</b> | <b>Pr(&gt;Chisq)</b> |     |
|-------------|--------------|-----------|----------------------|-----|
| (Intercept) | 569.1        | 1         | < 0.001              | *** |
| Group       | 0.07         | 1         | 0.790                |     |
| Time        | 16.4         | 3         | < 0.001              | *** |
| Group: Time | 22.9         | 3         | < 0.001              | *** |

The results demonstrated that, among all variables explored, only race ( $p=0.035$ ) and household income ( $p=0.024$ ) were significantly associated with variations in AUDIT scores, suggesting the influence of socioeconomic factors on alcohol consumption patterns among women.

## Discussion

This study aimed to assess the effectiveness of telephone-based Brief Intervention conducted by nurses in reducing risky and harmful alcohol use. The results indicated that the participants were predominantly young women (mean age 32.8 years), white, heterosexual, single, and economically active. This profile is consistent with recent findings in the international literature, which show an increase in alcohol consumption among women, associated with the social, cultural, and gender transformations observed in contemporary society. In this context, alcohol consumption among women has been

linked to greater female autonomy, the occupation of new spaces, greater social pressure, and the pursuit of freedom and independence [5,6,7,20].

A high proportion of women with reproductive potential were observed, and when questioned about future reproductive plans, approximately 40% of the women in the intervention group stated their intention to become pregnant. This finding deserves attention, considering that alcohol consumption during pregnancy is associated with significant maternal and fetal risks, such as premature birth and fetal malformations, and maternal abstinence is recommended during this period. Furthermore, studies have shown that, even before conception, alcohol consumption can vary according to fertility [20,21]. These findings highlight the need for more research on alcohol consumption among women planning to become pregnant, since early interventions can help resolve fertility problems, reduce the risk of pregnancy-related complications, and serve as a motivational factor for reconsidering alcohol consumption.

Beyond reproductive aspects and individual behavioral factors, the findings also highlighted the influence of social determinants on alcohol consumption patterns among women. It was observed that race and household income were associated with AUDIT scores, reinforcing the role of socioeconomic and racial inequalities in shaping alcohol use behaviors. In the Brazilian context, these inequalities are associated with greater exposure to stressors, violence, emotional burden, limited access to healthcare services, and psychological distress, all of which may contribute to harmful alcohol use. Previous studies have similarly demonstrated that sociodemographic characteristics, including income, race, social vulnerability, and psychosocial conditions, significantly influence alcohol consumption patterns and alcohol-related harms among individuals [22,23,24].

These findings indicate that the brief intervention delivered by trained nurses was effective in reducing women's risky and harmful alcohol use. Our findings indicate that the intervention effects were sustained for up to 180 days, a period during which participants presented the lowest AUDIT scores. However, after this point, AUDIT scores increased, suggesting a gradual reduction in the maintenance of the intervention effects over time, a pattern similar to that observed in prior investigations [25,26]. Previous studies suggested that an extra session at 180-days could increase for longer periods the effect of the intervention, moreover it could also increase the retention rate of the participants [27]. Further studies are needed to assess whether delivering a booster intervention after 180 days maintains the observed benefits over a longer period.

The components of the intervention group were based on the FRAMES model, which is grounded in Motivational Interviewing and the Transtheoretical Model. Previous studies suggested that additional BI booster sessions may impact on motivation, self-efficacy, coping strategies, and relapse prevention skills, potentially supporting the maintenance of reduced alcohol consumption among women over time [27,28,29,30,31,32]. It is needed to explore if the length of the booster intervention should be the same or shorter or longer than the previous one.

Even though at baseline the mean AUDIT scores of the controlled group was lower, throughout the period studied it was observed an increase in their alcohol consumption, especially at 90 days and 720 days, however, the controlled group also showed a decrease at 180 days. Recent intervention studies have shown that providing individualized feedback to women can significantly influence their subsequent behaviors and self-report responses. Researchers noted that feedback tailored to women-specific health risks often leads to

modifications in both reported and actual alcohol consumption [33,34]. These findings suggest that including such feedback as part of a study may introduce confounding effects and that it would be preferable to withhold intervention from the control group. Besides that, it is not entirely clear why the decrease occurred at 180 days and not as early as 90 days.

### **Strengths and limitations**

This study has notable strengths, including its unique contribution as the only published randomized controlled trial in Latin America focusing on women and its systematic two-year follow-up, which together enhance the reliability of its findings.

However, several limitations must be acknowledged. The data collections occurred during the public health emergency of COVID-19, which may have influenced participant recruitment, data collection procedures, and participants' behaviors and responses, potentially impacting the study findings and their interpretation. Additionally, the study's reliance on self-reported alcohol use data instead of objective measurements raises concerns about data accuracy. Future research should aim to improve participant retention, integrate objective alcohol use assessments, and test interventions in diverse settings to address these limitations.

### **CONCLUSIONS**

This study demonstrated the potential of nurse-delivered, telephone-based BI to reduce risky alcohol use among women in primary care. The intervention's effects lasted up to six months, highlighting the need for ongoing support and potential booster sessions to sustain its benefits. The significant role of socioeconomic factors in alcohol-use patterns

underscores the importance of tailoring interventions to address the unique needs and barriers faced by women from diverse backgrounds. Integrating this cost-effective, electronically delivered BI into public health policies could help address the growing problem of alcohol misuse among women and provide an effective strategy for targeted intervention.

## **Abbreviations**

AUDIT—Alcohol Use Disorders Identification Test

BI—Brief Intervention

CONSORT—Consolidated Standards of Reporting Trials

CG—Control group

ICTs—Information and communication technologies

IG—Intervention group

PHC—Primary Health Care

RCT—randomised clinical trial

SBI—Screening and Brief Intervention

WHO—World Health Organization

## **Declarations**

### **Ethics approval and consent to participate**

All participants received information about the purpose of the study and their participation before applying the instruments. The participants were informed at the beginning of the call that participation in the study was voluntary and that they could choose to cancel their participation at any time without any negative effect. The participants gave verbal consent during the recording at the time of the call. The participants were informed about the calls being recorded. The study was previously reviewed by two ethical boards: The Nursing School of the University of São Paulo Ethical Review Board and the Institutional Ethical Review Board of the municipality, being approved by both.

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### **Availability of data and materials**

No datasets were generated or analysed during the current study.

### **Competing interests**

The authors declare no competing interests.

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Gaia received a scholarship from the Brazilian Federal Agency for Support and Evaluation of Graduate Education (CAPES).

### **Authors' contributions**

All authors contributed to trial design and development of the protocol. AVCL and DV produced the initial draft of the manuscript; all authors read, provided editorial input, and approved the final manuscript.

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