Tobacco use and associated risk factors in Burkina Faso: Results from a nationwide population-based cross-sectional survey.

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tobacco consumption, prevalence, associated factors, Burkina Faso
Abstract

Background

Tobacco is a leading preventable cause of non-communicable diseases (NCDs). Studies that characterize prevalence of tobacco use in low-income countries are lacking. This study describes the prevalence of tobacco use in Burkina Faso and its associated factors.

Methods

Data were analyzed from the 2013 Burkina Faso WHO Stepwise approach to Surveillance (STEPS) survey that NCDs risk factors. Prevalence of any tobacco product use, cigarette smoking and other tobacco use were calculated. Logistic regression analyses identified factors associated with tobacco use.

Results

The prevalence of any tobacco use was 19.8% (95% CI: 18.4 – 21.2). Tobacco use was higher for men (29.2% 27.0 – 31.5) than women (11.8% 10.3 – 13.4). The prevalence of smoked tobacco was 11.3% (10.3 – 12.4), with significantly higher prevalence among men (24.5% 22.1-27.0) than women (0.1% 0.01-0.3). The overall prevalence of other tobacco use was 8.9% (7.4-10.7) with lower values for men (5.6% 4.2-7.4) compared to women(11.7% 9.5-14.3. Tobacco smoking among men was significantly associated with increased age and alcohol consumption. Analysis of risk factors for other tobacco use stratified by gender show that age, education, residence and alcohol consumption were significantly associated with consumption for women.

Conclusion

Tobacco use is common in Burkina Faso. To effectively reduce tobacco use in Burkina Faso, a comprehensive tobacco control program should consider associated factors, such as gender, age and alcohol consumption.
Introduction

Despite considerable efforts, tobacco use remains a leading cause of preventable deaths worldwide according to the World Health Organization (WHO) [1]. Tobacco use, including smoking and use of smokeless tobacco products (SLT), kills nearly 7 million persons each year, including approximately 600,000 deaths from second-hand smoke [2-5]. If current trends persist, it is projected that tobacco use will kill over 8 million people per year by 2030, with 80% of these deaths occurring in low or middle-income countries [6]. Characterizing tobacco use and associated factors is especially important for public health policy and intervention in low and middle-income countries.

While prevalence of tobacco use has been low in Africa compared to other regions, future projections show rapid increases in smoking, particularly among men and an increase in the burden of non-communicable disease in the region accentuating the need for country level data on prevalence of smoking and SLT use [7]. According to analyses of Demographic and Health Surveys (DHS) the prevalence of adult tobacco use smoking is highly heterogeneous across African countries, ranging among men in Western Africa from 7.55% in Ghana, 14.85% in Senegal, 15.8% in Mali to and 37.6% in Sierra Leone.

Prevalence of smoking in all countries was higher in men than women, although studies have shown an increase in marketing of tobacco products to women in sub-Saharan Africa (SSA) [8]. In most SSA countries, SLT consumption among women is higher than cigarette use [9].

In response to concerns about morbidity and mortality associated with tobacco consumption the WHO created the Framework Convention on Tobacco Control (FCTC) in 2005 and “MPOWER” measures in 2008 as a set of low-cost, high-effective measures to control tobacco use [5,10]. Use of population-based surveys, under the first pillar of the MPOWER strategy, help countries and public health audiences to understand patterns of
tobacco use and its associated factors, as well as to track the impact of tobacco control measures and policy changes [9].

According to 2011 Demographic and Health Survey data, the prevalence of smoking among a representative sample of adult men in Burkina Faso was 21.2% and among adult women was 0.09%, with 3.86% reported SLT use among women. No SLT data was collected from men in this survey [9]. The only other nationally representative dataset that includes information about tobacco consumption in Burkina Faso is the 2013 WHO STEPwise approach to surveillance (STEPS) survey of NCD risk factors. The present analysis uses these data to describe prevalence estimates for tobacco consumption in Burkina Faso and assess associated demographic and behavioral factors, in order to inform future prevention and control initiatives.

Methods

Data source

We analyzed cross-sectional data from the first Burkina Faso nationwide STEPS survey conducted in 2013 by the Ministry of Health of Burkina Faso with technical support from the WHO. The STEPS is a population-based health survey administered to people aged 25 – 64 years in many countries worldwide that uses a stratified three-stage cluster sampling proportional to size to select participants. Sample size is estimated using the following Schwartz formula: for p (High blood pressure prevalence previously estimated at 29.3%,\textsuperscript{11,12} deff design effect fixed at 1.5, absolute error (5%); fractile of normal distribution of 5% error (1.96) [11-12]. The sample calculation was adjusted to account for subgroup analysis of 8 subgroups (sub) (4 age groups, and 2 gender or 2 residence groups) and for a non-response rate (t) of 20%. The Burkina STEPS survey was conducted on 4800 people, and a total of 4691 participants were included in our analysis, after
excluding observations with missing data about tobacco consumption. This sample size and prevalence of any tobacco use (19.8%) compared with previous prevalence (16.3%) show that our study statistical power is 99.9% [13].

The study’s sampling frame was based upon enumeration (EAs) from the 2006 general census of the population and housing (GCPH) and updated in 2010 during the Demographic and Health Survey in Burkina Faso [14]. In the first stage, geographic areas were stratified into rural and urban, and EAs were selected with probability proportional to their size from both strata. A total of 240 EAs were selected: 185 from rural areas and 55 from urban areas. In the second stage, 20 households were selected from each EA. In the third stage, one person aged from 25 to 64 years in each household was selected using Kish method.

The STEPS questionnaire is made up of several modules that include demographic information, anthropometric measures and behavioral measurement. A full description of the study design and the data collection has been published elsewhere [14-15]. All data about tobacco use and alcohol consumption were collected using a standardized questionnaire during face-to-face interviews.

The protocol of the STEPS survey was reviewed and approved by the Ethics Committee for Health Research of the Ministry of Health, which gave clearance in accordance with regulations in force (Deliberation No. 2012-12- 092 of 05 December 2012). Written informed consent was systematically sought and obtained from all participants before inclusion in the study. The confidentiality of study participants was fully respected and the analyses performed did not identify any participant.

Study Variables

Outcomes of interest include three measures of tobacco use: current any tobacco use, current cigarette smoking and current other tobacco use (SLT). Current cigarette smoking
was assessed with the question: ‘During the past 30 days, how many days did you smoke cigarettes?’ with current smoking defined as smoking on at least 1 day during the past 30 days. Current SLT use was assessed with the question: ‘During the past 30 days, on how many days did you use any smokeless tobacco products?’ with current SLT use defined as use of any SLT product on at least 1 day in the past 30 days. Any tobacco use is defined as either current cigarette smoking or other tobacco use in the past 30 days.

Independent variables included demographic characteristics such as age, sex, gender, marital status, place of residence and education level, and behavioral measurements such as alcohol consumption.

**Statistical analysis**

All data were weighted according to the cluster sampling design of the survey using strata and primary sampling units to allow the sample to be nationally representative. We used the Complex Samples module in Stata version 15 for data analyses. Weighted prevalence (with corresponding 95% CIs) were calculated by sex and age group. We tested differences in prevalence with the $\chi^2$ test or Fisher exact test when appropriate. Multivariable logistic regression models were used to estimate the associations between tobacco consumption, either smoking or other tobacco consumption, and other factors. A two-sided p value less than 0.05 was considered statistically significant. We used QGIS to represent the variation of prevalence between the different regions of Burkina Faso.

**Results**

**Socio-demographic characteristics**

Of the 4800 people originally sampled for the survey, 84 were excluded because either they were not home after 2 visits, were not willing to participate in the study, or had no information available on tobacco use. The data of 25 people were deleted due to incomplete information about sampling weights in the database. The response rate for this
analysis was 97.7%. Table 1 represents demographic characteristics of the sample and Figure 1 the flow of the study participants. Of 4691 people included in the analysis, men represented 48.1%. The age group of 25 – 34 years old had the highest percentage of participants (45.3%). Overall, 20.1% of participants lived in urban areas. Most participants had never gone to school (77.3%). 42% of women were housewives and 87.5% of men were self-employed

**Tobacco use**

The overall prevalence of any tobacco use was 19.8% (95% CI: 17.8 – 21.9). The prevalence among males and females was statistically different: 29.2% (95% CI: 26.4 – 32.1) vs. 11.8% (95% CI: 9.6 – 14.3) respectively. Tobacco use was also statistically higher in rural areas (21.8% (95% CI: 19.4 – 24.3) than in urban areas (14.1% (95% CI: 11.0 – 17.9), \( p = 0.001 \)). Tobacco use was highest in the Centre-Nord region (40.9% (95% CI: 29.3 – 53.6)) and lowest in the Centre-Est region (7.1% (95% CI: 3.7-13.2)), see Figure 2 for the OR of tobacco consumption in the different regions of the country.

Overall, 11.3% (95% CI: 10.3 – 12.4) of participants reported current smoking. The prevalence of smoking was also highest in the Centre-Nord region (17.3% (95% CI: 13.0 – 22.7)) and lowest in the Centre-Est region (3.9% (95% CI: 1.7 – 8.6)). 8.9% (95% CI: 7.4 – 10.7) of participants report using smokeless tobacco (SLT) products. The Centre-Nord region had the highest prevalence of SLT use (25.2% (95% CI: 16.5 – 36.5)), and the Cascade region had the lowest prevalence (2.4% (95% CI: 0.7-7.8)). The prevalence of smoking was higher in men than in women (24.5% (95% CI: 22.1-27.0)) vs 0.07% (95% CI: 0.0-0.2) respectively. Women use SLT more frequently than men (11.7% (95% CI: 9.4-14.1)) vs. (5.6% (95% CI: 4.1-7.2)). Smoking and SLT use was more frequent in rural areas than urban areas, 11.6% vs. 10.4% and 10.8% and 3.7%, respectively.

**Characteristics associated with tobacco use**
The overall prevalence of tobacco smoking was 11.3% (95% CI: 10.3 – 12.4) but only 2 of the 2435 women included in this study reported smoking. Therefore, we limited the analysis of smoking and associated factors to the male population only (n = 2256). Table 3 presents the prevalence of smokers by characteristics and results of univariate and multivariate analysis. The overall prevalence of cigarette smoking among men in Burkina Faso is 24.5% (95% CI: 22.1 – 27.0) with the highest prevalence in the 25 – 34 years age group (32.1% (95% CI: 28.3 – 36.2). There is no statistically significant difference in smoking prevalence by living area, education level, marital status, or occupational status. Risk factors independently associated with smoking were sex, age and alcohol consumption. The prevalence of smoking decreasing with age (Table 3) and there is a clear linear relation between the levels of alcohol consumption and the risk of cigarette smoking.

The overall prevalence of SLT consumption was 8.2% (95% CI: 7.4 – 8.9). The prevalence is 1.9% (95% CI: 1.2 – 3.1) in urban residents and 9.7% (95% CI: 8.8 – 10.7) in rural residents. The difference of SLT prevalence between living area is statistically significant (p < 0.001). (results not shown) There is also a statistically significant difference between men and women (p < 0.001): the prevalence for women is 10.7% (95% CI: 9.6 – 12.3) and 5.4% (95% CI: 4.5 – 6.4) for men. Among women, risk factors associated with SLT included age, education, residence and alcohol consumption. Among men, SLT use was associated with age and alcohol consumption (Table 4).

Discussion

Our study analyzes the most recent national representative survey data on tobacco consumption among adults in Burkina Faso and our findings suggest that tobacco consumption is higher than what was reported from the 2011 DHS survey [9]. It is not possible to compare our findings with others such as the age-standardized prevalence of
daily smoking from 2015, which considers daily smoking instead of any current smoking, and found the age-standardized prevalence of daily smoking for 2015 women to be 4.2% and for men to be 12.5% [4].

From the 2006 to 2013 the government of Burkina Faso has carried out national tobacco control programs. Laws regulate tobacco consumption health care facilities, educational facilities, government facilities and indoor offices. Additionally, Burkina Faso has national bans on direct advertising of tobacco products on billboards and outdoor advertising as well as on national tv or radio. In addition, an addiction center was recently opened in the largest hospital in the country. Despite national action to decrease tobacco use since the WHO FCTC took effect on October 2006, Burkina Faso continues to have higher tobacco consumption than other countries in the region [5, 9, 16]. The results from our analyses of STEPS data, as well as the 2011 DHS data show that Burkina Faso’s smoking prevalence in men is higher than 7 of 9 other countries in West Africa and prevalence of SLT in Burkina Faso is higher than 9 of 10 other countries in West Africa [9].

Young people are the main consumers of tobacco in Burkina Faso. Our findings show that nearly one of third of young people aged 25 – 34 years-old reported smoking tobacco and that prevalence decreases with age. In pooled data from 30 SSA countries, age is associated with tobacco consumption, however, both smoking and SLT use increase with age [9]. However, analyses of STEPS data from Kenya also found that the majority of smokers were in younger age groups [17]. Earlier smoking initiation is major public health concern. The average age of smoking initiation among adults in Burkina Faso was 20.9 years of age, highlighting the importance of tobacco prevention policies to address people in younger age groups [12]. Global Youth Tobacco Survey carried out in two cities in Burkina Faso in 2009 found that about 11.9% of boys from 13 to 15 years old in Ouagadougou and 6.0% in Bobo-Dioulasso were currently tobacco smokers [18-19]. While
youth smoking has decreased between 2001 and 2009 in both of these cities, the prevalence of use of other tobacco products increased as did youth reports of exposure to second hand smoke at home in Bobo Dioulasso [18].

In our study smoking was also significantly associated with gender and alcohol consumption, but not to location of residence. In various other SSA countries tobacco use is higher in men than in women [9], likely related to differing social norms about gender and tobacco use. Alcohol consumption and tobacco use was also linked in Kenya’s STEPS survey [17], among other studies. The combination of those two risk factors may contribute to future increases of NCDs in Burkina Faso. Our study did not find any association between smoking, education or employment status, while other studies from SSA found that men and women from rural areas, or those with lower educational levels smoke more than those from urban areas [9].

According to our findings, SLT is more frequently used by women and among those living in rural areas of Burkina Faso. Although SLT is less prevalent than smoking, it presents an important public health problem due to its association with many diseases such as cancers (i.e. mouth, pharynx and esophagus) and ischemic heart disease [13]. Health effects of SLT vary by region, related to the types of tobacco that are used in those regions [20]. In sub Saharan Africa few studies focus on the health effects of SLT [21-22]. In general, women SLT users are exposed to multiple health risk such as pregnancy complications (e.g. placenta praevia, placental abruption, and pre-eclampsia) [23]. In this study we did not estimate SLT consumption during pregnancy. A study published in 2017, however, found that the prevalence of SLT during pregnancy in Burkina Faso was 2.8%. This prevalence is higher compared to other Africa regions (1.7%), but lower than in Sierra-Leone (4.6%) [23]. Even at national level scale, as shown in Figure 2, important differences were observed between the regions. Therefore, further and more advanced
spatial analysis of tobacco consumption is needed to better guide health care prevention program.

Concerning the limitations of this study we report here the results of the first nationally representative survey on the prevalence and risk factors for tobacco consumption in Burkina Faso. The first limitation stems from the cross-sectional nature of the data that limits the possibility of deriving causal inferences. The second one is that tobacco and alcohol consumption were obtained during interview and is therefore dependent on the faith of the participants. There is therefore both a risk of memory bias and social desirability. It can therefore be estimated that the numbers and prevalence obtained in this survey underestimate the actual consumption. The last point is that some well-known risk factors for tobacco consumption were not included in the study because data on these variables have not been collected during the STEPS survey. Part of such variables is the socio-economic status. Given the study design (cluster sampling design) and the sample size the results of this study can be extended to the whole of Burkina Faso.

Based on the results of this study important preventive measure need to be taken to reduce tobacco consumption in Burkina Faso, with targeted approaches to sections of the population most affected by different types of tobacco use. In general, efforts should target tobacco use in youth, smoking among men and SLT consumption among women and in rural areas.

Conclusion

The prevalence of tobacco consumption remains high in Burkina Faso despite restrictive measures and control plan adopted in recent years. Since tobacco consumption is an important risk factors for cardiovascular diseases and other NCDs it is important to promote and accelerate the implementation of the various measures to decrease consumption in future years. Further spatial analyzes could be useful to identify areas of
high tobacco consumption in order to focus more in details on these areas in the tobacco control and prevention program planning.

List Of Abbreviations

DHS: Demographic and Health Surveys
NCD: Non-communicable disease
SLT: smokeless tobacco products
SSA: sub-Saharan Africa
STEPS: WHO STEPwise approach to surveillance
WHO: World Health Organization

Declarations

Ethics approval and consent to participate Consent for publication

The protocol of the STEPS survey was reviewed and approved by the Ethics Committee for Health Research of the Ministry of Health, which gave clearance in accordance with regulations in force (Deliberation No. 2012–12- 092 of 05 December 2012). Written informed consent was systematically sought and obtained from all participants before inclusion in the study. The confidentiality of study participants was fully respected and the analyses performed did not identify any participant.

Availability of data and materials

The dataset of the STEPS survey that was used in this research is available at the Ministry of Health upon request. Any request to reanalyze the data can be directed to Dr Brice Bicaba bicababrico78@gmail.com

Competing interests

The authors declare that they have no competing interests.

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None.

Authors’ contributions

BB and FK conceived the study. BB and CK proposed an early draft of the paper. FK, CK, SK, GB, OM and MT made substantial contributions to the conception and design, analysis and interpretation of the data. GO, GF, SS and AO contributed significantly to revise the manuscript. All authors read and approved the final manuscript.

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Tables

Table 1: Definition of recoded exposure variables.

| Variables            | Categories                                                                 |
|----------------------|-----------------------------------------------------------------------------|
| Age groups           | “25 to 34 years old”, “35 to 44 years old”, “45 to 54 years old”, “55 to 64 years old” |
| Education            | “None”, “Primary”, “Secondary/Tertiary”                                     |
| Marital status       | “Single”, “Married”, “Divorced/widowed”                                     |
| Occupational status  | “Wage earner”, “Self-employed”, “Jobless”                                    |
| Alcohol consumption  | None: Never intake of alcohol                                               |
|                      | Low: intake of an average quantity of pure alcohol of less than 40 g per day for men and less than 20 g for women |
|                      | Mid: corresponds to taking an average quantity of pure alcohol of between 40 g and 59.9 g per day for men and between 20 g and 39.9 g for women |
|                      | High: intake of an average quantity of pure alcohol greater than or equal to 60 g per day for men and greater than or equal to 40 g for women |

Table 2: Socio-demographic characteristics of the study sample.
| Variables         | Participants, n (%) |
|-------------------|---------------------|
| **Age groups**    |                     |
| 25 to 34          | 2,123 (45.3)        |
| 35 to 44          | 1,181 (25.2)        |
| 45 to 54          | 841 (17.9)          |
| 55 to 64          | 546 (11.6)          |
| **Education**     |                     |
| None              | 3,622 (77.3)        |
| Primary           | 727 (15.5)          |
| Secondary/Tertiary| 334 (7.1)           |
| **Marital status**|                     |
| Single            | 333 (7.1)           |
| Married           | 4,042 (86.3)        |
| Divorced/Widowed  | 311 (6.6)           |
| **Occupational status** |               |
| Wage earner       | 281 (6.0)           |
| Self-employed     | 3,249 (69.2)        |
| Jobless           | 1,161 (24.8)        |
| **Residence**     |                     |
| Urban             | 1040 (22.2)         |
| Rural             | 3652 (77.8)         |

Table 3: Risk factors for smoking tobacco consumptions in male population aged 25 – 64 years.
| Variable              | n    | Prevalence (95%CI) | Unadjusted OR (95%CI) | AOR (95%CI) |
|-----------------------|------|--------------------|-----------------------|-------------|
| **Age groups**        |      |                    |                       |             |
| 25 to 34              | 948  | 32.1[28.3-36.2]     | 1                     |             |
| 35 to 44              | 572  | 23.0[18.9-27.8]     | 0.62[0.49-0.78]***    | 0.52[0.38-0.72]** |
| 44 to 54              | 426  | 19.1[14.7-24.6]     | 0.45[0.35-0.61]***    | 0.40[0.27-0.60]*** |
| 55 to 64              | 310  | 13.6[9.4-19.2]      | 0.37[0.27-0.53]***    | 0.25[0.16-0.39]*** |
| **Residence**         |      |                    |                       |             |
| Urban                 | 462  | 24.7[20.0-30.1]     | 1                     |             |
| Rural                 | 1794 | 24.4[21.7-27.3]     | 1.02[0.81-1.30]       | 0.91[0.63-1.30] |
| **Education**         |      |                    |                       |             |
| None                  | 1648 | 23.9[21.1-26.8]     | 1                     |             |
| Primary               | 411  | 29.3[23.2-36.2]     | 1.15[0.90-1.47]       | 1.03[0.75-1.41] |
| Secondary/Tertiary    | 189  | 19.4[13.7-26.8]     | 0.70[0.48-1.01]       | 0.69[0.34-1.37] |
| **Marital status**    |      |                    |                       |             |
| Single                | 258  | 23.7[17.7-30.9]     | 1                     |             |
| Married               | 1907 | 24.4[21.9-27.3]     | 1.01[0.75-1.37]       | 1.36[0.87-2.12] |
| Divorced/Widowed      | 88   | 26.6[17.6-38.5]     | 1.27[0.7-2.28]        | 1.72[0.83-3.53] |
| **Occupational status** |    |                    |                       |             |
| Wage earner           | 195  | 21.9[15.9-29.1]     | 1                     |             |
| Self-employed         | 1975 | 25.3[22.7-28.1]     | 1.37[0.96-1.97]       | 1.24[0.70-2.19] |
| Jobless               | 86   | 11.6[6.6-19.7]      | 0.62[0.30-1.27]       | 0.45[0.20-1.01] |
| **Alcohol consumption** |   |                    |                       |             |
| No                    | 1623 | 20.5[18.0-23.2]     | 1                     |             |
| Low                   | 406  | 31.8[25.5-38.9]     | 1.63[1.28-2.07]***    | 2.01[1.42-2.86]** |
| Mid                   | 129  | 38.9[29.1-49.6]     | 2.61[1.80-3.77]***    | 2.87[1.77-4.65]*** |
| Abuse                 | 98   | 40.3[28.1-53.9]     | 2.39[1.57-3.65]***    | 3.22[1.74-5.94]*** |

AOR = Adjusted Odds Ratios. CI= confidence interval, * p = 0.05, ** p = 0.01, *** p < 0.001

Table 4: Risk factors for smokeless tobacco consumptions in women and men population aged 25 – 64 years.
| Variables          | Women                        | Men                          |
|-------------------|------------------------------|------------------------------|
|                   | n   | Prevalence | AOR (95%CI) | n   | Prevalence | AOR (95%CI) |
| **Age groups**    |     |            |              |     |            |              |
| 25 to 34          | 60  | 5.7[3.2-10.1] | 1.00         | 12  | 1.3[0.6-2.5] | 1.00         |
| 35 to 44          | 60  | 9.4[6.8-12.9] | 1.56[1.01-2.41]** | 15  | 2.2[1.2-4.0] | 1.52[0.62-3.71] |
| 44 to 54          | 87  | 23.5[19.1-28.5] | 4.47[2.95-6.79]*** | 41  | 11.3[8.1-15.5] | 8.32[3.80-18.24]*** |
| 55 to 64          | 56  | 24.6[18.7-31.6] | 3.82[2.27-6.41]*** | 54  | 17.0[12.4-22.9] | 12.88[5.78-28.67]*** |
| **Residence**     |     |            |              |     |            |              |
| Urban             | 16  | 3.8[2.2-6.7] | 1.00         | 7   | 3.5[1.2-9.9] | 1.00         |
| Rural             | 247 | 14.8[12.0-18.1] | 3.87[2.09-7.13]*** | 115 | 6.3[4.8-8.2] | 2.08[0.83-5.21] |
| **Education**     |     |            |              |     |            |              |
| None              | 256 | 13.8[11.3-16.9] | 1            | 110 | 6.7[5.1-8.7] | 1            |
| Primary           | 6   | 2.1[0.8-5.5] | 0.25[0.09-0.70]** | 10  | 2.5[0.9-6.5] | 0.45[0.20-1.02] |
| Secondary/Tertiary| 1   | 0.9[0.166-6.6] | 0.19[0.03-1.39] | 1   | 3.1[0.7-13.1] | 0.83[0.17-4.12] |
| **Marital status**|     |            |              |     |            |              |
| Single            | 1   | 0.8[0.1-5.4] | 1.00         | 4   | 1.4[0.5-3.6] | 1.00         |
| Married           | 215 | 11.0[8.7-13.9] | 3.40[0.41-27.99] | 113 | 5.9[4.5-7.7] | 1.02[0.34-3.12] |
| Divorced/Widowed  | 47  | 22.8[16.4-30.9] | 5.86[0.68-50.54] | 5   | 11.8[3.9-30.4] | 1.51[0.32-7.21] |
| **Occupational status** |   |            |              |     |            |              |
| Wage earner       | 0   | 0          | /            | 2   | 0.9[0.2-4.4] | 1            |
| Self-employed     | 149 | 12.9[9.4-17.6] | 1            | 117 | 6.1[4.6-7.9] | 7.18[1.01-51.31] |
| Jobless           | 114 | 11.2[8.8-14.2] | 1.00[0.61-1.65] | 3   | 6.0[1.1-26.4] | 16.00[0.70-362.0] |
| **Alcohol consumption** |   |            |              |     |            |              |
| None              | 165 | 9.6[7.5-12.2] | 1.00         | 62  | 4.0[2.8-5.7] | 1.00         |
| Low               | 41  | 21.4[15.4-29.0] | 2.15[1.34-3.46]*** | 39  | 8.5[5.6-12.7] | 2.17[1.27-3.70]*** |
| Mid               | 51  | 18.6[13.1-25.7] | 2.14[1.37-3.35]*** | 9   | 9.4[4.4618.9] | 3.04[1.27-7.25]** |
| Abuse             | 6   | 20.3[7.1-45.7] | 2.19[0.58-8.28] | 12  | 14.9[7.7-26.8] | 4.10[1.72-9.74]*** |

AOR = Adjusted Odds Ratios. CI = confidence interval, *p = 0.05, **p = 0.01, ***p < 0.001
Figures

Figure 1

Diagram flow of study participants.
Figure 2

Adjusted OR (compared to Ouagadougou region) for tobacco consumption in the different region of Burkina Faso. Map has been downloaded and used with permission from GADM (https://gadm.org/).

Supplementary Files

This is a list of supplementary files associated with the primary manuscript. Click to download.

STROBE_BF.pdf