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Routine and quality of life of smokers and alcohol users during the covid-19 pandemic in brazil

Rotina e qualidade de vida de fumantes e usuários de álcool durante a pandemia de covid-19 no brasil

Keywords: Quality of life; COVID; Depression; Anxiety; Sleep disorders; Alcohol; Tobacco.

Victoria Gomes Andreata (São Leopoldo Mandic)

Email: victoria_tri@hotmail.com

Mariana Sbaraglini Garcia Silva (Universidade Presbiteriana Mackenzie)

Email: mariana.sbaraglini@outlook.com

Marcella Tamura Ferrazzi Achy (São Leopoldo Mandic)

Email: marcela.achy@gmail.com

Sandra Martinez (Hospital da Restauração - Pernambuco)

Email: scmartinez@hotmail.com

Paulo Afonso Mei (São Leopoldo Mandic)

Email: paulo.mei@slmandic.edu.br

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RESUMO

Introdução: A quarentena imposta pelo COVID-19 afetou brutalmente a vida de todos os brasileiros desde que foi instituída. Manifestações de ansiedade, depressão e distúrbios do sono dispararam neste período, especialmente em indivíduos com piores hábitos cotidianos, como consumo de álcool e tabaco.

Objetivo: Avaliar o perfil de consumidores de álcool e tabaco e seu impacto na saúde mental e do sono durante o cenário da pandemia de SARS-CoV-2 no Brasil**.**

Método: Trata-se de uma análise post-hoc da base de dados do estudo DEGAS-CoV, tendo como foco, numa pesquisa online de 2.695 sujeitos, aqueles que declararam, serem consumidores de álcool e/ou tabaco. Possível depressão e ansiedade foram avaliados pela Escala Hospitalar de Ansiedade e Depressão (HADS), e sono de má qualidade pelo Índice de Qualidade de Sono de Pittsburgh (PSQI).

Resultados: Tabagistas se associaram a maior taxa de possível ansiedade - 65% vs. 56%, OR 1,5 [1,10 — 2,09], e de sono ruim - 68% vs. 48% em não-fumantes - OR = 2,33 [1,70 — 3,20]. Não observamos associação relevante entre uso de álcool e possível ansiedade ou sono ruim, enquanto a taxa de possível depressão foi menor entre estes - 42% vs. 50% em não usuários - OR = 0,73 [0,62 — 0,85]) - nesse grupo, quando subdividido, as taxas de possível depressão foram de 41% para consumidores exclusivos de álcool, vs. 48% nos consumidores de álcool e tabaco. Habitantes do Centro-Oeste e Sul, pessoas no terceiro quartil (28-38 anos), homens, brancos, pessoas com formação universitária e pessoas com renda acima de R$ 10.000 estiveram mais associadas ao consumo de álcool, ao passo que pessoas no último quartil (> 39 anos) e homens estiveram mais associados a consumo de tabaco, de forma mais relevante.

Conclusão: Na amostra, o tabagismo esteve negativamente associado à qualidade do sono e à maior propensão a possível ansiedade, mas não a depressão, enquanto que o uso de álcool não se associou negativamente às condições estudadas, tendo inclusive associação paradoxal a taxa menor de possível depressão. Por fim, o consumo de álcool foi mais heterogêneo que o de cigarro entre os subgrupos, o que pode auxiliar na formulação de estratégias de promoção de saúde voltadas a subgrupos específicos da população.

Palavras-chave: Qualidade de vida; COVID; Depressão; Ansiedade; Distúrbios do sono; Álcool; Tabaco.

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ABSTRACT

Introduction: Quarantine imposed by COVID-19 has brutally affected the lives of all Brazilians. Manifestations of anxiety, depression and sleep disorders skyrocketed, especially in individuals with worse daily habits such as alcohol and tobacco consumption.

Objective: To assess the profile of alcohol and tobacco consumers and its impact on mental and sleep health during the pandemic of SARS-CoV-2 in Brazil.

Methods: This is a post hoc analysis of the DEGAS-CoV study database, aiming, among an online survey of 2,695 subjects, those who declared to be consumers of alcohol and/or tobacco. Possible depression and anxiety were assessed by the Hospital Anxiety and Depression Scale (HADS), while sleep by the Pittsburgh Sleep Quality Index (PSQI).

Results: Smokers were associated to a greater rate of possible anxiety - 65% vs. 56%, OR 1,5 [1,10 — 2,09], and to a worse rate of bad sleep - 68% vs. 48% in non-smokers - OR = 2,33 [1,70 — 3,20]. We did not observe any relevant association regarding alcohol intake and possible anxiety or bad sleep, while levels of depression were lower among those - 42% vs. 50% in non-drinkers - OR = 0,73 [0,62 — 0,85]) - when the group was subdivided, rates of possible depression were of 41% in exclusive drinkers, vs. 48% in those who drank and smoked. Midwest and South inhabitants, people in the third quartile (28-38 y.o.), men, white, people with graduation/postgraduation levels and people with monthly income greater than R$ 10,000/month were more associated with alcohol consumption, whereas people in the last quartile (> 39 y.o.) and men were more associated with smoking.

Conclusion: In our sample, smoking was negatively associated to the quality of sleep and to greater propension to possible anxiety, but not to possible depression, while alcohol drinking was not negatively associated to the conditions studied, being even paradoxically associated to lower rates of possible depression. Lastly, alcohol consumption was more heterogenic than tobacco among subgroups. This information may help formulating better health promotion strategies by targeting specific groups in society.

Keywords: Quality of life; COVID; Depression; Anxiety; Sleep disorders; Alcohol; Tobacco.

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1 INTRODUCTION

In late 2019, a new coronavirus, SARS-CoV-2, became known [1]. This disease has had global repercussions since its outbreak, due to its high transmissibility and even in the incubation period, through the contact of the virus with the airways [2], considerable rate of morbimortality, being the first case reported in Brazil on February 26, 2020, and later culminating in a lockdown state and declaration of public calamity[3].

The unexpected situation led to a change in habits which, coupled with the lack of perspective of the end of isolation, lead to a worsening of the quality of life, resulting in the spike of anxiety and depression symptoms and bad sleep rates[4] , which links to the increase in the consumption pattern of alcohol and tobacco during the pandemic, in order to compensate for problems inherent to this period of stress and instability, leading to a potential, harmful use. Alcohol and tobacco use also lead to a greater release of cortisol, thus leading to an acute stressful state, which may contribute to worsen mental and sleep health [5], [6].

Alcohol consumption in the Brazilian population shows an increasing trend, considering that 26.4% of the population aged 18 years and older drank weekly in 2019, against 23.9% in 2013[7]. According to a study, a 17% increase in consumption was reported during the COVID-19 pandemic, being greater in patients with signs of depression and anxiety [8].

Smoking affected 16,8% of the Brazilian population aged 18 years and over in 2010. Prevention policies have led to a drop in consumption, landing in 9.5% in 2020 [9]. However, the onset of the pandemic led to an increase in consumption in 34% in already smokers, which could be implicated in depressive symptoms and post-traumatic stress [8].

This study sought to investigate those who were alcohol consumers and smokers, during the first months of the pandemic, compared to those who were not, in order to verify possible associations of these habits with the quality of life, also considering the context in which each one was inserted, regarding region, sex, gender, age, income and education.

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2 MATERIALS AND METHODS

This is a post hoc analysis of a large, cross-sectional observational study called DEGAS-CoV study[10], which assessed 2,695 responders who were living in Brazil on the second trimester of 2020, when government restriction rules were enforced, and was based on questions regarding the socioeconomic status of the participants, and the application of, among others, the Hospital Anxiety and Depression Scale (HADS)[11] which is an indicator of *possibility* of depression and anxiety (as the formal diagnosis must be made after careful interview and obeyance to the criteria of the DSM-V[12]), and the Pittsburgh Sleep Quality Index (PSQI) [13]. For greater clarification of the criteria of classification, as of regarding ethical approval, please refer to the original article[10].

The DEGAS-CoV Study subjects were surveyed online and included volunteers aged 18 years and older. Among the analyzed sample, 188 participants used cigarettes, 1,173 used alcoholic beverages; of these participants, 128 used both components. Statistics for independence tests was made, where appliable, by the Chi-square test and Fisher's test [14], and whenever post-hoc analysis for interpretation of significances was necessary, the z test with Bonferroni correction[15] was calculated. Analyses were performed with the help of SPSS (IR) Statistical Software[16].

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3 RESULTS

The subset's general and socioeconomic profile is represented in **Table 1**, and in Table 1.1 post-hoc analysis identified which sub characters influenced when statistical significance was achieved.

	Alcohol users			**Smokers**		
Variables	**Yes** N = 1,173[1]	**No** N = 1,522[1]	**p**[2] value	**Yes** N = 188[1]	**No** N = 2,507[1]	**p**[3] value
Regions	**N (%)**	**N (%)**	**<0,01**			0,28
North	54 (32)	116 (68)		12 (7,1)	158 (93)	
North East	107 (33)	215 (67)		16 (5,0)	306 (95)	
Midwest	100 (48)	108 (52)		15 (7,2)	193 (93)	
Southeast	670 (45)	832 (55)		101 (6,7)	1,401 (93)	
South	242 (49)	251 (51)		44 (8,9)	449 (91)	
Quartile	**N (%)**	**N (%)**	**<0,001**			**0,014**
Q1 *(18-22 y.o.)*	275 (35)	518 (65)		40 (5,0)	753 (95)	
Q2 *(23-27 y.o.)*	267 (45)	322 (55)		42 (7,1)	547 (93)	
Q3 *(28-38 y.o.)*	355 (52)	323 (48)		46 (6,8)	632 (93)	
Q4 *(39-7y.o.)*	276 (43)	359 (57)		60 (9,4)	575 (91)	
Binary Gender	**N (%)**	**N (%)**	**<0,001**			**<0,001**
Female	834 (41)	1,218 (59)		124 (6,0)	1,928 (94)	
Male	334 (53)	302 (47)		63 (9,9)	573 (90)	
Race	N (%)	N (%)	**<0,001**			0,23
Whites	944 (47)	1,077 (53)		135 (6,7)	1,886 (93)	
Blacks, yellows and browns	212 (34)	419 (66)		51 (8,1)	580 (92)	
Education	**N (%)**	**N (%)**	**<0,001**			0,23
High School	471 (38)	762 (62)		86 (7,0)	1,147 (93)	
Complete Undergraduate	334 (46)	392 (54)		59 (8,1)	667 (92)	
Complete University Education	368 (50)	368 (50)		43 (5,8)	693 (94)	
Income (monthly)	**N (%)**	**N (%)**	**<0,001**			0,55
Less than R$1.2K	25 (25)	77 (75)		7 (6,9)	95 (93)	
R$ 1.2K - R$ 3K	163 (33)	335 (67)		41 (8,2)	457 (92)	
R$ 3K - 10K	432 (42)	589 (58)		70 (6,9)	951 (93)	
Above R$10K	427 (56)	341 (44)		47 (6,1)	721 (94)	
Affected Income	**N (%)**	**N (%)**	0,71			**0,002**
Improved	15 (43)	20 (57)		1 (2,9)	34 (97)	
Did not affect	409 (43)	549 (57)		56 (5,8)	902 (94)	
Decreased up to 25%	371 (43)	492 (57)		53 (6,1)	810 (94)	
Decreased up to 50%	262 (46)	305 (54)		42 (7,4)	525 (93)	
Decreased more than 50%	116 (43)	156 (57)		36 (13)	236 (87)	

[1] n (%)
[2] Chi-square test of independence
[3] Chi-square test of Independence or Fisher's exact test.

Table 1: Numerical and socioeconomic analysis of the smoking and drinking population

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Alcohol users

Variables	p-value[1]
Region	
North	**0,014**
North East	**0,001**
Midwest	1,000
Southeast	1,000
South	**0,059**
Quartile	
Q1 (18-22 years old)	**<0,001**
Q2 (23-27 years old)	1,000
Q3 (28-38 years old)	**<0,001**
Q4 (39-79 years old)	1,000
Education	
Until Complete High School	**<0,001**
Complete Undergraduate	0,689
Complete University Education	**<0,001**
Income	
Less than R$1.2K	**<0,001**
Between R$1.2K and R$3K	**<0,001**
Between R$3K and R$10K	1,000
Above R$10K	**<0,001**

Smokers

Variables	p-value[1]
Quartil	
Q1 (18-22 years old)	0,088
Q2 (23-27 years old	1,000
Q3 (28-38 years old)	1,000
Q4 (39-79 years old)	**0,041**

[1] Chi-square test of independence

Table 1.1: Post-Hoc analysis of variables: region, quartile, education and income

As shown in the tables 1 and 1.1, there was a lower association of alcohol consumption with North and Northeast dwellers, while a greater rate of alcohol consumption was observed in the group aged from 28 to 38 years (Q3), in males and in the white population. Socio-economically, those ones with greater financial and educational status showed more association with alcohol consumption.

In the analysis of tobacco consumption, older people were more associated with cigarette smoking. Fisher's test performed on smokers, exposed an inverse

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relationship between the how much the pandemic affected their income and smoking.

Odds Ratios in Table 2 highlights the chances of having anxiety, depression and/or poor sleep associated with smoking and drinking habits. In Table 3 we subdivided the subjects in those who exclusively drank or smoked and those who bore both habits for further exploitation.

Alcohol Users

Variables	Yes N (%)	No N (%)	OR (95% CI)	Yes N (%)	No N (%)	OR (95% CI)
Anxiety			***0,96 (0.83 – 1.12)***			***1.50 † (1.10 –2.04)***
Yes	**657 (56)**	**866 (56.9)**		**123 (65.4)**	**1,400 (55.8)**	
No	**516 (44)**	**656 (43.1)**		**65 (34.6)**	**1,107 (44.2)**	
Depression			***0,73 (0.62 – 0.85)***			***1.21 (0.90 – 1.63)***
Yes	**489 (41.7)**	**754 (49.5)**		**95 (50.5)**	**1,148 (45.8)**	
No	**684 (58.3)**	**768 (50.5)**		**93 (49.5)**	**1,359 (54.2)**	
Poor sleep			***1.15 (0.99 – 1.34)***			***2.33 † (1.70 – 3.20)***
Yes	**600 (51.2)**	**726 (47.1)**		**128 (68.1)**	**1,198 (47.8)**	
No	**573 (48.8)**	**796 (52.3)**		**60 (31.9)**	**1,309 (52.2)**	

[1] n (%)
† statistically significant analysis

Table 2: Rates and Odds Ratios of possible anxiety, possible depression and poor sleep among alcohol users and smokers

Groups	ANXIETY			DEPRESSION			BAD SLEEPER		
	Yes N (%)	No N (%)	p-value[1]	Yes N (%)	No N (%)	p-value[1]	Yes N (%)	No N (%)	p-value[1]
Non-drinker, non-smoker	826 (56.5)	636 (43.5)	0.066	720 (49.2)◆	742 (50.8)	< 0.001	781 (53.4)◆	681 (46.6)	< 0.001
Drinker, non-smoker	574 (54.9)	471 (45.1)		428 (41)	428 (59)◆		528 (50.5)	517 (49.5)	
Smoker, non-drinker	40 (66.7)	20 (33.3)		34 (56,7)	26 (46.3)		15 (25)	45 (75)◆	
Drinker and smoker	83 (64.8)	45 (35.2)		61 (47.7)	67 (52.3)		45 (35.2)	83 (64.8)◆	

[1] Chi-square test of independence
◆ - post-hoc analysis indicates higher than expected frequency (adjusted z score > 1.96)

Table 3: Rates of anxiety, depression and sleep disorders when groups are subdivided into non-drinkers and non-smokers, drinkers and smokers and those who kept only one habit (only drinkers and only smokers)

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4 DISCUSSION

There are limitations of this cross-sectional study, in part due to the collection of data via the internet by snowball sampling, there were inequalities in the proportion of people recruited between regions, men and women and among age quartiles - younger people were significantly more engaged, often causing an involuntary exclusion of older people, and also a much smaller number of smokers, in comparison to alcoho consumers, which may have affected the statistical power of the study.

According to the data, 7% of the study participants were smokers, 43.5% consumed alcohol and 4.7% used both, data consistent with published studies before the pandemic[7],[9].

4.1 Smoking

The predominance of smokers in the older quartile (39-79 years) was corroborated by the trajectory of tobacco in Brazilian history[17]. Over the years, measures were adopted that led to a progressive decrease in smoking as new generations were born[17]. In our study, males smoked more than the females, in corroboration with previous published studies before the pandemic [9],[18].

Although non-significant, smoking was more associated with lower incomes, which was also verified by Pinto et al [18]. This could be explained by several factors, such as reduced productivity.

The findings showed an association between smoking habits, worse sleep quality and anxiety during the analyzed period. A literature review found that smokers trifold difficulty falling asleep and staying asleep at night, in addition to daytime sleepiness, apnea and snoring, which could be in part attributed to the stimulants present in cigarettes [19],[20].

4.2 Alcohol intake

Previous studies observed an epidemiological profile that identified the individuals who were more prone to excessive alcohol consumption, being the most vulnerable residents of the South region of Brazil and males between 35-59 years old [21], [22]. Regarding our study, the data collected showed the South as the region with the highest prevalence, while a lower use of the substance was noted in the North and

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Northeast regions. The age group with the highest association to drinking was the third quartile (28-38 years-old). Males were significantly more engaged in drinking than females.

There was a relevant positive association between higher economic status and white race with the consumption of alcohol, in discrepancy to other studies on the same topic, which showed that the most affected were low-income and black individuals[22]. One possible explanation is to infer a greater recreational use of alcohol in those groups, which may explain the decrease in depression in those same groups.

Studies have demonstrated a strong association between alcohol consumption and psychological disorders, especially in terms of anxiety and depression, which have already proven to be precursors to alcohol consumption [23], [24]. Based on this, a survey carried out in 2020 during the pandemic showed an even greater relationship between these factors, especially in those who were drinking alone, in isolation and/or with other stressors identified[25]. In contrast to the analyzes of other articles, an association between alcohol consumption and lower chances of developing depression was demonstrated.

In the specific analysis of the parameters that led to depression, the most important aspect was economic power, being those with lower income the most affected. In addition to financial stress, another relevant condition occurred in the social sphere, considering that their reduced contact due to pandemic increased the chances of developing depression.

Alcohol consumption was considerably more prevalent than tobacco smoking, however, the use of both was also noted, as 128 (67%) of smokers also were drinkers, evidencing a bidirectional link also reported in other studies, being considered a classic condition, in which one habit potentiates another [26]. In our sample, in opposite of what common sense would expect, having both habits was not necessarily associated with worse rates of mental and sleep health, as for instance exclusive drinkers had worse ratio of possible depression than drinkers and smokers (59% vs 52.3%), and exclusive smokers had worse rates of bad sleep than those who bore the two habits (75% vs. 64.8%). This cannot be extrapolated to general conclusions, much to the limitations described before, and also because of the uniqueness of the period of lockdown and isolation due to COVID-19, never before studied with this volume and quality of data.

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5 CONCLUSION

The pandemic was an extremely important generator and/or aggravator of psychic vulnerability, in view of which it is important to identify smoking and drinking habits and, in this way, identify the extent to which they may affect psychiatric disorders such as anxiety, depression and also the quality of sleep. Further studies, especially of prospective design, will help to clarify the extent and duration of those impacts.

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