

CORRESPONDENCE

Research Letter

Changes in Alcohol and Tobacco Consumption in Kupferzell (Baden-Württemberg) During the Period of COVID-19 Pandemic Restrictions

The far-reaching measures adopted in March 2020 to contain the COVID-19 pandemic posed various challenges to the population, including some related to health behavior. Social isolation, financial insecurity, changes in employment situation, and a rise in domestic care work due to the pandemic restrictions may be associated with an increase in psychological stress, and it is conceivable that increased stress levels may lead to increased alcohol and tobacco consumption (1, 2). However, the pandemic and related restrictions could also have been a reason to consciously reduce the consumption of alcohol and tobacco.

The CoMoLo (Corona-Monitoring lokal) study collects data on SARS-CoV-2 seroprevalence and the proportion of asymptomatic SARS-CoV-2 infections in communities particularly affected by the COVID-19 pandemic in Germany. In Kupferzell, a community in the state of Baden-Württemberg, particularly high incidence rates were observed in late April 2020 (3). This analysis is concerned with the question whether and to what extent alcohol and tobacco consumption changed in Kupferzell during the period from mid-March to early May 2020 when the COVID-19 pandemic restrictions (contact restrictions, closure of shops and restaurants) were in place.

Methods

In the period from 20 May to 9 June 2020, 2203 persons in Kupferzell participated in the CoMoLo study (response rate of 63%); these had been selected on the basis of a random representative sample from the population register and invited to participate in the study. In addition to the seroepidemiological studies, changes in health behavior were investigated by means of a web-based or telephone survey.

The respondents were asked whether they smoked. Current smokers were asked whether they had changed their smoking behavior since 18 March 2020. Data on alcohol consumption were collected by asking about the consumption during the last month. Respondents who stated that they had consumed alcohol were asked about changes in their consumption, in the same way as smokers. The analyses are based on data of 428 current smokers and of 1682 respondents who had consumed alcohol in the last month. The response categories were combined in three groups respectively, not least because of low cell population.

All analyses were performed with Stata (version 17), using survey procedures for complex samples. This approach allows to take sample weighting and cluster effects of respondents within one household into account (3). Besides descriptive statistics (Table 1), multinomial logistic regression was used (Table 2) to identify changes in substance consumption (dependent variables) and relationships with social factors (sex, age, educational attainment according to the International Standard Classification of Education [ISCED]). In addition, odds ratios (ORs) were calculated as effect estimates with 95%-confidence intervals (95%-CI).

TABLE 1

Behavioral changes in alcohol and tobacco consumption during lockdown starting March 2020, by sociodemographic factors

	Smoking		
	Unchanged	Started or Increased	Reduced
Total (%) [95% CI]	346 (81.5) [76.9; 85.4]	35 (7.9) [5.2; 11.9]	47 (10.6) [7.8; 14.2]
Sex			
Male (%) [95% CI]	198 (85.2) [79.7; 89.4]	12 (4.7) [2.4; 8.8]	26 (10.1) [6.7; 14.9]
Female (%) [95% CI]	148 (75.9) [68.3; 82.1]	23 (12.8) [8.2; 19.5]	21 (11.3) [7.1; 17.6]
Age (years)			
18–39 (%) [95% CI]	167 (78.9) [70.7; 85.3]	20 (9.8) [5.4; 17.3]	24 (11.3) [7.0; 17.7]
≥ 40 (%) [95% CI]	179 (83.4) [77.9; 87.8]	15 (6.5) [3.9; 10.6]	23 (10.1) [6.7; 14.9]
Educational attainment (ISCED)			
Low (%) [95% CI]	45 (90.5) [79.7; 95.9]	1 (1.1) [0.1; 7.3]	5 (8.4) [3.4; 19.2]
Medium (%) [95% CI]	210 (80.5) [73.7; 85.9]	25 (10.1) [6.1; 16.3]	22 (9.4) [5.9; 14.7]
High (%) [95% CI]	91 (78.7) [70.4; 85.2]	9 (6.7) [3.4; 12.9]	20 (14.6) [9.4; 22.1]
	Alcohol consumption		
	Unchanged	Started or Increased	Reduced
Total (%) [95% CI]	1 332 (80.6) [78.4; 82.5]	166 (9.0) [7.6; 10.6]	181 (10.4) [8.9; 12.2]
Sex			
Male (%) [95% CI]	652 (79.1) [76.0; 81.9]	71 (7.7) [6.0; 9.8]	115 (13.2) [10.9; 15.9]
Female (%) [95% CI]	680 (82.3) [79.4; 84.9]	95 (10.6) [8.5; 13.1]	66 (7.1) [5.5; 9.1]
Age (years)			
18–39 (%) [95% CI]	522 (70.2) [66.2; 73.9]	107 (14.0) [11.4; 17.2]	111 (15.8) [12.8; 19.3]
≥ 40 (%) [95% CI]	810 (86.3) [83.8; 88.4]	59 (6.2) [4.8; 8.0]	70 (7.5) [5.9; 9.5]
Educational attainment (ISCED)			
Low (%) [95% CI]	123 (83.5) [75.7; 89.2]	7 (4.5) [1.9; 10.2]	17 (12.0) [7.2; 19.3]
Medium (%) [95% CI]	721 (81.3) [78.3; 83.9]	90 (9.6) [7.7; 11.9]	88 (9.2) [7.3; 11.4]
High (%) [95% CI]	487 (78.5) [74.8; 81.8]	69 (9.5) [7.4; 12.2]	76 (12.0) [9.4; 15.1]

ISCED, International Standard Classification of Education; 95% CI, 95% confidence interval

TABLE 2

Odds ratios for behavioral changes related to alcohol and tobacco consumption during lockdown starting March 2020

	Smoking		Alcohol consumption	
	Started or increased vs. unchanged (ref.)	Reduced vs. unchanged (ref.)	Started or increased vs. unchanged (ref.)	Reduced vs. unchanged (ref.)
Sex				
Male	Ref.	Ref.	Ref.	Ref.
Female	3.44* ¹ [1.64; 7.18]	1.31 [0.62; 2.77]	1.41 [0.98; 2.02]	0.52* ² [0.37; 0.74]
Age (years)				
18–39	1.54 [0.68; 3.47]	1.14 [0.53; 2.45]	2.73* ² [1.90; 3.93]	2.56* ² [1.79; 3.66]
≥ 40	Ref.	Ref.	Ref.	Ref.
Educational attainment (ISCED)				
Low	0.10* ³ [0.01; 0.75]	0.64 [0.20; 2.04]	0.47 [0.20; 1.12]	1.33 [0.73; 2.44]
Medium or high	Ref.	Ref.	Ref.	Ref.

*¹ p<0.01, *² p<0.001, *³ p<0.05

ISCED, International Standard Classification of Education; ref., reference value

Results

The descriptive statistical analysis shows that the majority of the currently smoking respondents (81.5%; 95% CI: [76.9; 85.4]) has not changed their smoking behavior. A reduction in tobacco consumption is reported by 10.6% [7.8; 14.2], while 7.9% [5.2; 11.9] increased or started smoking. The gender difference is striking: Proportionately more women than men report that they have started or increased smoking. The multinomial regression analysis also shows this effect (Table 2). Another noteworthy finding is that changes in smoking behavior vary with educational attainment. Also with regard to alcohol consumption, it is found that the majority of respondents reporting to consume alcohol (80.6% [78.4; 82.5]) did not change their behavior, while 9.0% [7.6; 10.6] consume more and 10.4% [8.9; 12.2] less alcohol than before. With regard to possible gender differences, it is striking that 13.2% [10.9; 15.9] of the male but only 7.1% [5.5; 9.1] of the female respondents reduced their alcohol consumption. Multinomial regression analysis confirms lower odds for women to reduce alcohol consumption. Age is another factor possibly influencing behavioral change: In relative comparison to the age group ≥ 40 years, more persons in the 18–39 years age group state that they have started to consume alcohol or increased their alcohol consumption; however, the proportion of respondents who consume less alcohol than before is also larger in this age group. This finding is also reflected in the ORs.

Discussion

The majority of respondents did not change their behavior. However, the results show that in Kupferzell certain groups are particularly at risk of changing their substance consumption behavior for the worse. According to the findings of this study, women are prone to initiate or increase tobacco consumption. Possible explanations for these changes in behavior include that women are particularly affected by the COVID-19 pandemic due to a rise in unpaid domestic care work and start smoking or increase their tobacco use to cope with the stress they are experiencing (4). With regard to alcohol consumption, an increase but also a reduction in alcohol consumption is observed among younger respondents. Increased alcohol consumption may be caused by pandemic-related (financial) insecurity and social isolation. Reduced alcohol consumption may be explained by the fact that social contact restrictions and the closure of bars and restaurants leave fewer opportunities to consume alcohol (5). Why women have a lower chance of reducing their alcohol consumption compared to men is a question yet to be answered by further research.

Since Kupferzell was a community particularly affected by the pandemic, it is not known whether this circumstance or the general restrictions contributed to behavioral changes. Furthermore, given the regional nature of the study and the comparatively small sample, the results of this study are not readily applicable to the German general population. The chances of behavioral changes estimated in the multinomial model are subject to a certain degree of inaccuracy due to a low sample size of subgroups. Further monitoring is required to establish the extent to which these behavioral changes will be maintained over time.

Juliane Wurm (wurmj@rki.de), **Anne Starker**, **Anja Schienkiewitz**, **Olga Domanska**, **Susanne Krug**, **Stefan Damerow**, **Hannelore Neuhauser**, **Hans Butschalowsky**, **Carmen Koschollek**
Department of Epidemiology and Health Monitoring, Robert Koch Institute, Berlin, Germany

Conflict of interest statement

The authors declare that no conflict of interest exists.

Manuscript received on 23 June 2021; revised version accepted on 11 August 2021

Translated from the original German by Ralf Thoene, MD.

References

1. Clay JM, Parker MO: The role of stress-reactivity, stress-recovery and risky decision-making in psychosocial stress-induced alcohol consumption in social drinkers. *Psychopharmacology* 2018; 235: 3243–57.
2. Richards JM, Stipelman BA, Bornovalova MA, Daughters SB, Sinha R, Lejuez CW: Biological mechanisms underlying the relationship between stress and smoking: state of the science and directions for future work. *Biol Psychol* 2011; 88: 1–12.
3. Santos-Hövenner C, Neuhauser HK, Rosario AS, et al.: Serology-and PCR-based cumulative incidence of SARS-CoV-2 infection in adults in a successfully contained early hotspot (CoMoLo study), Germany, May to June 2020. *Euro Surveill* 2020; 25: 2001752.
4. von Würzen B: Traditionelle Rollenverteilung in Corona-Krise belastet die Frauen. Ergebnisse einer repräsentativen Umfrage. Bertelsmann Stiftung 2020.
5. Rehm J, Kilian C, Ferreira-Borges C, et al.: Alcohol use in times of the COVID 19: implications for monitoring and policy. *Drug Alcohol Rev* 2020; 39: 301–4.

Cite this as:

Wurm J, Starker A, Schienkiewitz A, Domanska O, Krug S, Damerow S, Neuhauser H, Butschalowsky H, Koschollek C: Changes in alcohol and tobacco consumption in Kupferzell (Baden-Württemberg) during the period of COVID-19 pandemic restrictions. *Dtsch Arztebl Int* 2021; 118: 614–5. DOI: 10.3238/arztebl.m2021.0315