How peer pressure and the fear of COVID-19 influence alcohol consumption among university students after the pandemic

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Abstract

Since the restrictions of the COVID-19 pandemic have been lifted, students started to attend university in person again and met other peers. As this is known to cause peer pressure, and peer pressure, is associated with changes in alcohol consumption, this study aimed at exploring the influences of different social variables like fear of COVID-19 and peer pressure after the restrictions have been rescinded, on alcohol consumption among students in the Netherlands and Germany. Data was collected by using an online survey and convenience sampling ($n =$ 98). The survey consisted of the Alcohol Use Disorder Identification Test (AUDIT), the fear of COVID-19 scale, the peer pressure and conformity questionnaire and some questions about demographics. The survey was created using Qualtrics, and the data were analysed using IBM SPSS. Two regression analyses, a moderation analysis with Hayes PROCESS and Pearson correlations were conducted to investigate the relationships between fear of COVID-19, peer pressure and alcohol consumption. Moreover, the variable gender was included in the models to investigate gender-related differences regarding alcohol consumption among university students.The findings of the present study indicated that peer pressure indeed influences students' alcohol consumption after the COVID-19 restrictions have been lifted. No significant relationship was found between fear of COVID-19 and alcohol consumption. Moreover, no significant moderation effect of fear of COVID-19 on the relationship between peer pressure and alcohol consumption was established. The only significant relationships that were found were between gender and alcohol consumption and peer pressure and alcohol consumption and gender and fear of COVID-19. The study indicated an influence of peer pressure on alcohol consumption among university students and highlighted the importance of further investigating other social factors that contribute to the consumption patterns of students after the COVID-19 pandemic.

How peer pressure and the fear of COVID-19 influence alcohol consumption among university students after the pandemic

Alcohol consumption is a major public health concern among university students. Several studies revealed that students who are enrolled in university are more likely to report alcohol use compared to their peers (Ehlke et al., 2020, Graupensperger et al., 2021). Therefore, this research investigates the underlying factors that contribute to alcohol consumption among university students. Moreover, the effect of social factors including peer pressure and fear of COVID-19 on alcohol consumption in university students are investigated. From the beginning of March 2022 on, the COVID-19-related social restrictions have been lifted, and students were able to meet their peers again, this likely caused peer pressure, and it is assumed that peer pressure affects the drinking behaviour of students as higher peer pressure is associated with engagement in drinking and changes in behaviour patterns (Kounnavong et al., 2021). Additionally, as the pandemic is over at this point, this study aims to investigate how the fear of COVID-19 affects the drinking behaviour of students because even if the COVID-19 regulations have been lifted, the number of COVID-19 cases is higher than before.

COVID-19 pandemic

The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is a novel form of the coronavirus that first appeared in Wuhan, China in 2019. On 11 March 2020, the World Health Organization (WHO) declared a pandemic, which is still ongoing, causing rising cases and deaths (*Netherlands: WHO Coronavirus Disease (COVID-19) Dashboard With Vaccination Data*, n.d.). For this reason, at the beginning of the pandemic attempts were made to stop the further spreading of the virus. Many countries recommended behaviour changes or even prohibited certain behaviours. Here, the measures ranged from the recommendation to stay at home to stringent lockdowns where it was prohibited to meet other people who were not from the same household (Mohammad Yacoub & Abeer Adel, 2021). Curfews were

introduced and people who violated the rules had to pay excessive amounts of money as punishment (Mohammad Yacoub & Abeer Adel, 2021). These measures had a major impact on a lot of people of various social groups, as they required lifestyle changes and therefore caused distress (Alt et al., 2022). One group that was affected by the means of these measures to a substantial extent were students. The measures inflicted distress on them, as students suddenly had to switch to home-schooling and online classes instead of meeting up with others on campus (Mosleh et al., 2022). These changes required a lot of students to adapt and change their lifestyles because it was no longer possible to meet others during classes or other social activities. Specifically, those changes made it even harder for new students to connect to others and find friends, as a result, a lot of students had no real friends when they started to attend university in person after the pandemic (Alt et al., 2022).

Alcohol consumption in students

It is well known that students enrolled in university often show an increase in alcohol consumption compared to their peers who still live at home or get jobs after they graduated from high school (Borsari & Carey, 2001). This increase in alcohol consumption is often the result of the lifestyle that changes when students leave their homes and enter university. Now, they may want to try out and experience the new freedom and independence that comes along with that lifestyle change (Borsari & Carey, 2001). Furthermore, at university, drinking is often seen as a ritual that is part of the higher education experience and students engage to fit in and have a pleasant time with others (*College Drinking | National Institute on Alcohol Abuse and Alcoholism (NIAAA)*, 2021). Therefore, drinking is a social activity and students will rarely engage in it alone. Additionally, several aspects of university life contribute to an increase in alcohol consumption among students, as many students suffer from unstructured time, widespread availability of alcohol and limited interactions with other peers outside of university or family members (*College Drinking | National Institute on Alcohol Abuse and*

Alcoholism (NIAAA), 2021). These changes in daily life often contribute to students changing their drinking behaviour. For instance, a study revealed that more than about 50% of university students are engaging in binge drinking or general unhealthy drinking behaviours (*College Alcoholism and Binge Drinking*, 2022). Where students consume a lot of alcoholic beverages in a brief time frame. A notable consequence of this behaviour is that an alcohol tolerance is built up and it becomes more difficult to get drunk. If this point is reached, more and more alcohol is needed to reach the feeling of being drunk (Tabakoff et al., 1986).

This behaviour is alarming as frequently heavy drinking can have several severe consequences for the body and for the social life of a person. Students who frequently engage in heavy drinking are more likely to develop an alcohol use disorder (AUD), which can cause serious physical and psychological damage (Castaño-Perez & Calderon-Vallejo, 2014). Moreover, students who engage in unhealthy drinking patterns like binge drinking are more likely to suffer from poorer academic performance, higher risk for injury and criminal activities and for developing health issues like alcoholism in the future (*College Alcoholism and Binge Drinking*, 2022).

Alcohol consumption in times of COVID-19

Although the COVID-19 pandemic is a relatively new situation for the entire population, a lot of research has already been conducted and gives insights into how the pandemic affected the behaviour and mental health of the population. Some studies have been conducted considering alcohol consumption and they indicated that people's alcohol consumption increased during the pandemic, while other studies indicated the exact opposite and stated that people's alcohol consumption decreased because of stricter measures and lifestyle changes caused by the pandemic (Ting & Essau, 2021). When looking at the target group of the present research (students) several studies stated that students indeed tend to drink less alcohol since the outbreak of the pandemic (Jackson et al., 2021). These changes in alcohol consumption are

caused by different social factors like the reduction of social contact, social gatherings and therefore a reduction of occasions where alcohol is normally consumed (Sutton, 2021).

Peer pressure

Taking social factors related to alcohol consumption into account, peer pressure is known to play a crucial role when it comes to changes in drinking behaviour among students (Lewis & Lewis, 1984). Peer pressure is defined as the pressure to conform to be able to be part of a group or social connection (Greenspan,1998). Students want to feel valued and accepted by their peers and therefore they might change their behaviour and attitudes according to what their peers want (Borsari & Carey, 2001). When students start to attend university, the influence of peer pressure is particularly high, because the situation is new for the students, and they do not know a lot of people at that moment. For this reason, the students try to connect with other students (Teese & Bradley, 2008). Additionally, previous research found that girls are even more affected by peer pressure than boys (Brown, 1982) and therefore more willing to conform to fit in. Peer pressure affects alcohol consumption among students as, during university life, many students begin to live on their own for the first time. They start to build up their social network and parents no longer have a strong influence on them as before (Borsari & Carey, 2001). If they start living with their peers, in this case, their fellow students, become increasingly important because students spend most of their time with them instead of their parents or friends that are not enrolled in university (Teese & Bradley, 2008). Consequently, the influence on attitudes and behaviours is shifted away from their parents to peers and friends. With this shift of influence, students tend to drink more alcohol compared to before entering university (Borsari & Carey, 2001). A reason for the increase in alcohol consumption might be that students try to fit in and establish a peer network that supports them and gives them a feeling of belonging (Kounnavong et al., 2021). In this case, alcohol serves as an aid to connect to others more easily, because it changes behaviours and attitudes when consumed in higher

amounts and helps people to be more relaxed and talkative (Monahan & Lannutti, 2000). Moreover, alcohol consumption severs as a marker of freedom from the control of parents and helps to create a new university student identity (Maggs, 1997). Additionally, peers play a significant role in the development and maintenance of drinking behaviours as students encounter different pro-alcohol-related attitudes and behaviours during this time (Borsari & Carey, 2001).

Peer pressure after COVID-19

As the strict measures of the COVID-19 pandemic have been lifted and students are able to meet others in real-life situations again, the need to fit in increased. A lot of students were alone during the lockdowns, and this caused anxiety and stress (Buffel et al., 2022). The lifted measures facilitate the opportunity to change this situation, therefore students may try to connect with others again and this may cause peer pressure as they want to feel valued and fit in. Especially after the lockdown, which increased the feeling of needing to belong and to connect, it may affect people even more because people are more frequently exposed to peer pressure when going out again (Andrews et al., 2020).

Fear of COVID-19

Not only the influence of peer pressure did change during and after the pandemic, but many people also evolved a general fear of COVID-19 as a result of changing lifestyles and an infectious virus that could develop into a severe course of disease (Aksoy et al., 2021). As a lot of students lost their jobs, had to give up their whole social life or even encountered the suffering of relatives, a lot of them were scared of COVID-19 (Aksoy et al., 2021). In this case, the pandemic and particularly the fear of suffering from COVID-19 caused a lot of stress and negative feelings that needed to be coped with (Buffel et al., 2022).

Concerning social factors, the COVID-19 pandemic increased the general fear of being socially humiliated and singled out because the measures of the pandemic made it more

difficult for young people and students to connect with others (Helios, 2020). Therefore, the COVID-19 pandemic increased the need to connect to others and to be socially accepted. Moreover, the fear of COVID-19 also includes the fear of further restrictions and measures which in turn would make it even harder for students to connect with their peers and therefore might increase the likelihood of searching for social connections to avoid being singled out or alone if measures are introduced again in the future.

Contrary to this, many people voluntary stayed at home and reduced their social connections as they were afraid of getting infected with the virus (Balbuena & Monaro, 2021). A lot of people had a major uncertainty about how the virus would evolve and how severe the symptoms and consequences would be (Aksoy et al., 2021). Additionally, even if there are vaccines available at this point of the pandemic, some people still encounter severe disease progressions while others do not even develop symptoms (Allison, 2021). This also contributes to further anxiety and uncertainty about the virus and its severity. Interestingly, previously conducted research found that women are more affected by the fear of getting infected with COVID-19 compared to men (Cerda & García, 2021) and that women are more psychologically affected by the pandemic than men (Özdin & Bayrak Özdin, 2020).

There is not much research conducted considering the relationship between fear of COVID-19 and alcohol consumption at this point, but several studies revealed that fear in general influences drinking behaviours, as people tend to use alcohol as a coping strategy to deal with the unpleasant feeling of fearing something (Beccaria, 2019). Concerning alcohol consumption during the pandemic, a study revealed that people showed an increase in alcohol consumption during the lockdown as they tried to use it as a coping strategy for related negative feelings like anxiety and stress (Avery et al., 2020). Moreover, another study indicated that people with higher levels of anxiety related to COVID-19 are more likely to use alcohol as a coping strategy (Lee et al., 2020). Regarding students, it was found that students with more

severe symptoms of anxiety are more likely to use alcohol as a coping approach (Lechner et al., 2020).

Moreover, even young people are affected by the fear of COVID-19 (Mauer et al., 2022). A lot of students began to voluntary stay at home since the outbreak of the pandemic as they were uncertain about how severe the infection would be for them. Moreover, they avoided social gatherings and when it came to some gatherings like exams, some students even protested against physical education with the substantiation that they feared catching COVID-19 and or spreading the virus without knowing. Now, as the measures are lifted and physical education is possible again, a lot of students still prefer online classes over physical attendance (Inside Higher Ed, 2021). Despite this, the COVID-19 cases are still rising, and infections are spreading more easily because no preventive measures are taken (*COVID Data Tracker Weekly Review*, 2022) and therefore online classes might be preferred by some students. Here, the overall fear of COVID-19 and getting infected might be a major reason for students to still avoid social gatherings and prefer situations with as less people as possible, leading to less social contact and less influence on their behaviour or attitudes from their peers.

The present study

In the present study, the relationship between alcohol consumption and peer pressure among students is investigated as students are the most vulnerable group when it comes to changes in alcohol consumption (Meister et al., 2020). Moreover, students are highly affected by the lifted restrictions as from now on it is possible for them to continue or start studying in a non-online environment again, which means that they are again in contact with peers. Nevertheless, the rising infections are still negatively influencing many students because some of them are still scared of catching the virus, especially now when no measures are required and therefore spreading is more likely and faster. For this reason, the present study aims to explore to what extent peer pressure influences students concerning their alcohol consumption

at the end of the pandemic. Moreover, it aims at investigating the influence fear of COVID-19 has on this relationship.

Based on the previously mentioned literature, several research questions and hypotheses can be formulated. To simplify the structure of the present study, all hypotheses were visualized in a model below (see Figure 1). The model demonstrates that the hypotheses can be divided into three distinct parts.

RQ1: What is the impact of peer pressure and alcohol consumption on university students after the COVID-19 restrictions have been lifted?

H1:After the restrictions have been lifted, there is a positive relationship between peer pressure and alcohol consumption.

RQ2: What is the relationship between fear of COVID-19 and alcohol consumption, after the pandemic?

H2: The fear of COVID-19 will motivate students to keep avoiding social situations, and therefore protect them from pro-alcohol-related peer pressure.

RQ3: Are students who are afraid of COVID-19 drinking less even if they are highly affected by peer pressure?

H3: Fear of COVID-19 attenuates the effect of peer pressure on alcohol consumption among students.

Figure 1

Model for the visualization of the research hypotheses

H1: peer pressure — + → alcohol consumption

H2: fear of COVID-19 — − → alcohol consumption

H3: fear of COVID-19 / peer pressure — + (−) → alcohol consumption
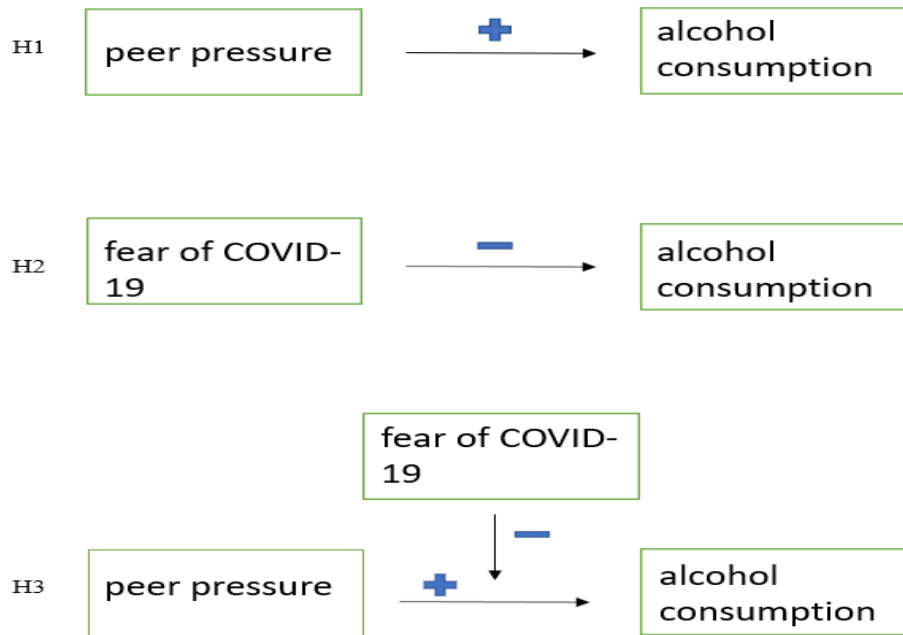
Methods

Design

This survey research design investigated the effect of two independent variables, peer pressure and fear of COVID-19, on a dependent variable which was alcohol consumption among students with the use of a questionnaire. The study was conducted using a cross-sectional study design. To participate in this study, a device with a working internet connection was necessary, for example, a mobile phone or a laptop/tablet.

Participants

In the study, non-probability convenience sampling was used to select the participants, ($n = 98$). The respondents were citizens with European nationality, ($n = 71$, 72.5%) German, ($n = 17$, 17.4%) Dutch and ($n = 10$, 10.2%) other. Different genders were represented in the study as of the 98 respondents 37 were male, 60 of them were female and 1 participant identified as other. The respondents were between the age of 17 and 28, ($M = 21,62$, $SD = 2.095$). Furthermore, all participants were students as their primary occupation (98). The only criteria that needed to be fulfilled by the participants were to be enrolled in a university in Germany or

the Netherlands at the time of the study and to be fluent in English. The only answers that were analysed in this study were the answers of the respondents who answered both control questions correctly and accepted the conditions which were displayed in the informed consent at the beginning of this study. Thus, 206 participants fulfilled these criteria and completed the questionnaire, which was distributed mostly over the University of Twente Sona-System website and social media platforms like Instagram.

However, of the 206 participants who participated in the study, 98 participants were excluded for not meeting the study criteria, as they did not complete the survey and 10 failed to answer the control questions correctly. The data of the remaining 98 participants were then used for this analysis.

Materials

Peer pressure

For the variable peer pressure, the peer pressure and conformity questionnaire of Santor et al. (2000) was used to measure the subjective feeling of pressure inflicted on the participants. This scale assessed several different behaviours that can be influenced by peer pressure. The questionnaire consisted of 11 items that measured peer pressure. The participants indicated their level of agreement with the items on a 5-point Likert scale ranging from "strongly disagree" to "strongly agree". An example item is item 2 "I give into peer pressure easily". The possible scores vary between 55 and 11, where lower values indicate more peer pressure. Cronbach's alpha was .76 for the peer pressure scale, indicating sufficient internal consistency. The validity for this scale was considered strong as all items were above .52 for the peer pressure scale, indicating good validity.

Fear of Covid-19

To gain insights into how much the participants are affected by the fear of COVID-19, the fear of COVID-19 Scale by Ahorsu et al. (2020) was used. On this scale, participants

indicated their level of agreement with the 7 different statements on a 5-point Likert scale ranging from "strongly disagree" to "strongly agree". One example of an item is item 3 "My hands become clammy when I think about Corona". For this scale, the lowest possible score is 7 and the highest possible score is 35, where a higher score indicates a stronger fear of COVID-19. A Cronbach's alpha reliability coefficient of .78 was found for the fear of COVID-19 scale, indicating sufficient internal consistency. The validity was found to be good as concurrent validity was indicated by positive correlations with loneliness ($r = .50$, $p < .001$) (Elemo et al., 2020).

Alcohol intake of students

To measure the alcohol intake of the participants, the Alcohol Use Disorders Identification Test (AUDIT) was used. The AUDIT is a screening tool to identify harmful alcohol use and alcohol dependency. It consists of 10 items about drinking behaviour and alcohol-related problems. The participants were asked to indicate how often they encountered the described situation on three different 5-point Likert scales, where the first scale is ranging from "never" to "4 or more times a week", and the second one is ranging from "never" to "very often" and the last one ranging from "1-2" to "10 or more". The scores on this scale vary from 0 to 40, with a score of 0 indicating an abstainer, every score between 1-7 suggests low-risk consumption, scores ranging from 8-to 14 indicate hazardous alcohol consumption and scores above 15 indicate the likelihood of alcohol dependence.

An example of an item from this questionnaire is the ninth item "Have you or someone else been injured because of your drinking?" The alcohol intake of the students' subscale consists of 10 items ($\alpha = .83$) indicating good internal consistency. Additionally, a study investigated the scales' validity by carrying out a factor analysis, this factor analysis confirmed the validity of the three factors: dependence symptoms, risky use, and harmful alcohol use (Morales Quintero et al., 2019).

Procedure

The participants were invited to participate in the study online using the online platform Qualtrics (www.qualtrics.com). Qualtrics is a web-based software, and the researcher selected this platform as it is known to be secure regarding data collection and easy to handle later for the participants. After the questionnaire was approved by the ethics committee of the University of Twente, it was distributed using a link that was shared on social media platforms like Instagram and WhatsApp. The questionnaire contained an informed consent (see appendix A) with the opportunity to either agree or disagree to participate in this research. This was implemented to ensure that participants were anonymous and that their data was handled confidentially. Additionally, it stated an expenditure of time of approximately 15 minutes and that taking part in this research was voluntary. Moreover, the participants were informed that it is possible to withdraw at any time without naming a reason. First, the participants got a brief introduction about the type and aim of the study. After this, the demographic characteristics were measured using multiple-choice questions.

After the participants had answered these questions, they were asked to read a short explanatory sentence for each subscale and then they indicated their agreement with the different statements. Between the questions, two control questions were asked to check whether the participants were still paying attention to the survey and whether they were answering truthfully. The survey was conducted by multiple researchers and therefore included blocks that were not relevant for the current study. To ensure that every question was answered, every item had to be answered before continuing to the next page was possible.

Analysis Plan

The data were analysed using the statistical programme IBM SPSS Statistics. To ensure validity, data that did not fulfil the inclusion criteria were excluded. For this reason, participants who disagreed to participate and/ or falsely answered the control questions or not answered all

questions completely were excluded from the analysis. Furthermore, Cronbach's alpha was calculated to test the reliability of the scales.

As the planned analysis consisted of two regression analyses and one moderation analysis, the data were tested for linearity, independence, and normality and then for homoscedasticity, to ensure that all key assumptions of linear regression were met.

To investigate if the variable peer pressure influenced alcohol consumption among university students after the restrictions have been lifted, a regression analysis in SPSS was conducted with peer pressure as an independent variable and alcohol consumption as the dependent variable and gender as a covariate. Moreover, the present study investigated the relationship between fear of COVID-19 and alcohol consumption. For investigating this relationship, another regression was conducted with fear of COVID-19 as an independent variable and alcohol consumption as a dependent variable. Moreover, gender was included as a covariate in this regression. Pearson correlations were carried out to investigate the strength and direction of the relationships between the variables.

Additionally, the assumption that students who are afraid of COVID-19 are drinking less even if they are affected by peer pressure was tested by conducting a moderation analysis using the PROCESS macro in SPSS (Hayes, 2022) with peer pressure as the independent variable and alcohol consumption as a dependent variable, including fear of COVID-19 as moderator. Since most of the participants were female, the variable gender was included as a covariate in this model.

Results

Descriptives

In Table 1 an overview is given of the main variables used in this research. It contains correlations and descriptive statistics between the variables peer pressure, fear of COVID-19, alcohol consumption and gender. In general, the sample reported a mean score of 30.89 ($SD =$

6.69) for the peer pressure questionnaire and a total mean score of 7.72 (SD = 4.71) for the AUDIT (see Table 1). For the fear of COVID-19 questionnaire, the mean score was 12.47 (SD = 4.00).

Table 1

Descriptive statistics and correlations (n = 98)

	M	SD	Min	Max	1	2	3	4
Peer pressure (1)	30.89	6.69	16.0	49.0	1			
Fear of Covid-19 (2)	12.47	4.00	7.00	23.0	**.202***	1		
Alcohol consumption (3)	7.72	4.71	1.00	29.0	**.367****	-.041	1	
Gender (4)					.055	**.500****	**-.255***	1

*Note. * Correlation is significant at the .05 level (2-tailed). Note. ** Correlation is significant at the .01 level (2-tailed).*

M = Mean, SD = Standard Deviation

Correlations

A Pearson correlation coefficient was computed to assess the linear relationship between peer pressure and alcohol consumption. There was a significant positive correlation between the two variables, r = .37, p = < .001. Additionally, there was no significant correlation found between the variables fear of COVID-19 and alcohol consumption, r = -.04, p = .691.

But there was a significant correlation between the variables peer pressure and fear of COVID-19, $r = .20$, $p = .046$ and a significant correlation between gender and fear of COVID-19, $r = .50$, $p = < .001$. Moreover, another significant correlation was found between gender and alcohol consumption, $r = -.26$, $p = .011$.

Hypothesis Testing

To test H1, a regression analysis was carried out to investigate whether there is a statistically significant effect of peer pressure on alcohol consumption among university students. The analysis indicated a statistically significant influence of peer pressure on the alcohol consumption among students ($F(2, 95) = 12.68$, $p < .001$), with an R^2 of .21 and coefficients of $b = .382$, $t(95) = 4.19$, $p = < .001$. Since gender correlated with alcohol consumption, it was included in this regression as a covariate. The results indicated a significant effect of gender as a covariate, with coefficients of $b = -.276$, $t(95) = -3.03$, $p = .003$. For this reason, H1 was accepted.

To test H2, a regression analysis was carried out to investigate whether there is a statistically significant effect on students' alcohol consumption due to the influence of fear of COVID-19. Here, the analysis indicated a statistically non-significant relationship between fear of COVID-19 and alcohol consumption among students with coefficients of $b = .116$, $t(95) = 1.02$, $p = .312$ and an adjusted R^2 of .06. Since gender correlated strongly with fear of COVID-19, it was included in the regression analysis as a covariate. Results indicated a significant effect of gender as a covariate, with the coefficient being, $b = -313$, $t(95) = -2.75$, $p = .007$. The hypothesis that fear of COVID-19 influences students' alcohol consumption was rejected.

To test H3, a moderation analysis was run using the PROCESS macro in SPSS (Hayes, 2022) to estimate the attenuating effect of fear of COVID-19 on the relationship between peer pressure and alcohol consumption. The outcome variable was alcohol consumption. The predictor variable for the analysis was peer pressure and the moderator variable evaluated for

the analysis was fear of COVID-19. The interaction between peer pressure and fear of COVID-19 was found to be non-significant (b = -.005, $s.e.$ = .017, 95% CI [-.038, .028] p = .773) indicating that fear of COVID-19 is not a significant moderator of the effect of peer pressure on alcohol consumption. Additionally, the model found a non-significant relationship between fear of COVID-19 and alcohol consumption (b = .181, $s.e.$ = .527, p = 1.228). Moreover, the effect of peer pressure was also found to be non-significant (b = .321, $s.e.$ = 203, p = .117). The only effect that was found to be significant in this model was the effect of gender on alcohol consumption (b = -2.707, $s.e$.= .991, p = .008). For this reason, H3 was rejected.

Discussion

The purpose of this research was to gain a better understanding of the relationship between social factors like peer pressure and fear of COVID-19 on alcohol consumption among university students after the COVID-19 restrictions have been lifted. It was expected that there is a relationship between the variables peer pressure and alcohol consumption and that fear of COVID-19 negatively mediates the relationship. Moreover, it was expected that the variable gender influences these relationships.

The findings of this study were rather unexpected, as only the hypothesis that peer pressure influences alcohol consumption could be accepted while the other hypotheses that investigated the relationship between fear of COVID-19 and alcohol consumption and the relationship between peer pressure and alcohol consumption with fear of COVID-19 as a moderator were rejected. Nevertheless, this study provides insights into the alcohol consumption of university students in times after the restrictions. First, the outcomes of the AUDIT indicated that 47.8% of the students are low-risk consumers of alcohol and 38.3% are consumers with hazardous drinking behaviour. This means that even after the restrictions have been lifted, and drinking with friends and peers is possible again, most of the students do not show hazardous levels of alcohol consumption. This is in line with what an already conducted

study about the alcohol consumption of students during the pandemic has found (Graupensperger et al., 2021) and it shows that the lifted restrictions have not influenced the alcohol consumption of students negatively at this point. Even if this sounds encouraging for the future, it has to be mentioned that the AUDIT scale only measures whether a person has already developed alcohol-related problems and dangerous levels of alcohol consumption (Bergman & Källmén, 2002), the scale is no predictor of the whole life. Therefore, students who scored low at this point are not safe from developing unhealthy drinking patterns or an alcohol disorder in the long-term (Bergman & Källmén, 2002). This has to be considered, as students might tend to develop or alter their drinking patterns in the future as a result of lifestyle changes that might occur over time after the pandemic and that have not occurred yet, as the restrictions have been lifted shortly before and people first have to get used to this situation. This should be considered as if students alter their alcohol consumption to more hazardous levels as a reaction to the post-pandemic time, an intervention is needed that helps to deal with this delayed harm.

Next to these findings, the hypothesis that peer pressure influences the alcohol consumption of students was accepted, this finding is consistent with the previous literature that stated that peer pressure influences drinking behaviour and alcohol-related attitudes of students as it contributes to a shift of influence students encounter during enrolment at a university (Borsari & Carey, 2001). Additionally, in research from Kounnavong et al. (2021), it was found that students tend to drink more alcohol if their friends and peers do the same and that persuasion from friends is a contributor to changes in drinking behaviour among students. Here, it has to be mentioned that only the findings of the first conducted simple linear regression indicate a significant effect. When looking at the moderation analysis that was conducted for the third hypothesis, the effect of peer pressure on alcohol consumption was found to be non-significant. This might be the result of the inclusion of gender as a covariate

and fear of COVID-19 as a moderator. This might have influenced the relationship between peer pressure and alcohol consumption.

On the other hand, the expectation that fear of COVID-19 has a negative relationship with alcohol consumption, causing students who are afraid of COVID-19 to drink less could not be fulfilled. This result was rather unexpected because it was expected that students who are afraid of getting infected with the Coronavirus would try to avoid social situations also including social gatherings where alcohol is consumed and overall consume fewer alcoholic beverages. The literature stated that people tended to drink less alcohol during the pandemic because of avoiding social gatherings (Jackson et al., 2021). Contrary to this, previously conducted research found that students drank more alcohol during the pandemic as a coping strategy to deal with the fear and anxiety that was caused by COVID-19 (Lee et al., 2020).

Now, after the pandemic, the alcohol consumption of students decreased compared to the findings of studies that were conducted before the onset of the pandemic, where students' alcohol consumption was known to be more problematic and prevalent (Hingson et al., 2017). This might be since students are still cautious and not willing to take the risk of getting infected at social events where alcohol is normally consumed.

Moreover, this research showed that fear of COVID-19 does not influence the relationship between peer pressure and alcohol consumption as there was no significant moderation effect of fear of COVID-19 on the relationship between the two variables. This shows that even if students are scared of getting infected with the Coronavirus, it does not affect the influence peer pressure has on alcohol consumption. A plausible reason for this might be, that at this point of the pandemic people got used to COVID-19 and are less scared of it (DAK-Gesundheit, n.d.). Therefore, the fear is not high enough to influence the relationship between peer pressure and alcohol consumption as the advantages of the lifted measures, like meeting people again, overweight the risk and fear of getting infected.

When considering fear in general, studies have found that fear increases peer pressure in adolescents, but in those studies, fear is more related to social fears like the fear of being humiliated or being left out rather than the fear of catching a disease (Alutaybi et al., 2019). At this point, there is not a lot of research conducted about the influence fear of COVID-19 has on peer pressure, so this would be an interesting starting point for further research investigating behaviours related to social aspects.

When looking at the variable gender, gender was found to influence the alcohol consumption of university students. Since the coefficient in the model indicates a negative direction, and the sample consists almost entirely of female participants, it can be concluded that gender plays a role concerning alcohol consumption, as females tend to drink less or less often compared to the male participants in this study. This finding is in line with previous research, as several studies found that women, in general, tend to drink alcohol less frequently and in less harmful amounts than men do (Wilsnack et al., 2009).

Regarding gender and fear of COVID-19, a significant correlation was found. This means that there is a difference between male and female participants regarding the perception of fear of COVID-19, where females tend to score higher on the fear of COVID-19 scale compared to the male participants. This finding emphasizes previous research conducted in this field, where women indeed tend to be more scared in general than men and that this also accounts for health-related consequences concerning the COVID-19 pandemic (Alsharawy et al., 2021). Regarding peer pressure and gender, no significant correlation was found. This means that there is no difference between male and female participants concerning the influence of peer pressure. This finding was unexpected because in research from Brown (1982) it was indicated that girls report significantly higher pressures to conform to a group of peers.

Overall, the findings of this research highlight the importance of paying attention to social factors like peer pressure and fear when it comes to alcohol-related behaviours and attitudes. It shows that peer pressure is a major contributor and predictor of changes in behaviour, even in health-related behaviours like drinking alcoholic beverages. Moreover, it shows that gender differences are still influential these days regarding drinking behaviours and that this should be considered for further research or for designing interventions in the future. Furthermore, it shows that there is a need for further longitudinal comparison between how peer pressure, fear of COVID-19 and alcohol consumption changed during the pandemic and how they are now as the restrictions have been lifted, this would be an interesting starting point for further research, as it would make it possible to draw inferences about how the situation regarding alcohol consumption among students changed during the various stages of the pandemic.

Limitations and strengths

When looking at the limitations and strengths of this present research, several distinct aspects can be found that should be improved or kept in mind in future research about alcohol consumption among students. The first limitation of this study is the sample size, which was rather small (98). As a consequence of this, the reliability of the study decreased even though the AUDIT scale used in this research is widely used in previous research and therefore evaluated as highly valid and reliable (Morales Quintero et al., 2019).

Another limitation is the sociodemographic data of the sample used in this study because it is only representative of the students' population to a small extent because of asymmetry in the country of origin and gender. The majority of the participants were German and female, and this might have influenced the results as the measures in Germany were stricter than in the Netherlands and this might have influenced the overall perception of the pandemic and its measures in German participants. But these asymmetries are not surprising as the chosen

sampling method was convenience sampling. The survey was distributed via Instagram and WhatsApp and as the researcher is female and German and has a lot of female followers on Instagram, it might explain the asymmetries in gender and country of origin.

The design of this study can also be considered a limitation, as this study used a cross-sectional design to investigate causal hypotheses and temporal changes. The collected data only captured a single point in time (after the restrictions have been lifted), which prevents a comparison to the situation during or even before the pandemic. Here, a longitudinal study would have been more appropriate as it would allow drawing conclusions about how the situation changed compared to another point in time for example during or before the pandemic.

Additionally, the data was collected using self-reports which are subject to biases and limitations. For example, regarding the AUDIT scale, participants might have made the answer that is socially more accepted rather than being truthful (Paulhus, 2017). Moreover, the introspective ability of the participants might not have been accurate because some of the questions were related to unhealthy alcohol consumption and therefore it might have been the case that some of the participants were not able to assess the related memories properly.

A strength of this study is that the survey questions were administered online in a random order for each participant. This ensured that all questions had an equal chance for response, even if the participant dropped out at some point. This is beneficial as it improves the representativeness of the sample.

Implications for further research

This study contributed to the already existing literature on alcohol consumption among students in times after the COVID-19 pandemic by investigating students' alcohol consumption after the restrictions have been lifted while considering several social factors like peer pressure and the fear of COVID-19. However, several implications can be made for future research, based on the limitations of this study. As already mentioned, a bigger sample size should be

used, especially for the AUDIT scale, as the one in this research was not big enough to draw implications for the whole student population. Moreover, a more diverse sample concerning the country of origin and gender would be better, as it ensures a better representation of the student population.

Regarding peer pressure at this point of the pandemic, where the restrictions have been lifted and students can connect with their peers again, peer pressure is found to influence the students and therefore their alcohol consumption. It is not clear if peer pressure is higher now after the restrictions have been lifted than compared to during or before the pandemic because this study only measured the variables at one point in time, therefore a further comparison is not possible. This would be an interesting starting point for further research investigating pre- and post-COVID-19 differences in health-related behaviours and the effect of social variables on this.

On the other hand, a comparison between alcohol consumption during the pandemic and after the pandemic should be explored as it might be possible that students drank less during the pandemic due to reduced peer pressure as a result of social restrictions. Therefore, future research should consider using a longitudinal study design to be able to conclude how the relationship between peer pressure and alcohol consumption among students changed compared to before/during the pandemic and afterwards. Moreover, fear in general influences conformity or perceived social norms (Darley, 1966). As mentioned earlier, peer pressure seems to be a predictor of alcohol consumption, further research should focus on identifying interventions that might help students to cope with the pressure their peers put on them. Additionally, the gender of the participants should be considered, as gender differences were found regarding fear of COVID-19 and alcohol consumption after the pandemic. Here, stratified sampling should be used in future research as it ensures that every gender is represented properly and therefore a better investigation and comparison is possible.

Conclusion

To conclude, it can be said that the findings of this study indicate a significant relationship between peer pressure and alcohol consumption after the COVID-19 restrictions have been lifted. In this study, the consumption of alcoholic beverages among students is associated with the pressure of belonging to a social group and being accepted by this group. Moreover, the findings of this study indicate that there are gender differences regarding alcohol consumption and the perceived fear of COVID-19, where the scores on the AUDIT of the males were higher than those compared to the female participants in this study and the scores on the fear of COVID-19 questionnaire were higher for the female participants than for the male participants. Next to this, the variable fear of COVID-19 might play a role in influencing the relationship between peer pressure and alcohol consumption, but in this study, an association between fear of COVID-19 and both peer pressure and alcohol consumption was not established. Finally, the findings of this study indicate that fear of COVID-19 alone does not play a crucial role in determining the alcohol consumption of students after the pandemic. But that other factors like gender and the amount of peer pressure indeed play a role concerning drinking behaviour among university students and therefore should be taken into account.

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Appendices

Appendix A

Consent form for Participation

Introduction and Consent Form For Alcohol Consumption Among Students

Welcome! You are invited to participate in our study! This study is about Alcohol

Consumption Among University Students in Germany and the Netherlands.

Investigator:

One research team consisting of two Psychology students from the University of Twente

created this questionnaire to investigate alcohol consumption among students.

Purpose of the Study:

Thank you for your willingness to participate in our study, which is part of our Bachelor's

thesis. In this research, we are examining the alcohol consumption among students in relation

to peer pressure, stress and coping skills. Moreover, we want to investigate the influence of

the lifted corona measures on alcohol consumption.

Procedure:

This study is a quantitative research project, which is approved by the ethics committee of the

University of Twente. We will ask you to fill out a questionnaire with multiple questions

about the different topics. We kindly ask you to respond truly, do not think too long about the

questions, rather just tick the box that matches your first thought. The study will take a

maximum of 15 minutes.

Participants' rights & benefits:

You have the right to stop or withdraw from the research at any time without stating your reasons. Moreover, you will gain SONA points if you are a student at the UT and if you fully complete the study.

Confidentiality:

The questionnaire will be saved by the programme Qualtrics and transmitted to the researchers. Access to the information gained in the questionnaire will be limited to the researchers and supervisors of this project. The anonymous answers to the questionnaire will be analysed and used in a research article. Any content that is made available through academic publications or other academic outlets will be anonymised so that you cannot be identified, and care will be taken to ensure that the information is handled confidentially.

Questions:

If you have any questions left, feel free to contact one of the researchers of this study. You can either contact Luca-Marie (l.m.siera@student.utwente.nl) or Lena (l.huster@student.utwente.nl) by sending us an email. We will try to respond as soon as possible

Contact Information for questions about your rights as a research participant, or wish to obtain information, ask questions, or discuss any concerns about this study with someone other than the researcher(s), please contact the Secretary of the Ethics Committee of the Faculty of Behavioural, Management and Social Sciences at the University of Twente by ethicscommittee-bms@utwente.nl

Consent and Authorization Provisions:

When you agree to the following statements, please indicate so by selecting the according button below:

 1. I am voluntarily taking part in this research, and I know that I can stop the research at any time.

 2. I do not expect to receive any benefit or payment for my participation.

 3. I understand that the research might cause emotional distress due to imagining being in the role of a victim.

 4. I understand that I am free to contact the researchers with any questions I may have in the future.

Do you agree to participate in this research? I agree to participate/ I do not agree to participate

Appendix B

Questionnaire

Demographics

How old are you? (type number)

How do you describe yourself? (male, female, non-binary/third gender, prefer not to say)

What is your nationality? (type nationality)

Are you a student? (indicate yes/no)

Are you currently studying in Germany or the Netherlands? (indicate Germany/Netherlands/other)

Are you studying in your Bachelor´s or your Master´s? (indicate I am a Bachelor student/I am a master student)

AUDIT Scale

	Never	Monthly or less	2-4 times a month	2-3 times a week	4 or more times a week
1. How often do you have a drink containing alcohol?					
3. How often do you have six or more drinks on one occasion?					
4. How often during the past month have you found that you were					

	Never	Monthly or less	2-4 times a month	2-3 times a week	4 or more times a week
not able to stop drinking once you have started?					
5. How often during the past month have you failed to do what was normally expected of you because of drinking?					
6. How often during the					

	Never	Monthly or less	2-4 times a month	2-3 times a week	4 or more times a week
past month have you needed a first drink almost in the morning to get yourself going after a heavy drinking session?					
7. How often during the past month you had a feeling of guilt or remorse after drinking?					

	Never	Monthly or less	2-4 times a month	2-3 times a week	4 or more times a week
8. How often during the past month you been unable to remember what happened the night daily before because of your drinking?					

AUDIT Scale

	Never	Almost never	Sometimes	Fairly often	Very often
9. Have you or someone else been injured because of your drinking?					
10. Has a relative, friend, doctor, or other health care worker been concerned about your drinking or suggested you cut down?					

AUDIT scale

	1-2	3-4	5-6	7-9	10 or more
2. How many drinks containing alcohol do you have on a typical day when you are drinking?					

Fear of Covid-19 scale

	Strongly Disagree	Disagree	Neither disagree nor agree	Somewhat agree	Strongly agree
I am most afraid of Corona					

	Strongly Disagree	Disagree	Neither disagree nor agree	Somewhat agree	Strongly agree
It makes me uncomfortable to think about Corona					
My hands become clammy when I think about Corona					
I am afraid of losing my life because of Corona					
When I watch news and stories about Corona on social media, I become					

	Strongly Disagree	Disagree	Neither disagree nor agree	Somewhat agree	Strongly agree
nervous or anxious					
I cannot sleep because I am worrying about getting Corona					
My heart races or palpitates when I think about getting Corona					

Peer pressure and conformity scale

	Strongly agree	Disagree	Not certain/ Do not know	Agree	Strongly Agree
My friends could push me into doing just about anything					
I give into peer pressure easily					
When at university, if a group of people asked me to do something, it would be hard to say no					

	Strongly agree	Disagree	Not certain/ Do not know	Agree	Strongly Agree
At times, I have broken rules because others have urged me to					
At times, I've done dangerous or foolish things because others dared me to					
I often feel pressured to do things I wouldn't normally do					
If my friends are drinking,					

	Strongly agree	Disagree	Not certain/ Do not know	Agree	Strongly Agree
it would be hard for me to resist having a drink					
I've skipped classes, when others have urged me to					
I've felt pressured to have sex, because a lot of people my own age have already had sex					
I've felt pressured to					

	Strongly agree	Disagree	Not certain/ Do not know	Agree	Strongly Agree
get drunk at parties					
At times, I've felt pressured to do drugs, because others have urged me					