Erasmus university Rotterdam

The differences in alcohol use among different ethnic groups in the Netherlands

Stijn van Moorsel

Abstract

Eight out of ten adults in the Netherlands drink alcohol regularly. Alcohol use is even higher for young adults in the Netherlands. The Dutch government tries to reduce the level of alcohol use in the Netherlands. To reduce this, it is important to know which subgroups of people are drinking relatively more alcohol. In this way certain subgroups that are more at risk for alcohol use can be helped. This paper examines the correlation between ethnicity and alcohol use for individuals aged 16-34 in the Netherlands. This thesis also looks at if education level and mental health can partially explain for these differences. The data used in this thesis comes from the LISS data panel. To identify if there is a difference in alcohol use between different ethnic groups, a multiple regression is used. To identify if this difference can be partially explained by education level and mental health, a mediation analysis is used. The results showed that people with a Dutch ethnicity have a higher level of alcohol use than people with a non-Dutch ethnicity. This thesis did not find any evidence for the fact that mental health and education level can partially explain the difference in alcohol use among people with a Dutch and non-Dutch ethnicity. The results did not show a correlation between ethnicity and education level, and also did not show a correlation between mental health and ethnicity. Future research is necessary to see if these correlations do exist for specific types of ethnic groups. Future research is also necessary to find other specific reasons for the differences in alcohol use among different ethnic groups.

Contents

Introduction

Drinking alcohol has become a regular habit in Dutch society. Eight out of ten adults in the Netherlands drink alcohol regularly (VZ, 2024a). 6.7% of the adults in the Netherlands drink excessive amounts of alcohol (CBS, 2023). Excessive alcohol use means at least 21 glasses of alcohol a week for a man, and at least 14 glasses of alcohol a week for a woman (CBS, 2024a). Young adults are especially likely to drink alcohol. 86% of the people aged 18-25 in the Netherlands drinks alcohol regularly, while 9.8% of the people aged 18-29 in The Netherlands drink excessive amounts of alcohol (CBS, 2023). People may drink alcohol for various reasons. They can drink alcohol, because they like the taste of a cold beer or to cope with stress and depression. They can also drink alcohol for fun, to get drunk, or they feel like drinking alcohol has become a social norm at parties (CBS, 2023).

Alcohol use can lead to serious health problems. Drinking too much alcohol can have negative short-term effects such as nausea, sickness, vomiting, and becoming unconscious. An overdose of alcohol can even lead to a coma or mortality. The long-term effects concern liver damage, heart failure and brain damage (Laonigro et al. 2009). Assaults, child neglect, psychological problems and chronic diseases can also be linked to alcohol use. Research has shown that alcohol use can even be more dangerous than heroin in terms of physical, social and financial costs(Lee & Forsythe., 2011). Heroin is listed as a hard drug and the use or possession of heroin is illegal in the Netherlands. However, drinks containing alcohol are widely consumed and socially accepted in the Netherlands.

The use of alcohol does not only have consequences for the people that are drinking alcohol, but also for the rest of society. Alcohol use leads to more car accidents (Connor et al., 2004) and it also leads to more violence. Alcohol use predicts violence for young adults (Maldonado-Molina et al., 2011). Alcohol use also leads to higher overall costs in health care. On average, the total social costs of alcohol use for high-income countries are about 1% of their GDP (Mohapatra et al., 2010). Because of these costs for society, it is highly recommended to reduce the alcohol use in a given country. The Dutch government also aims to reduce the level of alcohol use in the Netherlands. To do this, the government launched a national prevention agreement in 2018. The goal of this agreement is to decrease

the amount of excessive drinkers in the Netherlands from 8.8% in 2016 to 5% in 2040. Another goal is to decrease the number of people between the age of twelve to sixteen that has ever drank alcohol from 45% in 2016 to 25% in 2040 (Trimbos, 2022). The government tries to reach this goal by implementing some policies. For example, it is forbidden for supermarkets to provide more than 25% discounts on products containing alcohol, and there are no alcohol advertisements allowed on television between 6.00 and 21.00. The advertisements also must explicitly state that drinking alcohol is not allowed for people under the age of 18 (Rijksoverheid, 2023).

It is important to realize that some groups of individuals have a relatively higher level of alcohol use than other groups of individuals. Therefore, some individuals are more at risk of having a higher level of alcohol use. If the goal is to reduce the level of alcohol use, it is important to know which groups drink relatively more alcohol. In this way the groups that are more at risk for drinking alcohol can be identified. An example of groups that have a different level of alcohol use are different ethnic groups.

There are already a few studies that provide evidence for the notion that different ethnic groups have a different level of alcohol use. For example, a study was done among adults in Ontario, Canada (Agic et al., 2015). This study looked at the difference in lifetime, current and high-risk drinking among different ethnic groups and at gender differences in alcohol use. This study found that Canadian and European ethnicities are more likely to drink alcohol and are more at risk for high-risk drinking. The non-European ethnic groups had a higher percentage of people that did not drink any alcohol at all. All of the ethnic groups had gender differences in alcohol consumption, with women drinking less alcohol than men on average. The study states that future research is necessary to find out why the differences exist (Agic et al., 2015).

There has also been done research about this topic in the Netherlands. A study in Amsterdam found that the level of alcohol use was the highest among individuals with a Dutch ethnicity compared to individuals with a Turkish, Moroccan, South Asian, Surinamese and Ghanaian ethnicity. 91% of the individuals with a Dutch ethnicity were currently drinking during the study. This was 22.3% for Turkish people and 7.4% for Moroccans. The study also

found that Dutch people had a relatively high percentage of people that drink alcohol regularly, as 81% of Dutch people are regularly drinking, while this was 11.8% for Turkish people and 4.1% for Moroccans. The amount of individuals that did not drink at all was also a lot lower for individuals with a Moroccan or Turkish ethnicity. These were 92.6% and 77.7% respectively, as opposed to 9% for people with a Dutch ethnicity (Van Amsterdam et al., 2020).

The study also tried to find reasons for why these differences exist. However, the study did not find any of these reasons and more research on this matter is necessary. Another downside of this study is that the data only comes from individuals from Amsterdam. Amsterdam is not representative for the entirety of the Netherlands. Therefore, the external validity of this study is limited (Van Amsterdam et al., 2020).

According to Statistics Netherlands, alcohol use is especially high among young adults (CBS, 2023). Therefore, research about ethnic differences in alcohol use is also necessary for young adults. A United States study looked at the ethnic differences in alcohol use for young adults. The ethnicities used in this study were White, African-American and Hispanic. The study found that Whites have a higher level of alcohol use compared to African-Americans and Hispanics (Khan et al., 2014). Statistics Netherlands also did research on differences in alcohol use among people aged 12-25 in the Netherlands (CBS, 2018). The research found that individuals with a Dutch background consumed the most alcohol. 68% of them had consumed alcohol in the last twelve months. This was 62% for individuals with a Western background and 34% for individuals with a non-Western background. (CBS, 2018).

The research that has been done before shows that differences in alcohol use among different ethnic groups may exist. This difference may also exist for young adults. However, this research does not tell us anything about why these differences exist. Future research was necessary to find these reasons (Agic et al. ,2015). Van Amsterdam et al. (2020) tried to find reasons for the existence of ethnic differences in alcohol use but could not find any. There has been done some further research that shows why these differences might exist.

Religiosity is the first possible reason for the difference in alcohol use among

different ethnic groups. A United States study looked at the correlation between religiosity, alcohol consumption, alcohol use disorders, and ethnicity. The study found that the more publicly religious a person is, the less likely this person is to have alcohol use disorder. The study also found that there are differences in alcohol use for different ethnicities. Especially ethnicities with a Muslim background drink less alcohol compared to other ethnicities (Meyers et al., 2017).

A difference in education level among different ethnic groups could be another possible reason for the ethnic differences in alcohol use. There is a difference in education level among people from different ethnic groups. In 2021/2022, 40.5% of the students with a non-Western ethnicity, 56% of the students with Western ethnicity and 51% of the students with a Dutch ethnicity did havo or vwo. Students with a non-Western ethnicity are also less likely to follow a program at hbo or wo level. (NJI, 2023).

The level of education is also correlated to alcohol use. A study that was done in Norway found that people with a higher level of education on average drink more alcohol than people with a lower level of education. For the individuals that followed education for 8 years or less, 23% drank beer weekly. This was 53% for the individuals that followed education for more than 16 years (Jacobsen, 1989).

Another study looked at the correlation between college attendance and alcohol use. The study also looked at how this correlation differs among ethnic groups. The ethnic groups that were included in this study are White, Black, Hispanic people and Asians. This study found that being in college for at least four years is positively correlated with alcohol use for White people. However, the study also found that being in college for four years is negatively correlated with alcohol use for Blacks and Asians. The study also found reasons for this difference. The fact that college attendance is positively correlated with alcohol use for white people is because of the fact that they are socializing more with their friends and that they are socially influenced by their alcohol consumption. There is a negative correlation between alcohol use and college attendance for black people and Asians, because their friends are less likely to drink alcohol (Paschall et al., 2005).

So research before has shown a correlation between ethnicity and education level,

as well as a correlation between education level and alcohol use. However, research has not yet looked at if ethnicity and alcohol use are correlated through education level as a mediator. This thesis will further examine this correlation.

Another possible factor that could partially explain the ethnic differences in alcohol use is mental health. Research has shown that the quality of mental health differs among different ethnic groups. A study in Amsterdam found that Turkish men and women, and Moroccan men have a higher chance of having symptoms of depression and anxiety (de Wit et al., 2017). Another study in Belgium found that mental health is lower for migrants. Especially individuals with a Turkish or Moroccan background have a lower level of mental health. The study also found that there is a higher chance of mental health problems for people who have a mother that is born outside of Europe. (Duveau et al., 2023).

Additionally, mental health seems to be correlated with alcohol use. Bell and Britton (2014) have shown that a lower mental health for an individual predicts more alcohol use in the future. It is also common among students to drink to cope with their problems. Coping is a mechanism that people use to deal with their problems, sometimes mental health problems. Research has shown that drinking as a coping mechanism is common among college students. This leads to much higher alcohol consumption among individuals (Park & Levenson, 2002).

So research has shown a correlation between ethnicity and mental health, as well as a correlation between mental health and alcohol use. However, research has not yet looked at if ethnicity and alcohol use are correlated through mental health as a mediator. This thesis will further examine this correlation.

This thesis will further investigate the ethnic differences in alcohol use for individuals aged 16-34 in the Netherlands. This is interesting subgroup to focus on, because as shown before alcohol use is common among people in the Netherlands. This leads to high societal costs for the Netherlands. Therefore, the government wants to decrease the level of alcohol use in the Netherlands. To do this, research about which subgroups drink the most alcohol in the Netherlands specifically is necessary. It is interesting to focus on individuals aged 16-34, because this subgroup is the group that has the highest level of alcohol use in the

Netherlands (CBS, 2023). This leads to the first part of the main question for this thesis: '*Are there ethnic differences in alcohol use for individuals aged 16-34 in The Netherlands?'*

This thesis will also investigate the correlation between alcohol and ethnicity through mental health and education level. These are interesting correlations to investigate, because research has not yet looked at these correlations. Understanding these correlations can give new insides as to why there are a potential ethnic differences in alcohol use in the Netherlands. This leads to the second part of the main question in this thesis: *To what extent can education level explain the ethnic difference in alcohol use for individual aged 16-34 in the Netherlands?* This also leads to the third and final part of the main question for this thesis as well: *To what extent can mental health explain the ethnic difference in alcohol use for individuals aged 16-34 in the Netherlands?*

Hypothesis

In relation to the main questions, three hypotheses are formulated. The first hypothesis is as follows:

Hypothesis 1: '*Individuals aged 16-34 with a Dutch ethnicity have a higher level of alcohol use than people aged 16-34 with a non-Dutch ethnicity.'*

As discussed before, there is evidence to suggest that there is a difference in alcohol use among different ethnic groups (Agic et al., 2015). The level of alcohol use in the Netherlands is higher for people with a Dutch ethnicity (Van Amsterdam et al., 2020). Statistics Netherlands showed that this is also the case for young adults in the Netherlands (CBS, 2018). Therefore, it is likely that this difference also exists for individuals aged 16-34 in the Netherlands, and the evidence also seem to point to the fact that individuals with a Dutch ethnicity drink more alcohol than individuals with a non-Dutch ethnicity.

The second hypothesis is as follows:

Hypothesis 2: '*The ethnic differences in alcohol use for individuals aged 16-34 in the Netherlands is partially explained by mental health.'*

As stated before, research has shown that mental health has an effect on alcohol use (Bell & Britton, 2014). Also, mental health differs among ethnic groups (de Wit et al., 2017). Because of this, mental health may partially explains the difference in alcohol use among different ethnic groups.

The third hypothesis is as follows:

Hypothesis 3: '*The ethnic differences in alcohol use for individuals aged 16-34 in the Netherlands is partially explained by education level.'*

This hypothesis could be true, because higher educated people drink more alcohol (Jacobsen, 1989) and education levels differ among ethnic groups (NJI, 2023). Therefore, education level could partially explain the differences in alcohol use among different ethnic groups.

Theoretical framework

There are a few concepts that are important in this paper, these concepts are explained below.

Mental health

In the Netherlands, research has given the following definition for mental health: 'Mental health is the way in which you experience yourself and how you experience the challenges in day-to-day life. It is also about how you and others experience society' (von Bon-Martens et al., 2022). There are two important concepts related to mental health: Mental wellbeing and mental problems. Mental wellbeing is about how happy someone is, and what the quality of life of the individual is. Mental problems is about how much someone experiences feelings of depression and anxiety (VZ, 2024b).

Education level

The definition of education level used in this thesis is the highest level of education that someone has followed. In the Netherlands there are several levels of education. The first level is primary school. After primary school children will go to high school. High school is separated in three levels: pre-vocational secondary education (vmbo), Senior general secondary education (havo) and pre-university education(vwo). Vmbo is the lowest level, then comes havo and vwo is the highest level of education in high school. There is also education after high school. These are secondary vocational education (mbo), university of applied sciences (hbo) and university education (vwo). Mbo is the lowest level, then comes hbo and wo is the highest level.

Statistics Netherlands has a ranking for education level. This ranking is low, middle and high. Low education consists of people who have done primary school and vmbo. Middle education level consists of people who have done havo, vwo and mbo. High education level consists of people who have done hbo or wo (CBS, 2024c).

The amount of people that have a high education level is growing in the Netherlands. From the people aged 15-75, 35.5% has a high education level, 26.6% have a low education level, and 37.9% have a middle level of education (CBS, 2022).

Alcohol use

The definition of alcohol use that is used in this paper is the frequency of alcohol use of an individual. The higher the frequency of alcohol use of an individual, the higher their level of alcohol use. The paper of Van Amsterdam et al. (2020) uses the same definition for alcohol use. An individual is an occasional drinker if they drink alcohol monthly or less. An individual is a regular drinker if they drink alcohol twice a month or more (Van Amsterdam et al., 2020).

The advice of the Dutch government is to not drink any alcohol at all, or to not drink more than one glass of alcohol a day. 44% of the people in The Netherlands followed this advice (CBS , 2023)

Ethnicity

The following definition is accepted to be the definition of ethnicity: The country of birth of an individual, or the country of birth of his or her parents (Stronks et al., 2009). However, this definition is still vague. The following definition is more specific: A participant has a Dutch ethnicity, unless one of the following statements is true for that participant.

1. The participant is born outside of the Netherlands and one of the parents of the participant is born outside of the Netherlands.
2. The participants is born in the Netherlands, but one of the parents of the participant is not born in the Netherlands.

If one of the statements above is true for the participant, then the participant has a non-Dutch ethnicity. To be more specific, if the first statement is true, then the participant has a first generation non-Dutch ethnicity, while if the second statement is true the participant has a second generation non-Dutch ethnicity (CBS, 2024d).

A person with a Western background is someone that has an ethnicity of a country in Europe except for Turkey, North America or Oceania. A person has a non-Western ethnicity if they are from one of the other countries in the world. However, this term is not used by Statistics Netherlands anymore. Since 2021 Statistics Netherlands does not separate between western and non-western anymore (CBS, 2024e).

Social determinants of health

The social determinants of health is a framework made by Dahlgren and Whitehead (1991) that shows different factors that influence the health of an individual. The framework shows that the health of an individual is influenced by their environment and their individual choices (Jahnel et al., 2022).

The framework consists of four different levels. The first level consists of individual lifestyle factors. Examples of this are diet, physical activity and substance abuse. The second level are social and community networks. Examples of this are the friends and family of an individual. The third level are the living and working conditions of an individual. Examples of this include education, unemployment and housing. The fourth and final level of the framework are the general socio-economic, cultural, and environmental conditions. All of these levels interact with each other and have an influence on the overall health of an individual (Jahnel et al., 2022).

Alcohol use is part of the first level of the social determinants of health: individual lifestyle factors. As shown before, this influences the health of an individual, as alcohol use can lead to liver damage, heart failure, brain damage and even mortality (Laonigro et al. 2009). This model shows that alcohol use is also influenced by other factors from other levels.

Education level is part of the third level of the social determinants of health framework. The third level has influence on other levels, which means that education has an influence on alcohol use. Jacobsen (1989) showed that the length of education is correlated with the alcohol use of a person. Passchal et al. (2005) showed that college attendance is correlated with alcohol use for white people. A reason for this correlation is that individuals in college are socially influenced by their friends to drink alcohol. The influence of friends is linked with the second level of the social determinants of health framework: social and community networks.

The social determinants of health shows that education level is also influenced by other factors. For example, education level is influenced by the socio-economic, cultural, and environmental conditions of an individual. These conditions can differ among different

ethnicities. For example, the ethnicity of an individual has an impact on their cultural background. The ethnicity of an individual is also correlated with their socio-economic status (Williams & Collins, 1995). Therefore, this framework shows that ethnicity can influence the education level of an individual, which can influence the alcohol use of an individual. This thesis will further investigate these correlations.

The social determinants of health framework also shows that mental health is influenced by a lot of different factors from different levels. Some of these factors differ among people with different ethnicities. An example of this is the socio-economic status of an individual (Williams & Collins, 1995). Because these factors can differ among ethnic groups, the level of mental health can also differ among ethnic groups. Duveau et al (2023) and De Wit et al. (2017) indeed showed that this is the case. This thesis will further investigate this difference in mental health between ethnic groups and if this difference can partially explain the difference in alcohol use among different ethnic groups.

Methodology

Data

The data used in this thesis comes from the Longitudinal Internet studies for the Social Sciences (LISS) panel. This is a data panel that sends questionnaires about wide ranges of topics to a random sample of households in the Netherlands (LISS-panel, 2024a).

The LISS panel cooperates with Statistics Netherlands to randomly select a sample of households in the Netherlands are selected and every member of the household is invited to participate in the panel. The residents of the households were invited by letter, a telephone call or by house visits. Because participation is only done by invitation, self-selection is reduced. Individuals that participate are compensated for filling in the questionnaire. There are some households that do not have a computer. These households can borrow a computer to fill in the questionnaire. The fact that registration is done by invitation and households that do not have a computer can also participate, makes the LISS data panel more representative than other data panels (LISS panel, 2024a)

There are approximately 5,000 households that participate in the LISS panel, comprising approximately 7,500 individuals in total. The original sample had 10,000 households. In total 5,000 of these households wanted to participate. About 80% of all household members participate in the LISS data panel. The attrition of respondents is about 12% per year, while the attrition of households is about 10% per year. Recruitment for refreshment samples is done to improve the representativeness of the LISS data panel. The representativeness of the panel is improved by sampling underrepresented groups based on household type, age and ethnicity. This was done seven times in total. The new refreshment samples should improve representativeness of the panel by approaching groups that are difficult to reach and have a below average response rate (LISS Panel, 2024b).

The members of the LISS panel complete a survey every month. There is also a LISS core study that is done annually. The LISS core study is a longitudinal study. The LISS core study consists of eight different questionnaires with eight different themes. These themes are health, politics and values, religion and ethnicity, social integration and leisure, family

and household, work and schooling, personality, and economic situation. This thesis uses the health core questionnaire and the monthly questionnaire about background variables (LISS panel, 2024c).

The data has been collected every year since 2007. This means that there are 16 waves available in 2024. Waves 15 and 16 are used for this study. This means that these waves have the most recent information about the households. The variable mental health and education in this study come from wave 15, the variable alcohol use comes from wave 16. This choice is made to make sure that there is no reverse causality. This thesis looks at the variables education and mental health at the moment of wave 15, and not at how these variables change over time. This is the case, because there were not enough participants where a change over time in these variables was established in the data. The participants in this thesis are between the age of 16 and 34. This thesis has 636 participants in total.

Variables

The variables that are used in this study are ethnicity, mental health, education, alcohol use, age, and sex.

Ethnicity

The variable ethnicity is obtained from the background variables questionnaire of the LISS panel data. In this questionnaire, individuals are asked what their origin is. People can choose from the following six options: Dutch background, first generation foreign Western background, first generation foreign non-Western background, second generation foreign Western background, second generation foreign non-Western background and origin unknown or part of the information unknown. For the definitions of ethnicity, the definitions of Statistics Netherlands are used. These definitions are explained in the theoretical framework (Elshout, 2022a). The category origin unknown or part of the information unknown is dropped (N=5). In total, there were 509 people with a Dutch ethnicity, 13 people with a first-generation non-Western ethnicity, 14 people with a first-generation Western ethnicity, 72 people with a second-generation non-Western ethnicity, and 28 people with a second-generation Western ethnicity. The group of participants with a specific ethnicity that

is different than a Dutch ethnicity is too small to analyze. Therefore, the participants with a non-Dutch ethnicity are merged into one group. This means that there are two groups: Dutch and non-Dutch. Ethnicity will be a dummy variable. This dummy takes the value of 1 for every individual that has an ethnicity that is different from a Dutch ethnicity, and 0 for every individual that has a Dutch ethnicity.

Education

The variable education is also obtained from the background variables questionnaire of the LISS panel data and is measured by the following question: 'What is the highest level of education irrespective of the diploma that you got?' The answer options were: primary school, vmbo, havo/vwo, mbo, hbo, wo and other. These options were treated continuously, with a higher scores indicating higher education levels. The conversions are as follows: primary school=1, vmbo=2, havo/vwo=3, mbo=4, hbo=5, and wo=6. The 'other' option is dropped in this thesis, as it does not clarify what the exact level of education is (Elshout, 2022a).

Mental Health

This thesis uses the Mental Health Index-5 score to measure mental health. This is an index where participants have to respond to five statements about their mental health. These statements are about symptoms of anxiety and depression (CBS, 2024b).

Mental health is measured in this way, because the Mental Health-5 Index score is part of the LISS panel questionnaire. The Mental Health Index-5 score is also known to be a good way to measure mental health. Hoeymans et al. (2004) evaluated the Mental Health Index-5 score and came to the conclusion that the results of the Mental Health Index score are correlated to self-reported health care use and diagnoses that are made by a general practitioner. The Mental health index score is also used by Statistics Netherlands to measure mental health (CBS, 2024b).

The following statements are part of the MHI-5 score: *The last month I felt very anxious; the last month I felt so down that nothing could cheer me up; the last month I felt calm and peaceful; the last month I felt depressed and gloomy; the last month I felt happy*. Participants could give each statement a score from 1 to 6, where: 1=never, 2=seldom,

3=sometimes, 4=often, 5=mostly, 6=continuously (Kieruj, 2022a). Statement 1, 2 and 4 are negative, while statement 3 and 5 are positive. Therefore, the score of statement 3 and 5 score are reversed. After that, the scores of all statements are added up. Participants could get a score from 5 to 30, where a higher score means that the mental health of the person is worse.

Alcohol use

The variable alcohol use also comes from the health questionnaire in the LISS core data study. Alcohol use is measured by the question: *How often did you have a drink containing alcohol over the last 12 months?* Participants could give a score from 1 to 8, where 1=not at all over the last twelve months, 2=once or twice a year, 3=once every two months, 4=once or twice a month, 5= once or twice a week, 6=three or four days per week, 7= five or six days per week, 8= almost every day (Kieruj, 2023a). The higher the score of a participant, the higher their alcohol use.

Only the frequency of drinking is part of this study. How much someone drinks on a given day is not part of this study. This is the case, because there were no questions in the questionnaire of the LISS panel that can indicate how much someone drinks. Therefore, this study cannot say anything about if an individual drinks excessive amounts of alcohol, only about the frequency of alcohol use.

The variable sex comes from the background variables questionnaire from the LISS core data study. The value of sex is 0 if the participant is a male and 1 if the participant is a female. The variable age also comes from the background variables questionnaire from the LISS core data study. Age is also used as a control variable. The value of age can range from 16-34.

Data analysis

To describe the data, the mean, standard deviation, minimum and maximum of all the variables are calculated. After that, the three hypotheses are tested to answer the main question of the paper.

The first hypothesis is tested by performing a multiple linear regression. In this

regression, alcohol use will be the dependent variable. Ethnicity will be the independent variable. The value of the coefficient of ethnicity will show if people with a non-Dutch ethnicity will have a different level of alcohol use than people with a Dutch ethnicity. If this coefficient is significant, then we can say that people with a non-Dutch ethnicity have a significantly different level of alcohol use. Age and sex are the control variables in this regression and will be the control variables in all the other regressions used in this thesis as well.

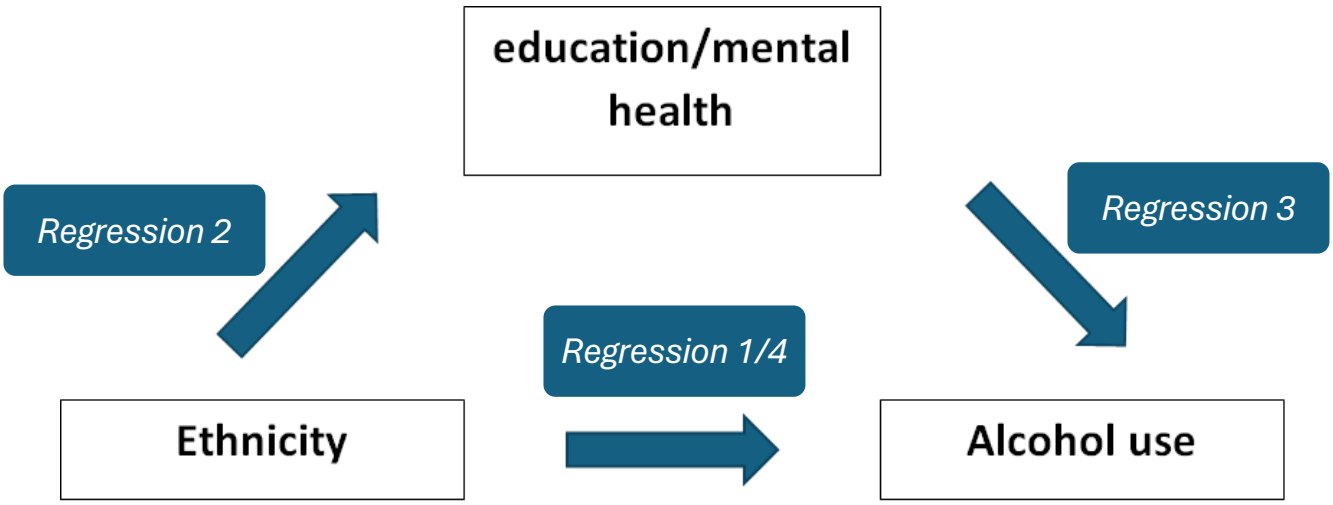
To test the second hypothesis, a mediation analysis is used. A mediation analysis is an analysis that uses four regressions to explain the relationship between two variables through a third variable. The mediation analysis that is used to test the second hypothesis, tries to explain the relationship between ethnicity and alcohol use through the variable mental health. This is shown by Figure 3.1. The first regression in this mediation analysis is the same that is used to test hypothesis one. In this regression, alcohol use is the dependent variable, ethnicity is the independent variable, and sex and age are the control variables. This regression is made to find the relationship between ethnicity and alcohol use. The second regression in the mediation analysis is a regression that examines the relationship between mental health and ethnicity. In this regression, mental health is the dependent variable, and ethnicity is the independent variable. The third regression that is used in the mediation analysis is a regression that examines the relationship between mental health and alcohol use. In this regression, alcohol use is the dependent variable, and ethnicity is the independent variable. The fourth and final regression of this mediation analysis is a regression that examines the relationship between alcohol use and ethnicity. This Is the same regression as regression 1. However, this time the regression controls for mental health as well.

To test if the second hypothesis is true, mental health and ethnicity need to be correlated with each other. This is tested by the second regression. Mental health and alcohol use also need to be correlated with each other. This is tested in the third regression. After that, the first and fourth regressions are compared with each other. Especially the value of the coefficient of the ethnicity variable is compared in regression one and four. If

these values are different, it means that mental health partially explains the difference in alcohol use for different ethnicities.

A mediation analysis is also used to test hypothesis 3. This mediation analysis is also shown in Figure 3.1. This time, the mediation analysis tries to explain the relationship between ethnicity and alcohol use through education level. The first regression in this mediation analysis uses alcohol use as a dependent variable and ethnicity as an independent variable. The second regression uses education as the dependent variable, and ethnicity as an independent variable. The third regression uses alcohol use as dependent variable, and education as an independent variable. The fourth regression uses alcohol use as dependent variable, ethnicity as an independent variable, and age, sex and education as control variables. First the correlation between education and ethnicity, and education and alcohol use need to be established by looking at the second and third regression. After that, the coefficient of ethnicity in regression one and four is compared to see if the difference in alcohol use can be partially explained by education level.

Figure 3.1: Mediation analysis



Results

The descriptive variables are shown in Table 4.1. The average level of alcohol use is 3.71, where 1 is the lowest level and 8 is the highest level in the sample. The average level of mental health is 14.01, where 10 is the minimum level and 25 is the maximum level of mental health score. The average level of education is 4.63, where 1 is the minimum level and 6 is the maximum level. 80% of the participants has a Dutch ethnicity, while 20% of the participants has a non-Dutch ethnicity. The average age of the participants is 26.10 years.

Table 4.1: descriptive statistics of the variables

Variable	Mean	Standard deviation	Min	max
Alcohol use	3.71	1.61	1	8
Mental Health	14.01	2.68	10	25
Education level	4.63	1.31	1	6
Dutch	0.80	0.40	0	1
Non-Dutch	0.20	0.40	0	1
Age	26.10	5.55	17	34
Sex	0.60	0.50	0	1

Note: N=636, in total there are 509 people with a Dutch ethnicity and 137 people with a non-Dutch ethnicity.

Hypothesis 1: 'Individuals aged 16-34 with a Dutch ethnicity have a higher level of alcohol use than people aged 16-34 with a non-Dutch ethnicity.'

The multiple linear regression to test hypothesis 1 is presented in Table 4.2. The regression shows that individuals with a non-Dutch ethnicity have a 1.16 points lower level of alcohol use compared to individuals with a Dutch ethnicity. This result is significant ($p<0.001$) and in line with hypothesis 1, posting that individuals with a Dutch ethnicity have a higher alcohol use than individuals with a non-Dutch ethnicity.

Table 4.2: Linear regression results that examine the relationship between ethnicity and alcohol use.

Variable	Alcohol use
Constant	3.94***
	(0.31)
Non-Dutch	-1.16***
	(0.15)
Sex	-0.35**
	(0.12)
Age	0.01
	(0.11)

*Notes: N=636. The standard error is given between brackets. Significance level= *p<0.050, **p<0.010, ***p<0.001.*

Hypothesis 2: 'The ethnic differences in alcohol use for individuals aged 16-34 in the Netherlands is partially explained by mental health.'

To test the second hypothesis, a mediation analysis is used. This mediation analysis examines the relationship between ethnicity and alcohol use through mental health. The mediation analysis is given in Table 4.3. The first regression used in the mediation analysis shows that there is a correlation between ethnicity and alcohol use.

Regression 2 examines the correlation between mental health and ethnicity. The results of this regression are not significant. Therefore, we cannot conclude that there are differences in mental health for people with a Dutch and non-Dutch ethnicity.

Regression 3 examines the correlation between mental health and alcohol use. This regression finds that if mental health goes up by one point, alcohol use goes down by –0.05 points. This result is significant (p<0.050).

Regression 4 examines the correlation between mental health and ethnicity, while controlling for mental health. After the addition of mental health, the coefficient of non-Dutch changes by 0.01 point compared to regression 1, from -1.16 to -1.15. However, it

cannot be said that mental health can partially explain the difference in alcohol use between ethnicities, because regression 2 did not find a correlation between mental health and ethnicity. Therefore, it cannot concluded that hypothesis 2 is true.

Table 4.3: Mediation analysis of mental health on alcohol use

variable	Regression 1 Alcohol use	Regression 2 Mental health	Regression 3 Alcohol Use	Regression 4 Alcohol use
Non-Dutch	-1.16***	0.34		-1.15***
	(0.15)	(0.26)		(0.15)
Mental health			-0.05*	-0.04
			(0.02)	(0.02)
Age	0.01	-0.04*	0.01	0.01
	(0.01)	(0.02)	(0.01)	(0.01)
sex	-0.35**	0.91***	-0.27*	-0.32
	(0.12)	(0.21)	(0.13)	(0.12)
Constant	3.94***	14.52***	4.34***	4.47***
	(0.31)	(0.53)	(0.48)	(0.45)

*Note: N=636. The standard error is given between brackets. Significance level= *p<0.050, **p<0.010, ***p<0.001.*

Hypothesis 3: 'The ethnic differences in alcohol use for individuals aged 16-34 in the Netherlands is partially explained by education level.'

The third hypothesis is also tested by a mediation analysis. This mediation analysis examines the correlation between ethnicity and alcohol use through education level. The mediation analysis is given in Table 4.4. The first regression used in the mediation analysis shows that there is a correlation between ethnicity and alcohol use.

The second regression examines the correlation between education and ethnicity. The results of this regression are not significant. Therefore, we cannot say that there is a correlation between ethnicity and education.

The third regression examines the correlation between education and alcohol use. The regression does find a positive regression between alcohol use and education. If education goes up by one point, alcohol use goes up by 0.24 points. This means that the higher the education level of a person, the higher their alcohol consumption. The results are significant ($p<0.001$).

The fourth regression examines the correlation between alcohol use and ethnicity, while controlling for education level. After the addition of education to the regression, the coefficient of non-Dutch changes from –1.16 to –1.12. However, education level cannot partially explain the difference in alcohol use between different ethnicities. Education level cannot explain for this difference, because regression 2 does not show a relationship between ethnicity and education. Therefore, it cannot concluded that hypothesis 3 is true.

Table 4.4: Mediation analysis of education on alcohol use

variable	Regression 1 Alcohol use	Regression 2 education	Regression 3 Alcohol use	Regression 4 Alcohol use
Non-Dutch	-1.16***	-0.16		-1.12***
	(0.15)	(0.11)		(0.15)
Education			0.24***	0.22***
			(0.05)	(0.05)
Age	0.01	0.11***	-0.02	-0.02
	(0.11)	(0.01)	(0.01)	(0.01)
Sex	-0.35**	0.20*	-0.37**	-0.40***
	(0.12)	(0.09)	(0.13)	(0.12)
Constant	3.94***	1.75***	3.25***	3.55***
	(0.31)	(0.23)	(0.33)	(0.32)

*Note: N=636. Sex and age are control variables. The standard error is given between brackets. Significance level= *p<0.050, **p<0.010, ***p<0.001.*

Discussion and conclusion

The goal of this thesis was to find out what the correlation between ethnicity and alcohol use is for individuals aged 16-34 in The Netherlands. This thesis also examined if mental health and education level can partially explain for this difference. The thesis found that people with a Dutch ethnicity have a higher level of alcohol use than people with a non-Dutch ethnicity. This thesis did not find any evidence for the fact that education level or mental health can partially explain for why this difference exist.

The finding that people with a Dutch background have a higher alcohol use than people with a non-Dutch background is in line with the first hypothesis: '*Individuals aged 16-34 with a Dutch ethnicity have a higher level of alcohol use than people aged 16-34 with a non-Dutch ethnicity.'* These finding are also somewhat in line with research that has been done before. Agic et al. (2015) showed that alcohol consumption differs among ethnic groups in Canada. Individuals with a Canadian and European ethnicity drank more alcohol than ethnicities with a Non-European ethnicity. This difference was also found in the Netherlands. Van Amsterdam et al. (2020) showed that people with a Dutch ethnicity drink more alcohol than people with a non-Dutch ethnicity in the Netherlands. This difference also exists for young adults in the Netherlands (CBS, 2018). This difference also seems to be higher for individuals with an ethnicity of a Muslim country (Meyers et al., 2017). Especially Turks and Moroccans have a lower alcohol use in the Netherlands (van Amsterdam et al., 2020).

The second hypothesis that this study looked at was the following: '*The ethnic differences in alcohol use for individuals aged 16-34 in the Netherlands is partially explained by mental health.'* A mediation analysis was used to test this hypothesis. This thesis did find a correlation between mental health and alcohol use. This is in line with research that has been done before, as Bell and Britton (2014) showed that a lower level of mental health can lead to more alcohol consumption. Individuals with symptoms of anxiety and depression can use alcohol as a coping mechanism, which increases their alcohol use (Park & Levenson, 2002).

However, this study did not find a correlation between ethnicity and mental health.

This is not in line with research that has been done before, as de Wit et al (2008) found that individuals with a Turkish and Moroccan ethnicity have a higher chance of depression and anxiety disorders, while Duveau et al. (2023) found that people who have a parent that is not born in Europe have a lower average level of mental health.

A reason for the fact that this thesis did not find any difference in mental health levels among different ethnic groups can be that this thesis only tested for two ethnic groups: Dutch and non-Dutch. It could be the case that if these two groups were split into more groups, a difference in mental health was found between different ethnic groups. Another reason could be that the sample size used in this thesis is not big enough, maybe with a bigger sample size a significant difference would have been found. A final reason could be that there are no differences between ethnic groups in mental health specifically for people aged 16-34 in the Netherlands.

Because there was no difference in mental health levels between different ethnic groups, it cannot be concluded that the difference in alcohol use among different ethnic groups can be partially explained by mental health. Therefore, it cannot be concluded that hypothesis 2 is true.

The third hypothesis that this study looked at was the following: '*The ethnic differences in alcohol use for individuals aged 16-34 in the Netherlands is partially explained by education level.'* A mediation analysis was used to test this hypothesis as well. This thesis did find a correlation between alcohol use and education level. This is in line with research that has been done before. Jacobsen (1989) showed that alcohol use is correlated with the length of education that someone followed. Another study showed that alcohol consumption is correlated with college attendance for white people (Paschal et al., 2005).

However, this study did not find a correlation between education level and ethnicity. This is not in line with research that has been done before, because research showed that there is a difference in education level between different ethnic groups (NJI, 2023).

A reason that this thesis did not find any correlation between ethnicity and education level could again be that there were only two ethnic groups used in this thesis. Research showed for example that the individuals that did havo or vwo was 40.5% for people with a

non-Western ethnicity, but 51% for people with a Dutch ethnicity and 56% for people with Western ethnicity. This could show that if the ethnic groups were split up in more ethnic groups, a difference in education level between ethnicities maybe could have been found.

Because this thesis could not show a difference in education level among different ethnic groups, we cannot conclude that education level partially explains the difference in alcohol use among different ethnicities. Therefore, it cannot be concluded that hypothesis 3 is true.

There are also a few limitations to this thesis. The first one is that the sample size is relatively small. This thesis only had 636 participants. Because of the relatively low number of participants, it was more difficult to find significant results. Another downside of the low amount of participants was that it was not possible in this thesis to look at how certain variables changed over time. For example, it could have been possible to look at how education level and mental health changed over time, and what the effect of this change was on alcohol use. However, there were not enough participants where these variables changed over time or where a change over time in these variables was established in the data. Therefore, it was not possible to look at these changes over time in this thesis.

Another limitation is that this thesis only focusses on people with a Dutch and non-Dutch ethnicity. It was also not possible to focus on more specific ethnic groups due to the small sample size, as the sample of these ethnic groups was too small to analyze. Therefore, this study could not focus on other specific ethnic groups. Future research can focus on these specific ethnic groups and see how this changes the results.

A limitation of the data from the LISS data panel is that the LISS data panel uses self-reported data. The downside of self-reported data is that individuals could provide socially desirable answers. Individuals could lie about their mental health status, alcohol use or education level. This makes the used data possibly not fully accurate.

With proving that there is a difference in alcohol use between people with a Dutch and non-Dutch ethnicity for people in the Netherlands aged 16-34, this thesis gave new insights in the academic world. This could be useful information to reduce the alcohol use in the Netherlands, and could help the Dutch government in their campaign to reduce the

level of alcohol use in the Netherlands. These findings can also help to reduce the inequalities between ethnic groups that exist in the Netherlands.

Future research on the difference in alcohol use among different ethnic groups is necessary. Future research can first try to fix some of the limitations of this thesis. For example, future research can use a bigger sample size and use different, more specific ethnic groups. In this way future research can see how the results change for specific ethnic groups. Another aspect that future research can focus on is testing for other reasons for why the difference in alcohol use among different ethnic groups for people aged 16-34 in the Netherlands exist. This thesis tested for education level and mental health, but there are other potential reasons for why a difference might exist. Research already showed that religiosity is a potential factor that could be reasons for the difference in alcohol use among different ethnic groups (Meyers et al., 2017). Lastly, future research could also focus on alcohol use disorders besides just alcohol use, to see if there are differences in this as well among different ethnic groups.

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