



9 JULI 2020

To What Extent Do Living Conditions Influence The Happiness Of Students Living In The City Of Groningen

Lizzy Onvlee


S3504263

University of Groningen

Faculty of spatial sciences

Supervised by Prof. dr. D. Ballas

Word count: 6541



Summary

This research analyses the influence of living conditions on the happiness of students living in the city of Groningen. It is important to know what aspects of living conditions are making students happy. This to use it as feedback and feedforward for, for example, housing corporations. In this research, housing characteristic, social interactions with housemates and noise levels are taken into account. The research question is as follows: *To what extent do living conditions influence the happiness of students living in student housing in the city of Groningen?* To answer this question a survey was set up and distributed amongst students living in the city of Groningen. To analyze the results of the survey a geographical analyses and a statistical analyses were done. Happiness patterns within variables were also looked into. Looking at the results, it can be said that housing characteristics has no influence on happiness. On the other hand noise levels has a positive impact on happiness and amount of social interaction with housemates has a very small negative impact on the happiness of students living in the city of Groningen.

Keywords: Happiness, subjective well-being, living conditions, housing characteristics, noise levels, social interactions.

Table of contents

1	Introduction	3
	1.1 Background	3
	1.2 Research problem	3
	1.3 Structure	3
2	Theoretical Framework	4
	2.1 Existing literature	4
	2.2 Conceptual framework	6
	2.3 Hypotheses	7
3	Methodology	8
	3.1 Research methods and data collection	8
	3.2 Variables and statistical test	8
	3.3 Ethical consideration	10
4	Results	11
	4.1 Summary of the data	11
	4.2 Happiness patterns	11
	4.3 Geographical analyses	13
	4.4 Statistical analyses	13
5	Conclusion	19
	5.1 Findings	19
	5.2 Strengths and weaknesses	19
	5.3 Recommendations for future research	20
6	References	21
7	Appendix	24
	7.1 Appendix 1: Survey	24
	7.2 Appendix 2: Ordinal logistic regression results	26

1. Introduction

1.1 Background

In the Netherlands the minimal square meters of a student housing room is 5m². In some cities this is already raised to 10m², but not yet in the city of Groningen (Regelgeving Groningen, 2017). There is a lot of debate whether raising the minimal square meter will be a positive or a negative thing. On the one hand 5m² is very small as a living space, but on the other hand it will be cheaper and that is something, students will also need and appreciate (nu.nl, 2019). The conditions in which you live can have a lot of influence on your happiness and also your mental and physical health (Dongen, 2014). Therefore it is very important to know exactly what factors of living conditions influences happiness and whether it contributes in a positive or a negative way.

With this research, it is hoped to help shed light on what students want and what makes them happy regarding student housing. In particular, the research can be used to provide feedback on the current student housing and inform future discussions about housing, between stakeholders such as housing corporations and developers. (Amole, 2009)

1.2 Research problem

The aim of the research is to look into in what way someone's living situation can influence their happiness. This study is focused on student housing since their might be a bigger effect in this stage of life, since their living situation is very different from a normal family home (Thompson, 2007). The central question is: To what extent do living conditions influence the happiness of students living in student housing in the city of Groningen? To get a better insight in this the central question is divided in the following sub questions:

- To what extent do housing characteristics influence the happiness of students?
Factors that will be taken into account are: Rent of room, square meters room, available amenities
- To what extent do social interactions with housemates influence the happiness of students?
Factors that will be taken into account are: number of housemates, amount of interaction with housemates and quality of interaction
- To what extent do noise levels influence the happiness of students?
Things that should be taken into account with noise levels are: housemates, neighbors, traffic and other disturbances from outside.

1.3 Structure

The following sections of this paper are structured as follows: first will come the theoretical framework, in this section existing literature about the topic will be discussed and hypotheses will be stated. After that the methodology follows, where the research method, data collection and ethical considerations will be addressed. In the next chapter the results will be discussed. This will be done by looking at a summary of the data, happiness patterns, a geographical analyses section and lastly the statistical analyses will be discussed. The final section will be the conclusion. This will consist out of the findings, strengths and weaknesses of the research and recommendations for future research.

2. Theoretical framework

2.1 Existing literature

There have already been several studies relating to happiness, housing characteristics, social interactions and/or noise. In the following section an overview will be given on the already existing literature that relates to this research.

Looking into life satisfaction among students Bieda et al (2019) stated that life satisfaction is positively associated with social support and gratitude and negatively associated with depression and anxiety.

Amole (2009) looks at the residential satisfaction in students' housing at university campuses in Nigeria. They used a questionnaire which was filled out on 4 different campuses. Respondents demographic data, housing attributes of the halls, physicals and social aspects of the halls and satisfaction with physical, social and management attributes of housing were analyzed. The results showed that more than half of the students were not satisfied with their housing. It is argued that this is due to that the designers and providers do not know what students desire in their housing. The research also showed that subjective measures of housing attributes (how satisfied they are with certain aspects of housing, measured with a likert scale from 1 to 5) are more important than the objective measures (amount of roommates & whether there is a common room kitchenette etc.).

Chatman et al. (2019) looks into the difference of happiness before and after a move, looking at housing characteristics, social interactions and travel patterns. For happiness they look at subjective well-being by asking people how they experience their own quality of life. This is done in two ways. They ask people how they feel about their life as a whole, on a scale from 1 (delighted) to 7 (terrible) and they use the 'life ladder' from 1 (worst possible life) to 9 (best possible life). Two other concepts that are very interesting in this paper are housing characteristics and social interactions. For the housing characteristics, they look at the rent, number of rooms and different housing amenities. For social interactions, they looked at the magnitude, frequency and quality of contacts. Chatman et al. (2019) found out, by doing regression analyses, that the social interactions have more influence on the happiness than housing characteristics have. This is in line with what Amole (2009) said, since also their the objective measures were of less importance.

According to Abdullah et al.(2013) both students residential conditions and students social activities contribute to living satisfaction in a positive way. Since living satisfaction is a part subjective wellbeing (happiness), this could mean that it would also impact happiness in a positive way. This builds further on Chatman et al.(2019) since they do not state whether the influence will be positive or negative.

On the other hand, Muslim et al. (2012) say that objective measure of the residential environment will not influence the living satisfaction, until you make them into subjective measures, meaning that the individual needs to evaluate those aspects of the residential environment. This is once again in line with what Amole (2009) discussed. It contradicts with Abdulla et al.(2013) in the way that Muslim et al. (2012) set requirements for looking at residential conditions before it can have an influence.

Dittman & Goebel (2010) researched the impact of neighborhoods on life satisfaction in Germany. Residents with strong social cohesion leads to a higher life satisfaction. This means that more contacts and connections with neighbors makes people happier.

There is quite a lot of literature stating that social interactions are of importance for humans and their happiness and that it relates to physical and psychological health. Therefore social anxiety might lead to lower levels of happiness, because people become more socially isolated and have a greater risk of having unsatisfactory social relationships (Ozturk & Mutlu, 2010 ; Satici,2016)

For students we also see that social interactions with peers help them with their learning and are an important source of emotional and practical support, which thus can be of importance for ones happiness (Walsh, 2015)

Najib et al. (2012) State that a lot and good facilities in student housing can lead to a better study life. Since your study life is part of your whole life, this means that your life will improve when you live in a house with a lot of sufficient facilities/amenities. It might be interesting to see whether there is a difference between private amenities and shared amenities, which is not really mentioned in this paper.

In the paper of Toa (2015) it is said that if housing characteristics improve, by for example spending money on it, the living conditions will also improve. It is also said that housing facility will influence living conditions the most (in comparison with housing crowding and housing privacy). Since people are willing to spend money on it, it could indicate that it thus will make them happier, otherwise they will not spend money on it.

Frederick and Loewenstein (1999) discuss the concept of hedonic adaptation in their paper. They state that the benefits people receive from material goods will become lower over time, because people get used to the new goods. This is in contradiction to Toa (2015), who states that it will make people happier. Frederick and Loewenstein do agree that it has an impact, but the impact will not stay over time.

Weinstein (1978) interviewed first year college students about dormitory noise in the beginning of the year and in the end of the year. They found out that the annoyance only grew as the year passed. Since they speak of annoyance, it could be that it has a negative impact on happiness.

There is a lot of literature that states that noise has a negative influence on subjective well-being (Rehdanz & Maddion, 2005; Cunado & Perez de Garcia, 2013; Lawton & Fujiwara, 2016). Which is why Benita et al (2019) expected to find a negative influence of noise on happiness in their research. However they in fact found a positive influence on happiness.

In the research of Brooks & Attenborough (1989), it became clear that noise present in houses mostly consists out of traffic noise and noise coming from people and children.

Noise relating to traffic has been proven to have a bad influence on happiness and mental health by several studies. (Dzhambov et al, 2018; Moeinaddini et al, 2020; Brereton et al, 2008) Noise leads to sleep disturbance, which is bad for ones mental and physical health, noise that causes can come from roommates as well as from different forms of traffic noise. (Meng et al, 2020; Kwak et al, 2016; Pirrera et al, 2014 ; Smith et al, 2016; Lee et al, 2010) traffic noise can also decrease concentration levels. It has a negative influence on health and leads to higher levels of stress, it even goes as far as leading to a higher risk of mortality (Thacher et al, 2020; Santika et al, 2017)

For this research, the geographical dimension should not be forgotten, because as Papchristou & Rosas-Casals (2019) states ‘where we live affects all aspects of our life and thus our happiness’.

Morris (2019) found that people living in the suburban areas have a higher subjective well-being (in terms of feelings of happiness, a sense of meaning and life satisfaction) than people living in urban areas.

Brereton et al (2008) state that location specific factors have an impact on life satisfaction. Closeness to main roads and train stations/tracks have a negative influence on well-being due to noise and closeness to landfill is also associated with a decrease in well-being.

Mouratidis (2019) makes a distinction between compact city areas and lower density neighborhoods in the city. compact city areas have higher levels of personal relationships satisfaction, higher physical health and higher level of anxiety than lower density neighborhoods. However when controlling for urban problems like safety, noise and cleanliness there is a lower impact on anxiety. Therefore Mouratidis (2019) states that compactness is positively associated with life satisfaction, which would mean that people living in more compact areas in the city are happier than people living in lower density areas in the city.

This research will focus on the case of the city of Groningen, therefore I am curious to see whether things found in past research, will also be the case in the city of Groningen. Things that should be taken into account is that in the city of Groningen student housing is mostly in the form of ‘residential family housing’ divided into different rooms, rather than campus housing with halls of residence or dorms. Therefore in this research we are talking about housemates rather than roommates, since students do not tend to share a room.

2.2 Conceptual framework

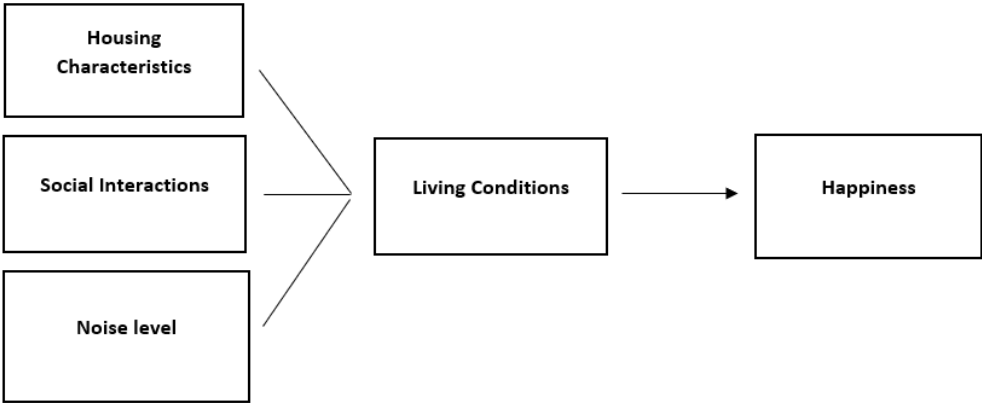


Figure 1 *Conceptual framework*

In this research, the influence of living conditions in student housing on the happiness of students in the city of Groningen is researched. In this research the concept of living conditions are separated into three concepts namely: Housing characteristics, social interactions and noise levels (see figure 1). For housing characteristics we look into the square meters of a room, rent and housing amenities. Social interactions means amount of housemates, amount of contact with housemates and quality of contact with housemates. Noise level means everything that can contribute to the amount of noise, this can be housemates, neighbors, traffic or other things in the neighborhood. These three have

been researched separate from each other in previous research (as seen in the section 'existing literature'), and it will be interesting to see, if there will be similar results found.

2.3 Hypotheses

Looking at past research the following hypotheses are expected to be found:

1. Higher noise levels will result in lower levels of happiness

For noise levels, a negative influence on happiness is expected. This is seen back in most of the previous research. (Rehdanz & Maddion, 2005; Cunado & Perez de Garcia, 2013; Lawton & Fujiwara, 2016; Dzhambov et al, 2018; Moeinaddini et al, 2020; Brereton et al, 2008; Meng et al, 2020; Thacher et al, 2020; Santika et al, 2017). This is most likely because, if someone indicated a high noise level this shows a form of discontent and discontent is likely to have a negative effect on happiness.

2. Social interactions and noise levels will have a bigger influence on happiness than housing characteristics.

That social interactions are more important than housing characteristics was a result that Chatman et al. (2019) found in their research. Likewise Amole (2009) found that objective measures are less important than subjective measures. Therefore noise levels will have a bigger influence on happiness than housing characteristics, since noise levels is a subjective measure and housing characteristics an objective measure.

3. Methodology

3.1 Research methods and data collection

For this research, a quantitative method was used, since the influence of living conditions on happiness needs to be measured. When we are talking about influences, we use a quantitative research method, because we are talking about relationships between variables and making generalizations (Punch,2014).

For the variable Subjective wellbeing one of the methods of Chatman et al (2019) is followed, namely the how do you feel about your life as a whole questions as described in the existing literature section. However instead of asking it on a scale from 1 to 7, the question was asked on a scale from 1 to 10, since that is a scale students are very used to for giving a grade. Surveys were collected to get the data. Surveys were chosen because this was the fastest and easiest way to acquire information about the characteristics, behaviors and attitudes of people (Clifford et al, 2016). The survey questions and the way variables were measured are based on the questions/variables found in Understanding society wave 9 (2018) & the paper of Chatman et al (2019). The survey begins with questions about housing characteristics, followed by questions about interactions with housemates, then noise levels and happiness and lastly questions about demographics (see appendix 1). This structure is chosen, because it has the more sensitive questions at the end. This is done to try to not 'scare away' people by having rather personal questions at the beginning. Due to the corona virus, the data collection was carried out online with the use of Whatsapp and Facebook and contacting student associations to recruit participants. First the survey was spread among my own contacts, which makes it a volunteer sample. At first, the goal was to have a random sample, however due to the corona virus this was harder to do. To make the sample as random as possible, contacts were also asked to spread the survey further amongst other students in the city of Groningen by putting it in existing Whatsapp groups or other forms of media. (Burt et al., 2009). The goal was to collect 100 surveys, which is more than sufficient for statistical analysis (Burt et al., 2009).

3.2 Variables and statistical test

The variables used in this research and how they are measured are shown in table 1. Happiness was used as the dependent variable in the form of subjective wellbeing. Respondents were also asked about their residential satisfaction. This could be used as a dependent variable, if it turns out that people do not feel comfortable answering the questions for the control variables.

With the data from the survey, a regression analysis was conducted to address the research questions. Since we are looking at the relationship between the variables a regression analyses was used (Duijn , 2019). Regression analysis has also been used in previous research relating to this topic, namely by Chatman et al (2019) and Amole (2009). For this research a ordinal logistic regression was used, because the dependent variable was used as a ordinal variable (Venhorst, 2019)

Variable	Survey question	Measured	Type of variable
Happiness			
Subjective wellbeing	'How do you feel about your life as a whole?'	A scale of 1 to 10, with 1 being extremely unhappy and 10 being extremely happy	Ordinal

Residential satisfaction	'How do you feel about your living situation as a whole?'	A scale of 1 to 10, with 1 being extremely unhappy and 10 being extremely happy	ordinal
Housing characteristics			
Rent of room	'How much was the last rent payment, including any services and water charges?'	Making classes of 100 euro's (0-100, 101-200, 201-300 etc)	Ratio
Square meters of room	'How many square meters is your room?'	Respondent gives exact number	Ratio
Private amenities	'Check off all the private amenities you have'	Kitchen, Bathroom, Sink, Restroom, Living room, Laundry room, shed, balcony	Nominal
Shared amenities	'Check off all the Shared amenities you have'	Kitchen, Bathroom, Sink, Restroom, Living room, Laundry room, shed, balcony	Nominal
Social interactions			
Number of housemates	'How many roommates do you have?'	Respondent gives exact number	Ratio
Amount of interactions with housemates	'How many times a week do you speak your roommate(s)?' (estimations of amount of conversations)	Respondent gives exact number	Ratio
Quality of interactions with housemates	'How meaningful would you say these conversations are?'	A scale from 1 to 10, with 1 being not meaning full at all & 10 being extremely meaningful	Ordinal
Noise level			
Noise level	'How much noise do you experience in your room?' (noise= sounds from roommates, neighbors, traffic and other things from outside which are considered to be irritating)	On a scale from 1 to 10, 1 being none & 10 being extremely much	Ordinal
Control variables			
Age	'What is your age?'	Respondent gives exact number	Ratio

Gender	'What is your gender?'	Male, Female, Other, Prefer not to say	Nominal
Disposable income	'What is your monthly disposable income?' (this can be from a loan, a job, or other sources like family)	Classes of 200, (so 0-200, 201-400, 401-600 etc)	Ratio

Table 1 *Variables explanation*

3.3 Ethical considerations

With ethics in mind, there was a disclaimer at the beginning of the survey, saying that the respondents will remain anonymous and that they have the right to redraw from the research at any point. Also, in the survey there are a few questions which have the option prefer not to say and the questions regarding money are made in classes, since this might be sensitive information and people will not be very comfortable answering these questions (exact). Since the data collection was online, personal safety was not a problem (Punch, 2014).

4. Results

First the data will be reviewed on a descriptive level looking at a summary of the data, happiness patterns and a geographical analysis. After that a statistical analyses will be done.

4.1 Summary data

With the online survey 128 responses were collected. However quite some respondents only filled out the first 4 questions. A reason for this might be because the survey was accessible for everyone. Some people might have started the survey, but realized they were not the target group, but still submitted the survey. These responses were deleted from the dataset, because they miss a lot of important data. Therefore, in the end the dataset consists of 87 cases. In table 2 one can see the mean of each variable. Looking at the interactions variable, the mean is 73,98. This number might not be very representative, since there are a few outliers in the data, which is visible when looking at the maximum. This big spread in responses might be due to the fact, that people usually do not count how many times they speak to their housemates. This way people are going to estimate the amount of times, which can lead to different and very widespread answers.

Descriptive Statistics				
	N	Minimum	Maximum	Mean
Square meters room	82	9	45	18,46
Amount of housemates	87	0	21	3,00
Amount of interactions	83	0	1000	73,98
Meaningfull interactions	78	1	10	6,56
Noise level	87	1	9	4,80
Happiness	85	3	9	7,35
Age	85	18	33	21,53

Table 2 Descriptive statistics

4.2 Happiness patterns

To see if there are patterns of happiness visible in variables, tables were made with the categories of each variable and there corresponding mean happiness. These tables were made for every variable, however only two variable showed patterns, namely 'square meter of room' and 'amount of housemates' (see Figure 2 & 3).

Looking at figure 2 there is a slight positive pattern visible. As square meters go up the mean happiness goes up as well. This would suggest that people with a bigger room are happier. This is most visible at the turning point of a 20 square meters room. 20 square meter and below has a mean happiness in the grade 7 and a room of above 20 square meters is more towards the grade 8 (excluding some outliers, which only have 1 case).

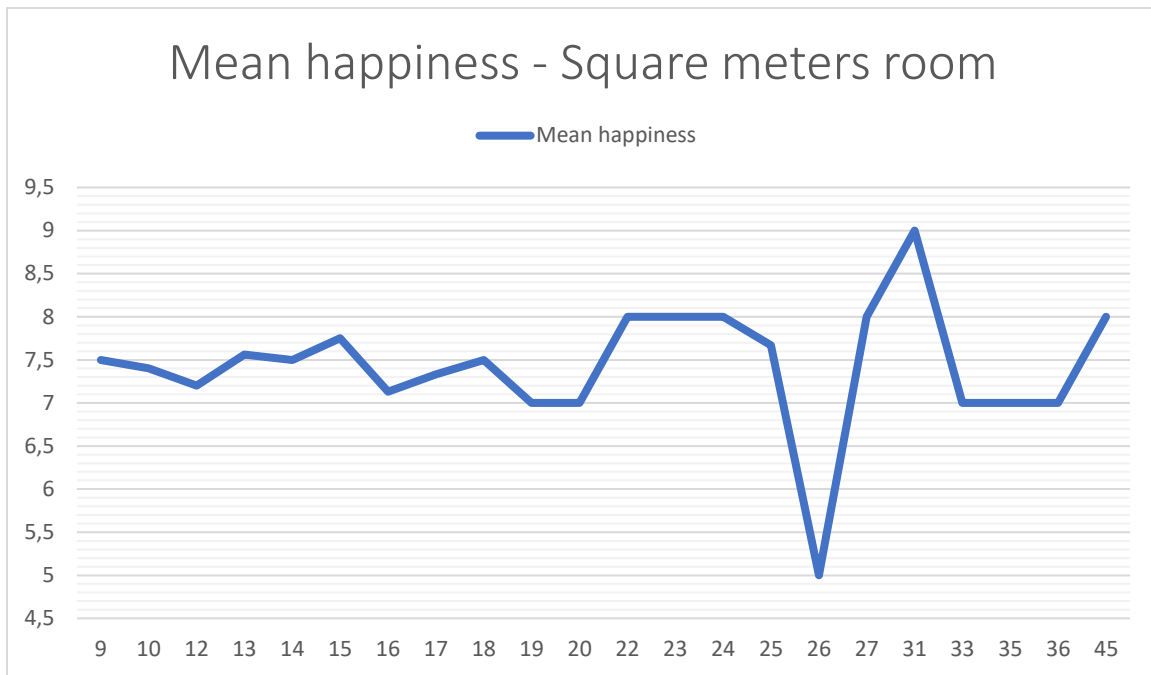


Figure 2 Mean happiness per square meters room

In figure 3 a slightly negative pattern is visible. This would suggest that people with no or a few housemates are happier than people who live with a lot of housemates. In the table, looking From 0 to 8 housemates, one can see the mean happiness goes down from 8 to 6 (with a few fluctuations). In households with more than 8 housemates there is no clear pattern found, but this could also be due outliers and small sample size. Disregarding the outliers, people who have no housemates seem to be the happiest.

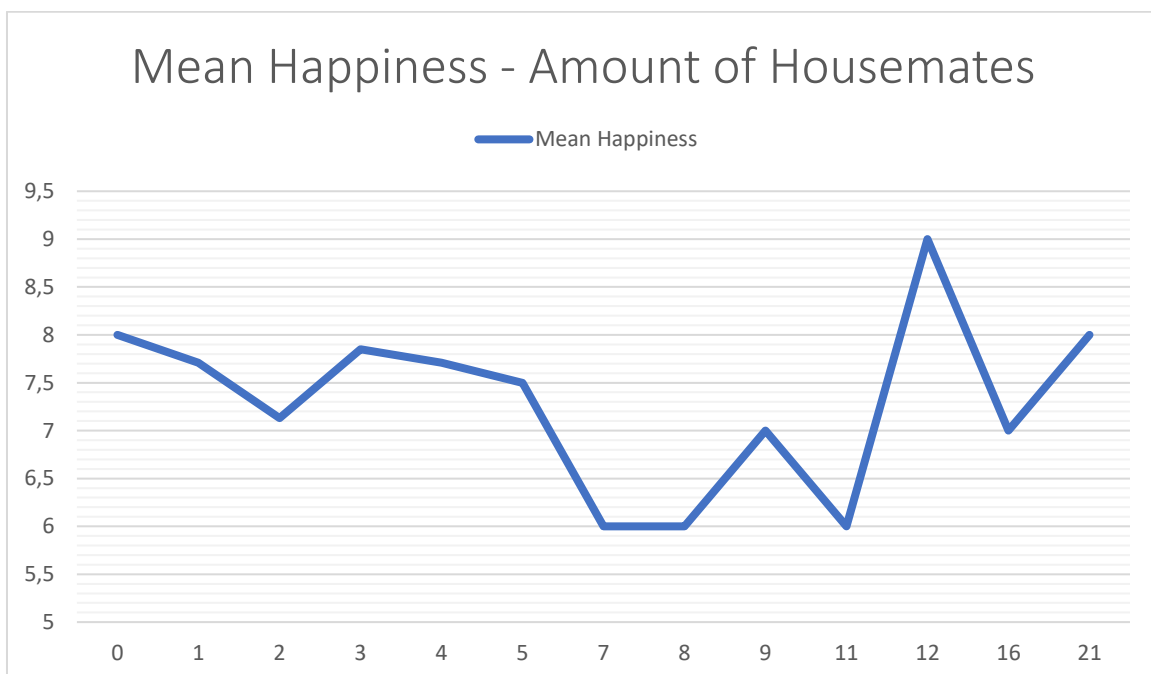


Figure 3 Mean happiness per amount of Housemates

4.3 Geographical analyses

This study also asked for a geographical analysis. To do this, the mean happiness of students has been calculated per neighborhood of Groningen. In figure 4 one can see a map of Groningen with the different neighborhoods that were taken into account in this research. The mean happiness per neighborhood is displayed within the different neighborhoods with a grade. Looking at the map, there is not really a clear pattern visible. Higher and lower grades are more or less spread over the city and do not necessarily stick to one side of the city. This contradicts with previous research of Mouratidis (2019) and Morris (2019), who both found visible patterns (although contradicting each other). Location specific factors as indicated in the research of Brereton et al (2008) can not be checked since the indicated neighborhoods are too big, to see an influence of a road or for example a landfill.

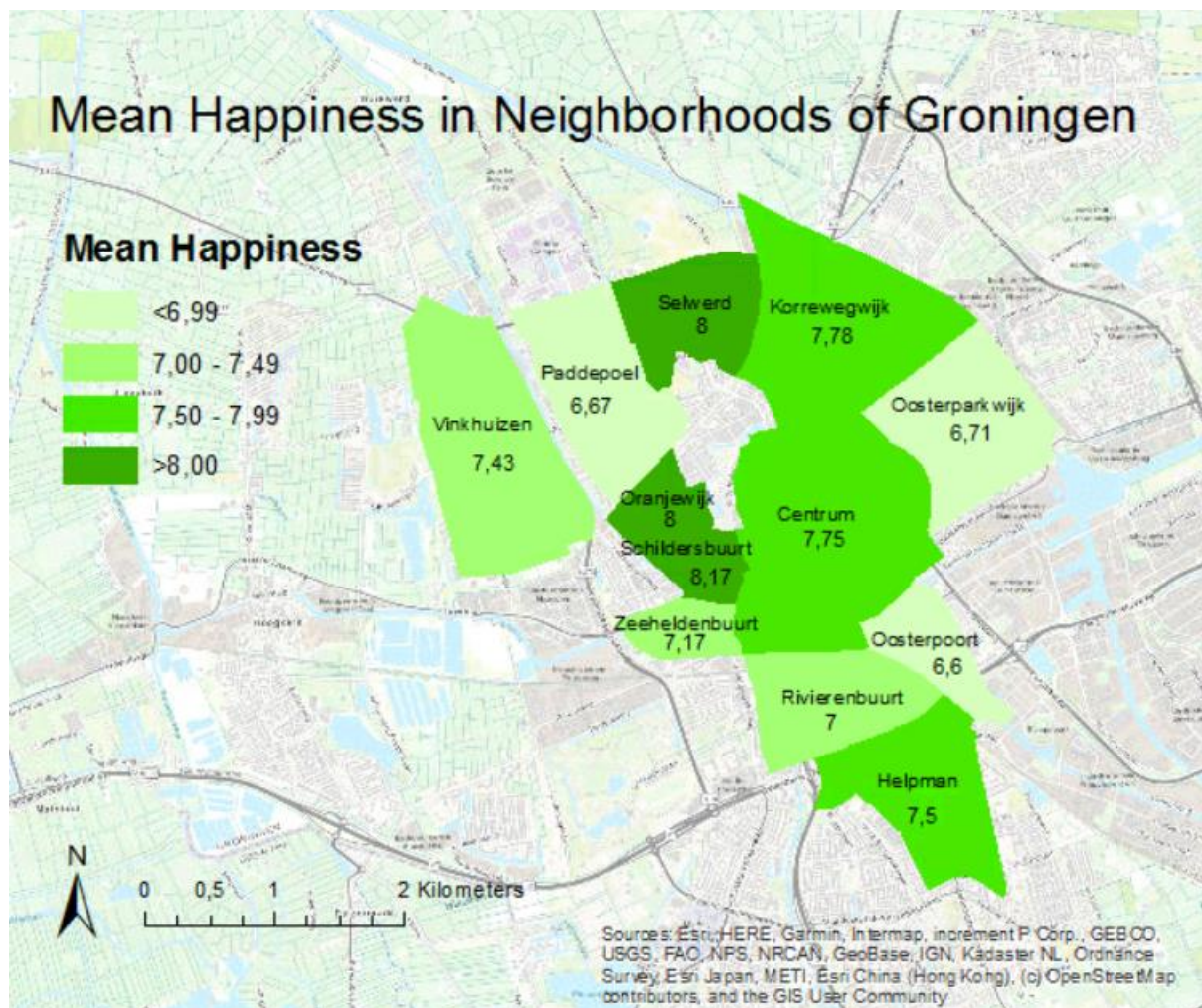


Figure 4 Map Mean happiness in neighborhoods of Groningen

4.4 Statistical analysis

To answer the research questions a statistical analysis was necessary. This has been done with the help of an ordinal logistic regression (see appendix 2 & table 3). The responses of the dependent variable Happiness have been put into 3 categories. 1 'unhappy' being grades 1 to 6, 2 'moderately happy' refers to responses which indicated a happiness grade of 7 and 3 'very happy' being grades of happiness 8 to 10. This was done to prevent categories from having a very low number of cases.

Regression results								
		Estimate	Std. Error	Wald	df	Sig.	95% Confidence Interval	
							Lower Bound	Upper Bound
Threshold	Hapiness = 1	6,873	12,619	,297	1	,586	-17,859	31,606
	Hapiness = 2	10,356	12,686	,666	1	,414	-14,508	35,220
Location	Square meters room	-,009	,082	,012	1	,914	-,170	,153
	Private amenities	,386	,551	,490	1	,484	-,694	1,466
	Shared amenities	,061	,306	,039	1	,843	-,539	,660
	Amount of Housemates	-,166	,227	,536	1	,464	-,610	,278
	Amount of interactions	-,012	,006	4,224	1	,040	-,024	-,001
	Meaningful interactions	,252	,205	1,511	1	,219	-,150	,654
	Noise level	,526	,242	4,714	1	,030	,051	1,000
	Age	,497	,320	2,407	1	,121	-,131	1,124
	Rent=101-200	-10,313	6,782	2,313	1	,128	-23,606	2,979
	Rent=201-300	-7,309	6,566	1,239	1	,266	-20,178	5,561
	Rent=301-400	-8,674	6,162	1,982	1	,159	-20,751	3,402
	Rent=401-500	-6,535	6,288	1,080	1	,299	-18,860	5,790
	Rent=501-600	-16,323	8,561	3,636	1	,057	-33,102	,456
	Rent=601-700	-6,632	4,718	1,976	1	,160	-15,879	2,616
	Gender=Female	,686	1,114	,379	1	,538	-1,497	2,869
	Disposable income=0-200	1,315	5,225	,063	1	,801	-8,925	11,555
	Disposable income=201-400	3,309	5,008	,437	1	,509	-6,507	13,125
	Disposable income=401-600	1,876	4,922	,145	1	,703	-7,771	11,523
	Disposable income=601-800	1,433	4,583	,098	1	,755	-7,549	10,415
Disposable income=801-1000	2,486	4,221	,347	1	,556	-5,787	10,758	

Disposable income=1001-1200	-,167	4,999	,001	1	,973	-9,964	9,631
Disposable income=1201-1400	30,051	,000	.	1	.	30,051	30,051
Neighborhood= Helpman	2,427	2,386	1,035	1	,309	-2,249	7,102
Neighborhood= Korrewegwijk	1,266	1,709	,549	1	,459	-2,084	4,615
Neighborhood= Oosterparkwijk	,621	2,060	,091	1	,763	-3,418	4,659
Neighborhood= Oosterpoort	-1,973	1,901	1,078	1	,299	-5,699	1,752
Neighborhood= Oranjewijk	19,694	,000	.	1	.	19,694	19,694
Neighborhood= Other	3,320	2,258	2,162	1	,141	-1,106	7,747
Neighborhood= Paddepoel	2,935	1,990	2,176	1	,140	-,965	6,835
Neighborhood= Rivierenbuurt	-,598	2,251	,071	1	,790	-5,009	3,813
Neighborhood= Schildersbuurt	28,435	3693,8 44	,000	1	,994	-7211,366	7268,23 5
Neighborhood= Selwerd	3,656	2,434	2,255	1	,133	-1,115	8,427
Neighborhood= Vinkhuizen	1,440	1,665	,749	1	,387	-1,822	4,703

Reference categories: Rent – More than 700, Gender – Male, Disposable income – More than 1400, Neighborhood - Zeeheldenbuurt

Table 3 Regression results

Looking at the regression outcome in table 3, one can see that most of the independent variables are insignificant. All the variables regarding housing characteristics are insignificant. The variables regarding social interactions differ a lot from each other. The number of housemates and quality of interaction with housemates are both insignificant, however amount of interaction with housemates is significant with a significance level of 0,040 and an estimate of -0,012. The noise level variable is also significant with a significance level of 0,030 and an estimate of 0,526.

Housing characteristics

As mentioned above none of the four variables regarding housing characteristics had a significant result. Which suggests that housing characteristics have no influence on the happiness of students in Groningen. This lack of significance could be due to the fact that the sample size was rather small. However, all the housing characteristics are objective measures, which according to Amole (2009)

are of less importance than subjective measures and have less to no influence. Which is in line with the results.

Social interactions

With social interactions only the amount of interactions with housemates has an influence on the happiness of students living in Groningen, which is in line with the findings of Dittman & Goebel (2010) who stated that more contact with neighbors leads to more happiness. The fact that amount of housemates is not significant might also be because it is an objective measure. But with both the quality of interactions and the amount of housemates the lack of significance might be caused by a small sample size. Looking at these results, the amount of housemates and the quality of interactions do not influence the happiness of student living in Groningen.

The amount of interactions has an negative influence on the happiness of students living in the city of Groningen. This is contradicting with what Ozturk & Mutlu (2010) and Satici (2016) found in their research, who associated social interactions positively with happiness. However the influence found in this research is very small. So it will not affect the happiness that much. But the fact that interactions have an influence and the housing characteristics mentioned above do not, supports the second hypothesis from this research and with the findings of Chatman et al. (2009)

Noise level

Like mentioned above the variable of the noise levels has a significant result. Noise level has a positive influence on the happiness of students in the city of Groningen. The fact that it has an influence on happiness is in line with the second hypothesis, because it has more influence than housing characteristics.

However, as mentioned in hypothesis one, a negative influence on happiness was expected and not the positive influence that is found in the results of the regression. this finding is in line with what Benita et al (2019) found in their research. However this finding contradicts with a lot of other previous research, who all found negative influences (Rehdanz & Maddion, 2005; Cunado & Perez de Garcia, 2013; Lawton & Fujiwara, 2016; Dzhambov et al, 2018; Moeinaddini et al, 2020; Brereton et al, 2008; Meng et al, 2020; Thacher et al, 2020; Santika et al, 2017). Reasons for these conflicting results might have something to do with one of these three things: 1 The noises that are experienced come from things that are considered fun, and thus they don't mind the noise. 2 The people who indicate a high noise level and still a high level of happiness, are people who have lived in the city their whole life and are therefore used to the noise. 3 The people who indicate high noise levels and also a high level of happiness have a high number of housemates, which gives them a distraction from the noise.

Looking at assumption 1, Rek (2012) states that it depends what the noise is and who makes it. If noise is coming from something or someone that you like, it will be experienced with less annoyance. An example for this might be for people living in the inner city. Groningen is a real student city and is thus very alive at night in the midweek thus more noisy (Emma, 2019). But if a student likes going out for example, he or she might experience noise at night from people who are going out, less annoying than people who do not like those activities at all. However this assumption is not completely backed up by the data. The four neighborhoods who have the most noise are in fact in or close to the inner city (Centrum, Oosterparkwijk, Oosterpoort and Schildersbuurt) (see figure 5), however two of those areas have a high mean happiness and two have a low mean happiness (see figure 4). But a thing to take into account with the data in the maps, is that it has not been controlled for other variables yet, like in the regression.

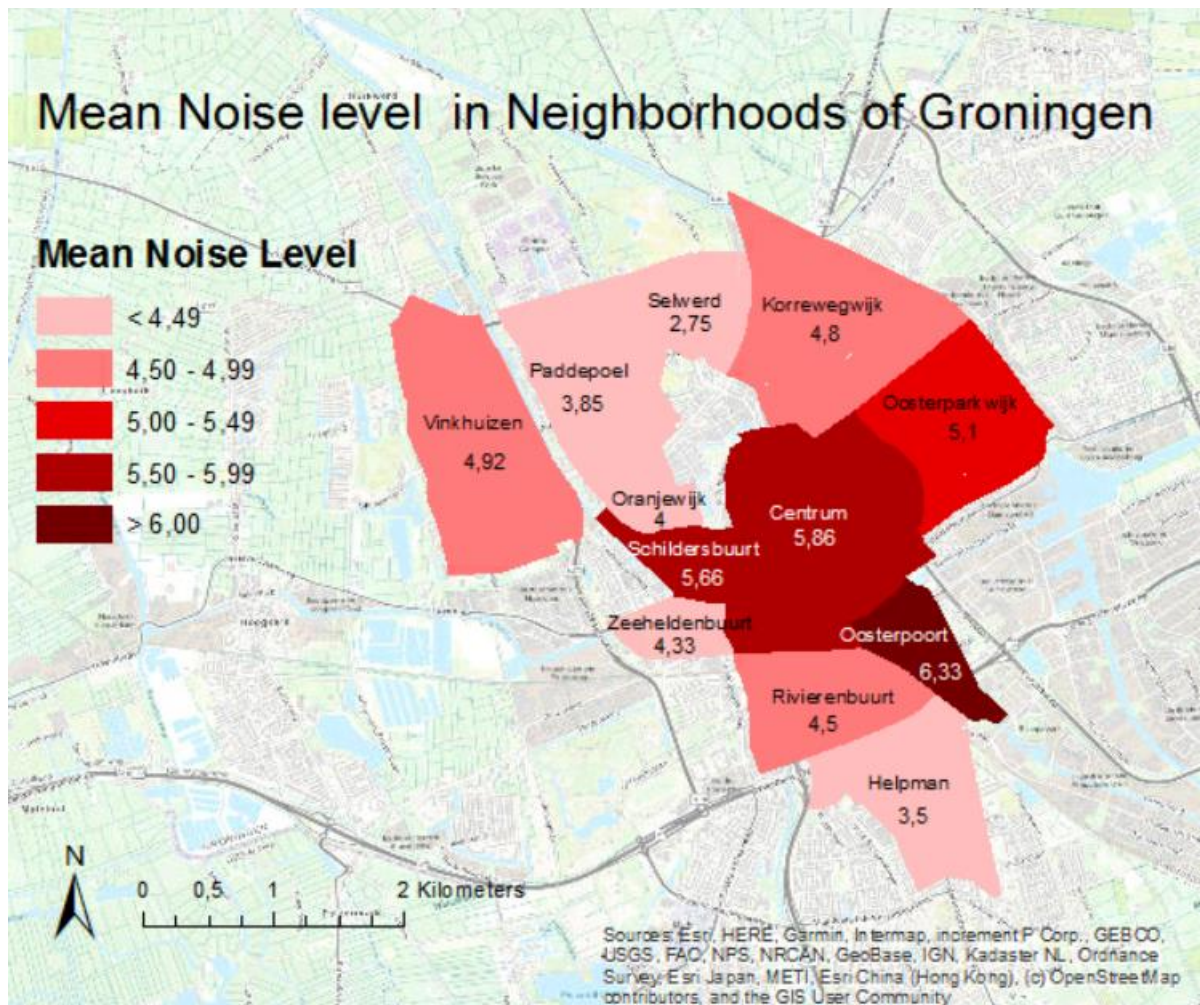


Figure 5 Map mean noise level in Neighborhoods of Groningen

Moving on to assumption 2, students who lived their whole life in the city are used to the noise. A student who lived in a rural area and moved to the city of Groningen, might have more annoyance when it comes to noise, which could lead to a lower happiness level as expected. Because they are used to more silence where they used to live. So they really have to adjust. Whereas students who lived in the city, which are considered more noisy than the rural areas, their whole lives, might be so used to the noise, that they can not even live without it. So they see the noise as a contribution to their happiness. It would be interesting to see if this is really the case. It might be the case that in this research the respondents consisted out of a lot of students who lived in the city their whole lives. However this can not be verified, since this question was not asked. Previous research about this topic does state that adjusting to noise that has not been experienced before (so not their whole life's), is not so easily adjusted to. For example Frederick & Loewenstein (1999) studied traffic noise in an area over the course of one year and found that the annoyance only grew over the period of a year.

And lastly assumption 3, housemates can give someone a distraction from the noise. If one has good contact with the housemates, it could be that one does not get annoyed by the noise outside as much, because they are busy with other things. So because they interact with their housemates, they are not bothered as much by noise. A thing to take into account is that in the survey question about the noise level, noise was described as sounds that could come from outside of as well as from within the house. So this means that the noise could also come from the housemates, which could then still

annoy someone, unless of course they contribute to the noise together with them or one is less annoyed by it because they like their housemate (Rek, 2012), but these things will probably not always be the case. Since, in the survey there is no distinction made between noise coming from inside or outside the house, it is hard to see whether this assumption is actually the true.

Summary results

Looking at the subchapter happiness patterns, it seems that both amount of housemates and square meter of room have an influence on the happiness of students in the city of Groningen. However this result is not backed up by the actual statistical analyses. Looking at the statistical analyses housing characteristics do not have an influence on the happiness of students living in the city of Groningen. The noise level and the amount of interactions do have an influence on the happiness of students living in the city of Groningen. The rest of the factors considering social interactions do not seem to have an influence.

The fact that noise level and social interactions have more influence than housing characteristics is in line with the research of Chatman et al. (2019). The statement of Amole (2009) and Muslim et al. (2012) that subjective measures are of more importance than objective measure is also in line with the research. However, it is important to state that not all subjective measures had an influence, like for example the meaningfulness of interactions.

The fact that housing characteristics did not influence happiness at all contradicts with a large part of the literature. According to Najib et al. (2012) amenities should have influenced the happiness in a positive way, but according to the results neither private amenities or shared amenities have an influence on the happiness. Toa (2015) states that improvement of housing characteristics will also lead to more happiness, which is not seen back in this research, but this could also be the case, because in this research improvements were not taken into account. And lastly Abdullah et al. (2013) also expected a positive influence of residential conditions on happiness. However, Frederick & Loewenstein (1999) report that Material goods are not of great importance.

Amount of social interactions had a very small negative influence on the happiness of students living in the city of Groningen. Abdullah et al. (2013), Ozturk & Mutlu (2010) and Satici (2016) had found a positive result, which is the opposite of the results, but like mentioned before the negative impact is very small.

And lastly, noise level have a positive influence on the happiness of students living in the city of Groningen. Which is the complete opposite result of what was expected. Because just like a lot of previous research found, a negative impact was expected (Rehdanz & Maddion, 2005; Cunado & Perez de Garcia, 2013; Lawton & Fujiwara, 2016; Dzhambov et al, 2018; Moeinaddini et al, 2020; Brereton et al, 2008; Meng et al, 2020; Thacher et al, 2020; Santika et al, 2017; Weinstein, 1978). There might be various reasons for this conflicting result, however none of them can be proven with this dataset.

5. Conclusion

This research has given insight into the influence of living conditions on the happiness of student living in Groningen. This insight is of importance to understand what contributes to the well-being of students and could be used as a source for housing corporations, so that they can take into account what factors of living conditions are important to students.

In this study surveys were collected among students in the city of Groningen. In this survey, next to question about their happiness, questions about housing characteristics, social interactions with housemates and noise levels were asked. This was done to get an insight in to what extent these factors contribute to happiness among students. Looking at the results the following conclusions can be made.

5.1 Findings

Looking at the descriptive statistics there seemed to be patterns in the variables of amount of housemates and square meters of the room. However, with both of these variables the regression did not support this finding. Looking at the regression housing characteristics does not have an influence on the happiness of students. Social interactions with housemates partly has an influence on the happiness of students in Groningen, since only one of the variables (amount of social interactions) had a significant result. Noise level does have an influence on the happiness of students living in the city of Groningen. These results are in line with the research of Chatman et al. (2019) and Amole (2009), since the social interactions prove to be of more importance than housing characteristics and subjective measures are of more importance than objective measures. However also some interesting differences were found. With both significant variables the influence was different than expected. Noise level was found to have an positive effect on happiness and amount of social interactions a slightly negative effect. This is contradicting with a lot of previous literature, who all found opposite results to this regarding the direction of the impact (Rehdanz & Maddion, 2005; Cunado & Perez de Garcia, 2013; Lawton & Fujiwara, 2016; Dzhambov et al, 2018; Moeinaddini et al, 2020; Brereton et al, 2008; Meng et al, 2020; Thacher et al, 2020; Santika et al, 2017; Weinstein, 1978; Abdullah et al, 2013; Ozturk & Mutlu, 2010; Satıcı, 2016). Since the negative influence of amount of social interactions was very small, we could say that it does not really impact the happiness in a negative way. However the impact of the noise levels on happiness was rather big. So reasons for the fact that this influence is positive instead of negative might be: 1 The noises that are experienced come from things that are considered fun, and thus they don't mind the noise. 2 The people who indicate a high noise level and still a high level of happiness, are people who have lived in the city their whole life and are therefore used to the noise. 3 The people who indicate high noise levels and also a high level of happiness have a high number of housemates, which gives them a distraction from the noise. However, none of these assumptions can be proven with this dataset.

5.2 Strengths and weaknesses

A weakness of this research was that the data was gathered completely online, which makes it a bit harder to spread randomly and leads to less control in who fills out the survey. Some common advantages of online surveys are speedy distribution and response cycles. It relates a lot to postal survey content results. However the design of the survey might be a bit more complicated and one has less control over the presentation of the survey. (Andrews et al, 2003). The statement that the design is a little more difficult than paper-based survey, was indeed true. Since one has to pay close

attention to all the setting in the online survey, because otherwise there might be complications for respondents when filling it out (not being able to answer question etc.)

Due to the corona virus arising in the beginning phase of this research, the original plan for data collection had to be adjusted to a complete online method. Luckily a strength of this research was that this was rather easy to do. The original plan was to collect surveys on the Zernike campus. The survey would have still been collected online, because this was easier and faster for inserting data into SPSS. Most students also have laptops and mobile with them and might have even found it more convenient to fill it in online. The difference with how the research was conducted right now is that pieces of paper with a link/QR code to the survey would have been distributed at the entrance of different university buildings. The data would have been collected randomly on the campus, so it would have been a random sample (Burt et al. 2009). Data would not have been gathered in certain neighborhoods in Groningen, this to avoid clusters of students (housing). Students can come from the whole city of Groningen, so gathering the data in one neighborhood would not have been representative.

5.3 Recommendations for future research

Some recommendations for future research are to look more into why the noise levels had a negative impact on the happiness. With this the assumptions mentioned could be taken into account and see if this could actually be the case. An example for how the conceptual framework might than look can be seen in figure 6.

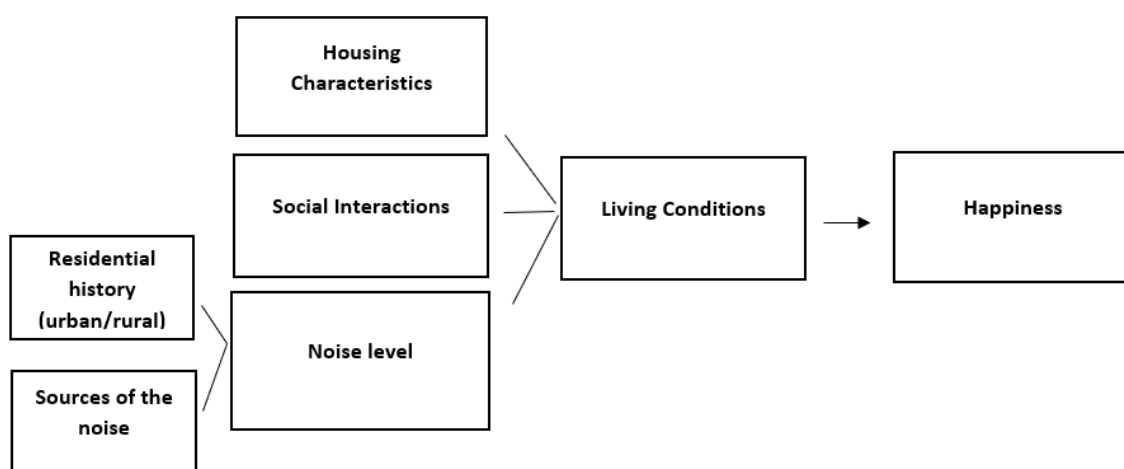


Figure 6 Example of conceptual framework future research

Another thing that might be interesting to look into further is whether the results would be different if residential satisfaction was used instead of Happiness. Residential satisfaction was measured in this research, but due to time limits, word count and keeping a clear overview. This has not been done in this research. It would also be interesting to see if the same patterns/results are visible in other student cities in the Netherlands as well.

6. References

- Abdullah, IC., Muslim, MH., Karim, HA. (2013). *An assessment on variable reliability in investigating students' living satisfaction in private housing environment*. Social and behavioral sciences. 101. 354-367.
- Amole, D. (2009). *Residential satisfaction in students' housing*. Journal of environmental psychology. 29. 76-85.
- Andrew, D., Nonnecke, B., Preece, J. (2003). *Electronic survey methodology: a case study in reaching hard to involve internet users*. International journal of Human-computer interaction. 12(2). 185-210.
- Benita, F., Bansal, G., Tuncer B. (2019). *Public spaces and happiness: Evidence from a large-scale field Experiment*. Health and Place. 56. 9-18.
- Bieda, A., Hirschfeld, G., Schonfeld, P., Brailovskaia, J., Line, M., Margraf, J. (2019). *Happiness, life satisfaction and positive mental health: investigating reciprocal effects over four years in a chinese student sample*. Journal of research in personality. 78. 198-209.
- Brereton, F., Clinch, JP., Ferreira, S. (2008). *Happiness, geography and the environment*. Ecological economics. 65. 386-396.
- Brooks, J., Attenborough, K., Utley, WA. (1989). *Student-based surveys of noise levels around and inside dwellings in the united kingdom*. Journal of sound and vibration. 132(2). 317-330.
- Burt, JE., Barber, GM., Rigby, DL. (2009). *Elementary statistics for geographers*. 3th edition. New York: The Guilford Press.
- Chatman, D., Broadbent, A., Spevack, A. (2019). *Are movers irrational? On travel patterns, housing characteristics, social interactions, and happiness before and after a move*. Travel behavior and society. 262-271.
- Clifford, N., Cope, M., Gillespie, T., French, S. (2016). *Key methods in geography*. 3th edition. Los Angeles: Sage publications.
- Dang, Y., Chen, L., Zhang, W., Zheng, D., Zhan, D. (2020) *How does growing city size affect residents' happiness in urban China? A case study of the Bohai rim area*. Habitat international. 97.
- Dittman, J., Goebel, J. (2010). *Your house, your car, your education: the socioeconomic situation of the neighborhood and its impact on life satisfaction in Germany*. Soc. Indic. Res. 96 (3). 497-513.
- Dongen, E. (2014). *Wonen in een studentenhuis: vloek of zegen*. Retrieved on 28/02/20. URL: <https://www.dub.uu.nl/nl/achtergrond/wonen-een-studentenhuis-vloek-zegen>
- Duijn, M. (2019) *lecture 5*. Methods of academic research.
- Dzhambov, AM., Markevych, I., Tilov, BG., Dimitrova, DD. (2018). *Residential greenspace might modify the effect of road traffic noise exposure on general mental health in students*. Urban forestry & urban greening. 34. 233-239.
- Emma. (2019). *De beste uitgaanssteden van Nederland*. Retrieved on 09/07/2020. URL: <https://avondacademie.nl/de-beste-uitgaanssteden-van-nederland/>

- Frederick, S., Loewenstein, G. (1999). Hedonic adaptation In: Kahneman, D. Diener, E. Schwarz, N (ed.), *Well being: The foundations of hedonic Psychology* (pp. 302 -330). Russell sage foundation: New York.
- Kwak, KM., Ju, YS., Kwon, YJ., Chung, YK., Kim, BK., Kim, H., Youn, K. (2016) *the effect of aircraft noise on sleep disturbance among the residents near a civilian airport: a cross-sectional study*. *Annals of occupational and environmental medicine*. 28. 28-38.
- Lawton, R., Fujiwara, D. (2016). *Living with aircraft noise: airport proximity, aviation noise and subjective wellbeing in England*. *Transport environment*. 42. 104-108.
- Lee, PJ., Shim, MH., Jeon, JY. (2010). *Effects of different noise combinations on sleep, as assessed by a general questionnaire*. *Appl. Acoust.* 71. 870-875.
- Meng, Q., Zhang, J., Kand, J., Wu, Y. (2020). *Effects of sound environment on the sleep of college students in China*. *Science of the total environment*. 705.
- Moeinaddini, M., Asadi-Shekari, Z., Aghaabbasi, M., Saadi, I., Shah, MZ., Cools, M. (2020). *Proposing a new score to measure personal happiness by identifying the contributing factors*. *Measurement*. 151.
- Morris, EA. (2019). *Do cities or suburbs offer higher quality of life? Intrametropolitan location, activity patterns, access, and subjective well-being*. *Cities*. 89. 228-242.
- Mouratidis, K. (2019). *Compact city, urban sprawl, and subjective well-being*. *Cities*. 92. 261-272.
- Muslim, MH., Karim, HA., Abdullah, IC. (2012). *Satisfaction of students' living environment between on-campus and off-campus settings: a conceptual overview*. *Social and behavioral sciences*. 68. 601-614.
- Najib, NUM., Yusof, NA., Sani, NM. (2012) *the effects of students' socio-physical backgrounds onto satisfaction with student housing facilities*. *Social and behavioral science*. 62. 64-74.
- Nu.nl. (2019). *Gemeenteraad wil dat studentenkamers minimaal 10 vierkante meter zijn*. Retrieved on 23/02/20. URL: <https://www.nu.nl/eindhoven/6013961/gemeenteraad-wil-dat-studentenkamers-minimaal-10-vierkante-meter-zijn.html>
- Ozturk, A., Mutlu, T. (2010). *The relationship between attachment style, subjective well-being, happiness and social anxiety among university students*. *Procedia social and behavioral sciences*. 9. 1772-1776.
- Papachristou, IA., Rosas-Casals, M. (2019). *Cities and quality of life. Quantitative modeling of the emergence of the happiness field in urban studies*. *Cities*. 88. 191-208.
- Pirrerera, S., Valck, ED., Cluydts, R. (2014). *Field study on impact of nocturnal road traffic noise on sleep: the importance of in- and outdoor noise assessment, the bedroom location and nighttime noise disturbances*. *Science of the total environment*. 500-501. 84-90.
- Punch, KF. (2014). *Introduction to social research*. 3th edition. Los Angeles: Sage publications
- Regelgeving Groningen. (2017). *Beleidsregels onttrekkingsvergunning woningvorming*. Retrieved on 25/02/20. URL: [https://decentrale.regelgeving.overheid.nl/cvdr/xhtmloutput/Historie/Groningen%20\(Gr\)/383351/383351_2.html](https://decentrale.regelgeving.overheid.nl/cvdr/xhtmloutput/Historie/Groningen%20(Gr)/383351/383351_2.html)
- Rehdanz, K., Maddison, D., (2005). *Climate and happiness*. *Ecological Economics* 52 (1), 111–125.

Rek, W. (2012). *Puur geluid*. Volkskrant. Retrieved on 09/07/2020. URL: <https://www.volkskrant.nl/nieuws-achtergrond/puur-geluid~bf60abe9/>

Santika, BB., Indrawati, S., Suyatno, Yahya, E. (2017). *Noise evaluation of traffic flows and its effect to concentration capability of the students in one of private school in Surabaya*. Procedia engineering. 170. 274-279.

Satici, SA., Uysal, R., Deniz, ME. (2016). *Linking social connectedness to loneliness: The mediating role of subjective happiness*. Personality and individual differences. 97. 306-310.

Smith, MG., Croy, I., Hammer, O., Persson Waye, K. (2016). *Vibration from freight trains fragments sleep: a polysomnography study*. Sci. rep. 6. 1-10.

Thacher, JD., Hvidtfeldt, UA., Poulsen, AH., Raaschou-Nielsen, O., Ketznel, M., Brandt, J., Jensen, SS., Overvad, K., Tjonneland, A., Munzel, T., Sorensen, M.. (2020). *Long-term residential road traffic noise and mortality in a Danish cohort*. Environmental research. 187.

The UK household longitudinal study. (2018). *Understanding Society Wave 9*.

Thompson, J. (2007). *Home experiences in student housing: about institutional character and temporary homes*. Journal of youth studies. 10(5). 577-596

Toa, LW. (2015). *The influence of housing characteristics on rural migrants' living condition in Beijing Fengtai district*. HBRC journal. 11. 252-263.

Venhorst, V. (2019). *Lecture 8: Binary logistic regression*. Statistics 2.

Vunado, j., Perez de garcia, F. (2013). *Environment and happiness: New evidence for Spain*. Social indic. Res. 112(3). 549-567

Walsh, A. (2015). *The effect of social interaction on mental health nurse student learning*. Nurse education in practice. 15. 7-12.

Weinstein, ND. (1978). *Individual differences in reactions to noise: a longitudinal study in a college dormitory*. Journal of applied psychology. 63. 458 – 466.

7. Appendix

7.1 Appendix 1 Survey

1. How many square meters is your room?
2. How much was the last rent payment, including any services and water charges in euros?
A 0-100
B 101-200
C 201-300
D 301-400
E 401-500
F 501-600
G 601-700
H more than 700
I Prefer not to say
3. Check off all the **Private** amenities you have
 - Kitchen
 - Bathroom
 - Sink
 - Restroom
 - Living room
 - Laundry room
 - Garden
 - Balcony
 - Shed
4. Check off all the **shared** amenities you have
 - Kitchen
 - Bathroom
 - Sink
 - Restroom
 - Living room
 - Laundry room
 - Garden
 - Balcony
 - Shed
5. How many roommates do you have?
6. How many times a week do you speak your roommate(s)?

This is an estimation. **This is all your roommates combined.** The interaction can also be digital. Every conversation counts as 1 time (no matter how long the conversation is)

7. On a scale from 1 (Not meaningful) to 10 (extremely meaningful), how meaningful would you say these conversations are to you? **This is the average from all roommates**
8. On a scale from 1 (None) to 10 (Extremely much), how much noise do you experience in your room? Noise= sounds from roommates, neighbors, traffic and other things from outside which are considered to be irritating
9. On a scale from 1 (Extremely unhappy) to 10 (extremely happy), how do you feel about your life as a whole?
10. On a scale from 1 (Extremely unhappy) to 10 (extremely happy), how do you feel about your living situation as a whole?
11. What is your age?
12. What is your gender?
 - A Male
 - B Female
 - C Other
 - D Prefer not to say
13. What is your monthly disposable income in euros? (this can be from a loan, a job, or other sources like family)
 - A 0-200
 - B 201-400
 - C 401-600
 - D 601- 800
 - E 801-1000
 - F 1001- 1200
 - G 1201- 1400
 - H more than 1400
 - I Prefer not to say
14. In which neighborhood of Groningen do you live?

A Vinkhuizen	J Centrum
B Paddepoel	K Korrewegwijk
C Oranjewijk	L Beijum
D Schildersbuurt	M Tuinbouwbuurt
E Selwerd	N Zeeheldenbuurt
F Rivierenbuurt	O De wijert
G Helpman	P Lewenborg
H Oosterpoort	Q Hoornse meer
I Oosterpark	R Other

7.2 Appendix 2 Ordinal logistic regression results

Case Processing Summary			
		N	Marginal Percentage
hapinesslevel3	1,00	9	12,3%
	2,00	27	37,0%
	3,00	37	50,7%
Q2Rent	101-200	4	5,5%
	201-300	19	26,0%
	301-400	33	45,2%
	401-500	9	12,3%
	501-600	4	5,5%
	601-700	3	4,1%
	More than 700	1	1,4%
Q14Gender		1	1,4%
	Female	57	78,1%
	Male	15	20,5%
Q15Disposibleincome		1	1,4%
	0-200	2	2,7%
	1001- 1200	12	16,4%
	1201- 1400	1	1,4%
	201-400	13	17,8%
	401-600	15	20,5%
	601- 800	15	20,5%
	801-1000	13	17,8%
	More than 1400	1	1,4%
Q16Neighborhood	Centrum	8	11,0%
	Helpman	2	2,7%
	Korrewegwijk	9	12,3%
	Oosterparkwijk	7	9,6%
	Oosterpoort	5	6,8%
	Oranjewijk	1	1,4%
	Other	4	5,5%
	Paddepoel	6	8,2%
	Rivierenbuurt	2	2,7%
	Schildersbuurt	6	8,2%
	Selwerd	3	4,1%
	Vinkhuizen	14	19,2%
	Zeeheldenbuurt	6	8,2%
	Valid	73	100,0%
Missing	14		

Total	87
-------	----

Model Fitting Information				
Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	141,674			
Final	83,236	58,438	36	,010

Link function: Logit.

Goodness-of-Fit			
	Chi-Square	df	Sig.
Pearson	155,962	108	,002
Deviance	83,236	108	,963

Link function: Logit.

Pseudo R-Square	
Cox and Snell	,551
Nagelkerke	,643
McFadden	,412

Link function: Logit.

Parameter Estimates								
		Estimate	Std. Error	Wald	df	Sig.	95% Confidence Interval	
							Lower Bound	Upper Bound
Threshold	[hapinesslevel3 = 1,00]	6,873	12,619	,297	1	,586	-17,859	31,606
	[hapinesslevel3 = 2,00]	10,356	12,686	,666	1	,414	-14,508	35,220
Location	Q1Squaremetersroom	-,009	,082	,012	1	,914	-,170	,153
	Q3Privateamenities	,386	,551	,490	1	,484	-,694	1,466
	Q4Sharedamenities	,061	,306	,039	1	,843	-,539	,660
	Q5Amountroommates	-,166	,227	,536	1	,464	-,610	,278
	Q6Interactionswhole	-,012	,006	4,224	1	,040	-,024	-,001
	Q7Meaningfullinteractionswhole	,252	,205	1,511	1	,219	-,150	,654
	Q10Noiselevel	,526	,242	4,714	1	,030	,051	1,000
	Q13Age	,497	,320	2,407	1	,121	-,131	1,124
[Q2Rent=101-200]	-10,313	6,782	2,313	1	,128	-23,606	2,979	

[Q2Rent=201-300]	-7,309	6,566	1,239	1	,266	-20,178	5,561
[Q2Rent=301-400]	-8,674	6,162	1,982	1	,159	-20,751	3,402
[Q2Rent=401-500]	-6,535	6,288	1,080	1	,299	-18,860	5,790
[Q2Rent=501-600]	-16,323	8,561	3,636	1	,057	-33,102	,456
[Q2Rent=601-700]	-6,632	4,718	1,976	1	,160	-15,879	2,616
[Q2Rent=More than 700]	0 ^a	.	.	0	.	.	.
[Q14Gender=]	15,369	,000	.	1	.	15,369	15,369
[Q14Gender=Female]	,686	1,114	,379	1	,538	-1,497	2,869
[Q14Gender=Male]	0 ^a	.	.	0	.	.	.
[Q15Disposableincome=]	-18,209	,000	.	1	.	-18,209	-18,209
[Q15Disposableincome= 0-200]	1,315	5,225	,063	1	,801	-8,925	11,555
[Q15Disposableincome= 1001- 1200]	-,167	4,999	,001	1	,973	-9,964	9,631
[Q15Disposableincome= 1201- 1400]	30,051	,000	.	1	.	30,051	30,051
[Q15Disposableincome= 201-400]	3,309	5,008	,437	1	,509	-6,507	13,125
[Q15Disposableincome= 401-600]	1,876	4,922	,145	1	,703	-7,771	11,523
[Q15Disposableincome= 601- 800]	1,433	4,583	,098	1	,755	-7,549	10,415
[Q15Disposableincome= 801-1000]	2,486	4,221	,347	1	,556	-5,787	10,758
[Q15Disposableincome= More than 1400]	0 ^a	.	.	0	.	.	.
[Q16Neighborhood=Centrum]	7,449	2,952	6,366	1	,012	1,662	13,236
[Q16Neighborhood=Helipman]	2,427	2,386	1,035	1	,309	-2,249	7,102
[Q16Neighborhood=Korrewegwijk]	1,266	1,709	,549	1	,459	-2,084	4,615
[Q16Neighborhood=Oosterparkwijk]	,621	2,060	,091	1	,763	-3,418	4,659
[Q16Neighborhood=Oosterpoort]	-1,973	1,901	1,078	1	,299	-5,699	1,752
[Q16Neighborhood=Oranjewijk]	19,694	,000	.	1	.	19,694	19,694
[Q16Neighborhood=Other]	3,320	2,258	2,162	1	,141	-1,106	7,747

[Q16Neighborhood=Pa ddepoe]	2,935	1,990	2,176	1	,140	-,965	6,835
[Q16Neighborhood=Riv ierenbuurt]	-,598	2,251	,071	1	,790	-5,009	3,813
[Q16Neighborhood=Sc hildersbuurt]	28,435	3693,844	,000	1	,994	- 7211,36 6	7268,235
[Q16Neighborhood=Sel werd]	3,656	2,434	2,255	1	,133	-1,115	8,427
[Q16Neighborhood=Vin khuizen]	1,440	1,665	,749	1	,387	-1,822	4,703
[Q16Neighborhood=Ze eheldenbuurt]	0 ^a	.	.	0	.	.	.

Link function: Logit.

a. This parameter is set to zero because it is redundant.

Test of Parallel Lines^a				
Model	-2 Log Likelihood	Chi-Square	df	Sig.
Null Hypothesis	83,236			
General	57,630 ^b	25,607 ^c	36	,901

The null hypothesis states that the location parameters (slope coefficients) are the same across response categories.

a. Link function: Logit.

b. The log-likelihood value cannot be further increased after maximum number of step-halving.

c. The Chi-Square statistic is computed based on the log-likelihood value of the last iteration of the general model. Validity of the test is uncertain.