NEIGHBORHOOD ENVIRONMENTS IN RELATION TO WELLBEING

To what extent does green space inside the neighborhood affect various aspects of people's wellbeing in relation to socioeconomic position?

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SUMMARY

The reduction of green areas in cities is a problem for the wellbeing of the inhabitants. People's mental, psychological, physical, cognitive, functional, and social wellbeing are stimulated by green environments. Concentration, focusing is stimulated, and stress is reduced in a natural environment. Actual and perceived health are higher, and people also feel less lonely when being in regular contact with nature. The influence of socioeconomic class on the amount of green areas in the direct neighborhood is also considered. The main research question in this thesis is: *To what extent does green space inside the neighborhood affect various aspects of people's wellbeing in relation to socioeconomic position?*

For this study, we used secondary data on neighborhood accessibility of green space, wellbeing, and socioeconomic position. Two datasets were collated: the RIVM Health Monitor, and the Esri: Groen per Buurt (Green per neighborhood) datasets. Using stratified correlations by income and linear regression models, we find that results of this regression proved to be significant. Therefore, there was evidence found that in the population, there is a difference in wellbeing related to the amount of green space in neighborhoods and socioeconomic positions.

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1. INTRODUCTION

As the population of the world is living more in cities, growing to approximately 70% as of 2050 (Lee & Maheswaran, 2010; Hunter et al., 2016), quality of life might be at stake. High-density is a key item in urban planning, but this urbanization process has a negative influence for the amount and qualities of the green areas in cities (Maas et al. 2006). Because of urbanization, people living in cities have less accessibility to green areas (Wolch et al., 2014; Maas et al., 2006; de Vries et al., 2003). Hunter et al. (2016) claims that this phenomenon has a negative influence on city life, as there is a relation between the standard of living and the amount of green areas thorough the city. People use green areas as places for their leisure time, and these areas are in some cases able to increase the livability score in places that are deflating in inhabitants (Maas et al., 2006). There is also evidence found that inhabitants of urban areas have worse health and wellbeing conditions (Lee & Maheswaran, 2010; Hunter et al., 2016).

Nature has a positive influence on the mental, psychological, physical, cognitive, functional, and social wellbeing. The Attention Restoration Theory of Kaplan & Kaplan (1989) gave evidence to the statement that concentration is stimulated by nature (Kaplan & Kaplan, 1989). Stimulation of concentration was perceived when people got in touch with nature, but this was also experienced by showing nature related pictures. This source is perceived as influential, as it contributed greatly to this way of thinking. The stress reduction theory by Dadvand and Nieuwenhuijsen (2018) also claims that stress is reduced when people are perceiving water nearby or having an open environment. Residents can also find a place of experienced peace in green areas (Wolch et al., 2014), which falls in line with the thoughts behind the two theories. Multiple sources indicate that people living in environments with a higher percentage of green areas have a higher perceived health (Maas et al. 2009; Lee & Maheswaran, 2010; de Vries et al. 2003) and actual health (Maas et al. 2006). Hunter et al. (2016) also states that a higher percentage of green areas improves people's spirits, by contributing positively to their temper, emotional healing, feeling of self-worth and attention. It also reduces the feeling of being tired. Maas et al. (2009) continues, as his work claims that the feeling of loneliness is reduced by having more green areas in the direct environment.

Children's and elder's wellbeing is also stimulated by a green environment. According to the two papers written by Bell & Dyment, both written in 2008, children in general are less stressed if they get in touch with nature (Bell & Dyment, 2008a) and develop better motoric skills in green environments (Bell & Dyment, 2008b). The development of the motoric skills is stimulated by natural environments because it provokes more different kinds of activity, including climbing, running, jumping, and finding balance. Playing in nature also stimulates children's physical activity (McCurdy, et al., 2010). Furthermore, the development of the brain is linked to being able to visit green areas. Having more green areas means a reduction of chances of having psychological complications, in behavior and emotions (Dadvand & Nieuwenhuijsen, 2018). The work of Wolch et al. (2014) states that behavioral

problems were observed by children that had fewer green areas available. Elderly people, next to the fact that green areas improve health in general according to statistical studies, also experience less health ailments (De Vries et al., 2003).

Green space accessibility is not equal across the city. The papers written by De Vries et al. (2003) and Dadvand & Nieuwenhuijsen (2018) state that having a larger percentage of green in the direct living area should be experienced as a luxury. Dadvand & Nieuwenhuijsen find that socioeconomic positions play a role with the amount of green in an area (Dadvand & Nieuwenhuijsen, 2018). People fitting in the lower socioeconomic classes are not able to move to neighborhoods with more green areas (Maas et al., 2006). Furthermore, people fitting in the higher socioeconomic classes do, and therefore have a higher chance of living in green environments (Dadvand & Nieuwenhuijsen, 2018) All three papers give reasons to suspect that this phenomenon creates different scales between the different socioeconomic classes (Maas et al., 2006; Dadvand & Nieuwenhuijsen, 2018; de Vries et al., 2003).

Traveling alone to green environments is also not possible for all inhabitants. The common perception of society regarding safety for children has changed, making it harder for children to visit green environments that have a larger distance from their homes. In the 18th century, it was common for children to go into forests alone, allowing them to travel a lot on their own (Rooijen, 2018). Nowadays, letting children travel for a long distance by themselves is perceived as dangerous by the majority of the Dutch inhabitants (Rooijen, 2018). The Behavioral Model of Environment (BME) used in the article of Frank & Van Loon (2011) is an example as possible evidence for the importance of green environments in the neighborhoods themselves. The BME simulates that movement between places is done between two certain points. These are start and destination of the travel process. The example is given that the children's homes and their schools are the origin and destination. The physical elements found in the area in between has the most influence on the actions of the people that pass through (Frank & Van Loon, 2011). When these two sources are evaluated next to one another, one would presume that the need for green in the direct living environment is essential.

To conclude this introduction, one can state that literature finds evidence for a relation between wellbeing and green in a city. This relation might, however, be influenced by the amount of green on neighborhood scale, which on its turn could be related to socioeconomic positions of the inhabitants. There is a research gap if the amount of green itself on neighborhood scale provides different levels/outcomes of wellbeing, with a direct relation to socioeconomic class kept in mind.

The goal of this study is to find evidence if there is a difference in wellbeing among people with different socioeconomic positions and the amount of green in their neighborhood. Therefore, in this thesis, the main research question is formulated as followed: *To what extent does green space inside the neighborhood affect various aspects of people's wellbeing in relation to socioeconomic position?*

This thesis is structured as followed: First, in chapter 2 the theoretical framework is presented, in which parts 2.1 and 2.2 evaluate the most important definitions for this study. Part 2.3 consists of the framework for this study. Second, chapter 3 is written about the data and methodology. In this chapter, the way in which the research was done is presented, giving insight in the process that contributed to the findings of this study. In chapter 4, the results of this process are evaluated and interpret. Afterwards, in chapters 5, a conclusion is presented how the research questions are answered, and what this means for urban planning on its own. In chapter 6, a discussion reflects upon the choices made and outcomes provided in this study.

2. THEORETICAL FRAMEWORK

2.1 Defining health and wellbeing

Important elements in this research thesis are the exact concepts of health and wellbeing. Both concepts have significant relations with green areas, which is stated by the sources in the introduction. In first instance, both definitions were researched by the World Health Organization:

> '*Health is the state of complete physical, mental and social wellbeing and not merely the absence of diseases or infirmity*' (WHO, 2021).
>
> '*Wellbeing is about feeling good and functioning well and comprises an individual's experience of their life, and a comparison of life circumstances with social norms and values*' (WHO 2012, cited by Department of Health 2014, p. 6).

The definition of wellbeing is seen as correct and will be used in this thesis. The reason behind this is that when reflected upon, the key aspects of this definition are corresponding with the findings in the introduction. Feeling well fits into the description of lesser stress, experiencing peace, experienced health, and the improvement of people's spirits. Functioning well is considered into the aspects of having a better concentration and the reduction of loneliness. This comparison of life circumstances with social norms and values is also relevant, as it is in line with the topic of this study.

The definition of health is not perceived as fitting. The WHO states that 'complete physical, mental and social wellbeing' is health itself, which is almost not possible when critically observed. People can still experience health while not meeting the criteria, which might be the message the WHO wants to give but is not stated in this definition. Because of this, a second definition is provided for this research program:

> '*Health is the ability to adapt and to self-manage, in the face of social, physical and emotional challenges*' (Huber, 2014).

When these two definitions are compared with one another, some similarities and differences occur. Social, physical, and emotional topics are of relevance regarding

health, according to both the WHO and Huber's definition. Health is seen by Huber as being able to take care of yourself. The ability to 'adapt and to self-manage' (Huber, 2014) is the important difference. This statement is more connected to the process of having more influence on how healthy someone is, as the written ability is something that one can train and work on. A state, as the WHO definition describes it, is less adaptable. It is something that occurs through factors. This, however, seems more in favor of the topic of more passive factors having an influence on someone's health and wellbeing.

Because this thesis focusses on wellbeing, aspects of importance to wellbeing are considered. First, concentration is stimulated, when people get in touch with nature (Kaplan & Kaplan, 1989; Hunter et al., 2016). Concentration is seen as a phenomenon that will be considered as part of wellbeing because it contributes greatly to the part of functioning well and to the individuals' experience of life. Second, stress reduction is also caused by a green environment (Dadvand and Nieuwenhuijsen, 2018; Bell & Dyment, 2008; Wolch et al. 2014). Stress is also more about wellbeing, as it is a direct factor that contributes to how an individual is feeling. Third, people perceive themselves as healthier and therefore feel better when in regular touch with nature (Maas et al, 2009; Lee & Maheswaran, 2010; De Vries et al., 2003; Hunter et al., 2016). Higher perceived health is a factor, that is more connected to the phenomenon of wellbeing, when put next to the definition. Perceived health is about what people feel, if they feel healthy and behave accordingly, which fits more with the definition of wellbeing. Lastly, green areas reduce the feeling of loneliness (Maas et al., 2009). Loneliness fits in with the social norms and values and feeling good.

2.2 Defining the direct natural environments

The World Health Organization also gives a definition for Urban Green Spaces. It is stated that Urban Green Spaces are:

> *"Urban space covered by vegetation of any kind" (WHO, 2017, p.7).*

A green area in an urban settlement. This definition is enough for this study, but to look more into the scales in which different authors specified their definition, another source is provided.

As a definition of what a fitting natural environment exactly is, the ANGST model is used by Comber et al (2008). The choice of using the ANGST model in their work was the fact that it gives a clear, measurable distinction between four categories of different kinds of 'natural greenspaces'. This categorization definition is efficient to differentiate how much natural greenspace is important within a certain distance. The ANGST Model is quoted from the work of Comber (2008):

- *No person should live more than 300 m from their nearest area of natural greenspace of at least 2 ha in size.*

- *There should be at least one accessible 20 ha site within 2 km from home.*
- *There should be one accessible 100 ha site within 5 km.*
- *There should be one accessible 500 ha site within 10 km.*

This first statement, that people should live in 300 meters from their nearest area of natural greenspace, is also promoted in the work of Dadvand & Nieuwenhuijsen (2018). For this case study, inspiration from this model is taken, as it provides a solid thought that differences in scales of green is also of importance to citizens' wellbeing. The Behavioral Model of Environment (Frank & Van Loon, 2011) fit in this way of thinking. As mentioned earlier, movement between places is done between two certain points, and the area in between these points thereby affect them most (Frank & Van Loon, 2011), and people's homes are a general starting- and endpoint.

2.3 Framework of the study

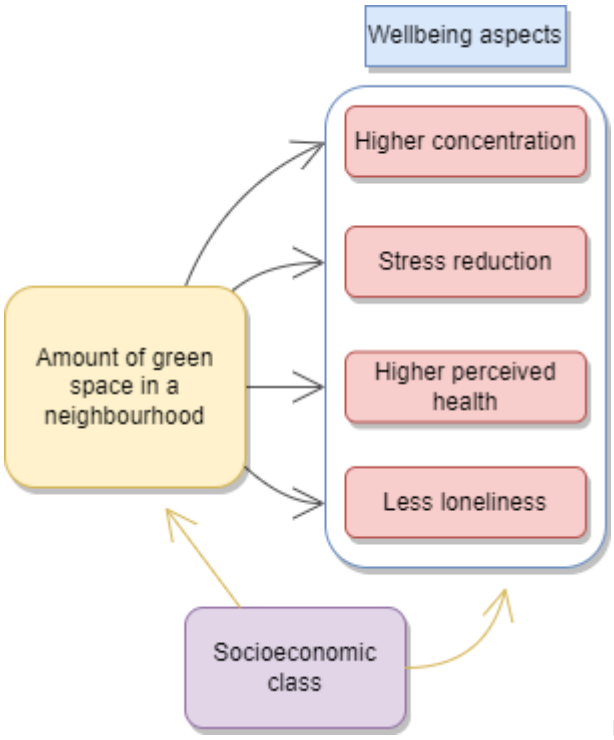

Figure 1: Conceptual model: characteristics of the study

The conceptual model, as seen in figure 1, shows the connection between the aspects of wellbeing and the amount of green areas in neighborhood environments. This is the basis of the study which will be researched in the context of the given sample. Therefore, the basis of the conceptual model is amount of green space in a neighborhood, which is the independent variable. This basis contributes to a level of higher wellbeing, which are the dependent variables. These aspects, concentration (Kaplan & Kaplan, 1989; Hunter et al., 2016), stress reduction (Dadvand and Nieuwenhuijsen, 2018; Bell & Dyment, 2008; Wolch et al. 2014), higher perceived health (Maas et al, 2009; Lee & Maheswaran, 2010; De Vries et al., 2003; Hunter et al., 2016) and less loneliness (Maas et al., 2009) are evidence for a

higher wellbeing. Because socioeconomic positions also have an influence on the amount of green areas in the neighborhood (Maas et al., 2006; Dadvand & Nieuwenhuijsen, 2018; de Vries et al., 2003), it also has an influence on the wellbeing of people. Therefore, it is seen as the most important confounder.

The H0 hypothesis is that in the population, there will be no difference in wellbeing with and without a natural environment within the neighborhood, split between socioeconomic classes. The alternative hypothesis, H1, is that in the population, there will be a difference in wellbeing found with different amounts of green areas within the neighborhood. The expectation of this study is that there will be no evidence that the H0 hypothesis is true.

3. DATA AND METHODOLOGY

3.1 Sources of the dataset

A dataset was made to compare the amount of green area space to different aspects of wellbeing, provided on neighborhood scale. This was done by using secondary data. The choice for using secondary data was made with different circumstances in mind. The first intent for this research project was to assemble primary data. Due to the corona pandemic, and the containment that comes with it, the circumstances were rated as unfavorable for this kind of approach. The containment of retrieving primary data was found in the difficulty to retrieve a sufficient amount of cases in a short time span. Therefore, the options for secondary data were analyzed.

First, the significant information for the number of green spaces in the neighborhood was retrieved. This was estimated by data collected from the "Groen per buurt" chart, created and provided by Esri. (Esri, 2018). This dataset was updated in 2021, and the chart shows the percentage of the amount of green area in said neighborhood. The Groen per buurt chart proved to be useful, as it gives a clear overlook of the amount of green in an environment.

Second, the wellbeing related information was created by using datasets made by the Dutch national health institute, RIVM (RIVM, 2021). RIVM made statistical data available regarding different elements of health and wellbeing. The elements on wellbeing were found in the source 'Gezondheid per buurt, wijk en gemeente', which makes statistical values available on different kinds of topics related to health and wellbeing on district and neighborhood scale (RIVM, 2021). This data was retrieved from 540.000 adult respondents in all the Netherlands, who contributed to the so called Gezondheidsmonitor volwassenen 2020 (RIVM, 2021). The dataset was created by using a model made by RIVM, which compensated statistics for the neighborhoods and districts that did not have enough response (RIVM, 2021). These are called small domain estimators, which were implemented to make a more representative view of the population.

As third part of the dataset, information about the socioeconomic positions of households per neighborhood was added, namely information found about the percentage of people who feel that they have difficulty getting by (RIVM, 2021). This information is also part of the Gezondheidsmonitor volwassenen 2020.

To be most precise, the dataset consists of statistical data per neighborhood, created with the following datasets collected from Esri and RIVM, shown in table 1:

ORGANISATION	NAME	YEAR
ESRI	Groen per buurt	2018, updated 2021
RIVM	Ervaren gezondheid	2020
	Risico op depressie	2020
	Stress	2020
	Eenzaamheid	2020
	Moeite met rondkomen	2020

Table 1: Used datasets provided by Esri (2021) and RIVM (2020)

The reason why this source was chosen, was because RIVM gave credible information that fitted the description of the theoretical framework most, giving information on neighborhood scale, which was the most essential prescription for this study. The difference in year between 2020 and 2021 is not seen as a problem.

3.2 Case study: Data research planning

The information found in the datasets from RIVM were available for all municipalities of the Netherlands, on neighborhood scale. The dataset provided by Esri made information available about the neighborhoods of larger settlements in the Netherlands. Therefore, there was a freedom to choose between different locations. In this freedom, it was chosen that the study would focus on neighborhoods that are part of one of the larger Dutch cities. However, an explicit choice was made to not choose a city that is part of the Randstad. The Randstad, the largest urban region in the Netherlands, was not seen as a fitting environment for this study, as the inhabitants of the region have a metropolitan mentality. As an already heavily urbanized region, this region would already have undergone a negative transformation regarding the quality and quantity of green areas (Maas et al. 2006). Thus, creating lesser accessibility to green areas altogether (Wolch et al., 2014, Maas et al., 2006; de Vries et al., 2003).

Afterwards, the choice was made to focus this sample on the neighborhoods of the municipality of Groningen. Groningen is one of the larger cities in the Netherlands that is not part of the Randstad and is regarded as a city that "has a good balance between construction, water and greenery" (IVN 2015, p. 5), making it a fitting study field. The statistics from RIVM and Esri were compiled into one dataset, thereby creating a fitting

dataset to work with in SPSS, which is found in appendix 1. The datasets combined prove to hold enough information for 106 cases in the municipality of Groningen, which is seen as enough cases for doing statistical research. Thereafter, the research was executed in three phases in SPSS.

First, the descriptive statistics were calculated, in which the mean, standard deviation and histograms were provided. The reason for calculating the mean is to give insight in the average for the study groups, granting the opportunity to overview which neighborhoods are lower or higher than average. The standard deviation gives insight how much the distribution of the variable is, to know how much it differs from the mean. It will indicate if the data from the neighborhoods is alike, or that there is a larger distribution. The histogram displays in which manner the data is distributed.

Second, a correlation study was executed. In this study, two correlation tables for the dataset were calculated. The first was executed with the normal dataset. This correlation table summarizes and relates the different data. The outcome gives insight if and how much the variables are coherent with each other. This is important to know, because even though they should be independent, some of these variables might have some influence on one another. The second table is a stratified correlation table, where data of socioeconomic position was divided in tertiles. By separating them in three even categories with the lowest, middle, and highest scores, this information will tell us if there is a difference in coherency between the different socioeconomic groups.

Third, a linear regression is executed. This linear regression is still stratified and gives a solid answer to the research question. A linear regression can find evidence if there is a relation between the different variables. Therefore, this regression model shall provide insight if the relationship of green spaces on the wellbeing aspects is present. If there is a difference in outcomes from the tertiles groups, this provides evidence for the last part of the research question.

This type of methodology was chosen, because it was the most fitting one in the repertoire of the researcher. With this methodology, we are able to analyze and compare a high number of different datasets with one another at the same time.

4. RESULTS

4.1 Descriptive statistics

In table 2: Descriptive statistics, the mean and standard deviation of the dataset is displayed. Out of the 106 neighborhoods, around 14,85% has difficulty getting by according to the mean value of the data. The average rounded answers to the Gezondheidsmonitor volwassenen 2020 were that 47,18% felt lonely, 80,73% had a positive perceived health, 45,55% felt a moderate or high risk to get anxiety or depression. 20,15% of the neighborhoods' respondent felt very stressed. The average amount of green in a

neighborhood is 49,18%, meaning that, average speaking, a bit less than half of the space in neighborhoods was green.

	N	Mean	Std. Deviation
Groningen (Moeite met rondkomen)	106	14.84716981	7.418858949
Groningen (Eenzaam)	106	47.17735849	7.580655620
Groningen (Goed/zeer goed ervaren gezondheid)	106	80.72735849	5.110298342
Groningen (Matig/hoog risico op angst of depressie)	106	45.55188679	9.559470309
Groningen ((Heel) veel stress)	106	20.14528302	6.388742064
Groen per buurt	106	49.18433962	10.54691153
Valid N (listwise)	106		

Table 2: Descriptive statistics

The standard deviation also differs per subject. With a rounded score of 7,42 for difficulty getting by, 7,58 for loneliness, 5,11 for positive perceived health, 9,56 for moderate or high risk to get anxiety or depression, 6,39 for stress and 10,55 for neighborhood green, there are large differences per subject. The positive perceived health is the least diffused out of the RIVM datasets, where anxiety and depression is near two times this score. This means that the mean from perceived health is more generally existent, while there are larger differences in neighborhoods when it comes to anxiety and depression. The confounder difficulty getting by, loneliness and stress are in between these scores. Interestingly, the neighborhood green has the largest score, with over two times the score of positive perceived health. This means that there are larger differences when it comes to green areas in neighborhoods.

For each dataset a histogram was plotted, to look if the data is normally distributed. The histograms are displayed in appendix 2. The results from analyzing the histograms were that all the datasets were not evenly distributed. However, this should not be a problem for doing a linear regression study. Also, due to enough cases, it was still possible to continue the research program.

4.2 Correlation

As stated in the methodology, two correlation tables were calculated. The first correlation table, which is displayed in appendix 3, gives insight in correlations that exist between the different subjects of the dataset. Multiple are significant. The confounder has a negative weak relation with green, and a medium negative relation with perceived health. This notion goes against the literature study in the introduction, but it is not a strong significant

relation. The factors difficulty getting by, loneliness, anxiety and depression and stress all have a strong significant positive correlation with one another. This shows us an existing relation in the dataset between three out of four wellbeing aspects, together with the confounder. The perceived health has low and medium significant negative correlations with difficulty getting by, loneliness and anxiety and depression, which is a large difference from the other wellbeing aspects. There are weak negative correlations between green and difficulty getting by, anxiety and depression and stress. This means that the data regarding green areas is not directly in relation to wellbeing, nor the confounder.

After calculating the first correlation table, the 106 cases were sorted into tertiles. The first tertile included the 35 cases with the lowest scores regarding difficulty getting by, ranging from 2,7% to 9,5%. The second tertile included the 35 cases with medium scores, ranging from 9,6% to 19,0%. The third tertile included the 36 cases with the highest scores, ranging from 19,1 to 34,5%. The second, stratified correlation table is displayed in appendix 4.

In general, almost all the comparing subjects at least miss one significant relation per tertile, be it positive or negative. In some cases, only one relation was found. With the information that we have, we can state that loneliness and perceived health only has a strong negative significant relation in tertile 1. Surprisingly, in comparison to the other tertiles, tertile 3 has multiple relations with green, namely a weak positive relation with loneliness, and weak negative relations with perceived health and anxiety and depression.

Interestingly, there are multiple occasions where tertile 1 and 2 correspond with one another. Loneliness, anxiety and depression, and stress all have different positive relations with one another. Loneliness and stress have a difference between a weak and mediocre positive relation in both tertiles. Next to this, loneliness is also connected to difficulty getting by with a mediocre positive relation. This means that the strong relation between these three wellbeing aspects and the confounder are mostly significant in for the first two tertiles, while there is no significant outcome for the neighborhoods with high difficulty getting by.

The occasions in which tertile 2 and 3 correspond are less. Only stress has a mediocre and strong positive relation with perceived health in bot tertiles. Tertiles 1 and 3 both state weak and mediocre negative relations between perceived health and difficulty getting by, and a weak negative relation between stress and green. This is interesting, as it goes against the thought that wellbeing and nature would be positively related.

Only for the relation between anxiety and depression and stress, in all three tertiles, a significant strong positive relation was found. The other strong relations, be it only in one or two categories, are also related to anxiety and depression. Anxiety and depression have a strong relation with loneliness in the first two tertiles, and it would have a relation with difficulty getting by in the same tertiles. Next to this, in all three tertiles, no significant connection was found between the amount of green and the difficulty getting by datasets.

4.3 Linear regression

The regression analysis consists of four independent linear regressions with the tertiles still present. The linear regressions are displayed in appendix 5. Significant outcomes were observed in each of the four linear regressions, but not for all tertiles. Because this study is multiplex in nature, the adjusted R square was used.

The linear regression regarding loneliness in relation to green calculated significant results for people with high difficulty getting by. Green in the neighborhood would certify 10,9% of the loneliness, interpreting the adjusted R square score. This data fell out of the 95% conference interval, with 2,8% as the anova significance percentage. The regression coefficient score was 0,243, which means that a larger percentage of green would contribute to a larger percentage of loneliness. This was not expected by the literature, nor the research approach.

The amount of green in the neighborhood would certify 22,5% of the perceived health for the neighborhoods part of tertile 3. With a p-value of 0,2%, this test is statistically significant, and displays a coefficient score of -0,317. This means that the amount of green would have a negative influence on the perceived health. This is also something that is not in line with the literature, and against expectations.

The amount of green in the neighborhood would certify 14,7% of the anxiety and depression rate. With a significance of 1,2%, the coefficient of -0,159 states that per percentage green, the anxiety and depression rate would be reduced.

For people with low difficulty getting by, the amount of green area in the neighborhood would certify 10% of the amount of stress, while for people with high difficulty, this would be 28,3%. For the low difficulty tertile, the test proved to be significant with 3,6%, with a coefficient score of -0,072. For the high difficulty tertile, the value for significance was 0,1%, giving legitimacy to the coefficient score of -0,213. This means that for both cases, green would reduce the amount of stress.

These results have in common that the significant outcomes were mostly for people with high difficulty getting by, except for the stress tertile, which also proved significant for people with low difficulty. The outcomes of this study partly give credibility to the literature, as positive relations were found between green and the reduction of stress and anxiety and depression. The outcomes of a negative influence on perceived health and a positive contribution to loneliness goes against the researched literature. This means that there might be differences in the common thought that green areas are positive for people's wellbeing, but this might differ for different socioeconomic groups.

5. CONCLUSION

In this thesis, the main research focus was to find evidence for relations between different aspects of wellbeing, the amount of green in the direct neighborhood and differences between socioeconomic classes. The H0 hypothesis: "In the population, there will be no difference in wellbeing with and without a natural environment within the neighborhood, split between socioeconomic classes" was expected to be rejected, as literature gave evidence for different relations between green and wellbeing, as well as green and socioeconomic class.

The H0 hypothesis can be rejected, as the correlation study and linear regression analysis give evidence for different kinds of relations between multiple aspects of wellbeing and green between different socioeconomic groups. The correlation mainly gives us evidence for relations between three out of the four wellbeing aspects, which were mainly visible in the first and second tertiles. Perceived health was the exception. Socioeconomic class also had a relation with these three wellbeing aspects when the correlation was made without tertiles. The linear regression showed us significant relations between green and the four wellbeing aspects, but mostly in the tertile high difficulty getting by. There was only a significant relation between stress and green in the neighborhood existed in tertile 1, low difficulty. However, half of the significant outcomes were not in line with the literature.

Therefore, to the question "*To what extent does green space inside the neighborhood affect various aspects of people's wellbeing in relation to socioeconomic position?*" the answer is that multiple relations between wellbeing, green space, and socioeconomic position exist. For neighborhoods with a high percentage of difficulty getting by, green areas would reduce stress, anxiety and depression, but it would also reduce perceived health and increase the feeling of loneliness. Stress would also be reduced in neighborhoods where less inhabitants have trouble getting by. This means that in neighborhoods with a high percentage of low socioeconomic status, it would be beneficial to create more green areas if there is a high percentage of stress, anxiety and depression in the neighborhood. However, according to this study, green areas should not be implemented if the residents have low perceived health or high rates of loneliness.

It is important to conclude that for urban planners, it is important to make socioeconomic and wellbeing part of the research program when intervening in existing neighborhoods. As can be seen in this study, different relations can exist. Where literature states a more general line of thought, some of the significant results from this study were contradicting, and therefore not in line with the general opinion. This gives credibility to the statement that differences may exist, and it should be highly requested to study upon it.

6. DISCUSSION

This thesis answers if there are relations between wellbeing and green, when compared between socioeconomic class. The answers that came out of the regression gave evidence to the research question, but it was not possible to compare results between different socioeconomic classes. The results for the median group were not significant, making it impossible to completely answer the research question. The reason for this is not known, the groups were all divided as evenly as possible. It should be noted that tertile 3 had one more case, but it is unknown if this had any relation with the outcomes of the study. What would have made it better, is a larger amount of cases. 106 neighborhoods are enough but cannot be seen as large. The choice was made to focus on 1 city, as there was a time limit and the Esri chart had to be typed out. There might have been different outcomes when this study was executed in a different municipality, or multiple. The information that was used is available for all the Netherlands. Therefore, there might be different outcomes when this study was done elsewhere, or in combination. Spatial or societal differences between the Randstad or Eindhoven in comparison to Groningen might produce different outcomes. This would have also reduced the chances on a type II error in this study.

One can question the research intent. The data for RIVM was fitting for this study because it contained information on neighborhood scale regarding health and wellbeing. Because of less response from smaller neighborhoods, RIVM used a table to compensate for this lack of information. It is a legitimate way to create data, but not the most liable one. These datasets also had information available that is more connected to the subjects of health and lifestyle, which is also in line with the literature review. People have a higher actual health when getting in touch with nature (Lee & Maheswaran, 2010; Hunter et al., 2016; Maas et al., 2006; De Vries et al., 2003), which is also a valid basis to consider. This might have provided more insight, and more independent variables, as the correlation study showed that the wellbeing aspects were more related to one another. Also, there are other sources for green available, but the Esri kaart gave information on neighborhood scale that provided the insights that were necessary for this research question. The choice of the methodology is based on the individual experience regarding statistics. There are other studies available in the world to research this dataset differently, and possible more precisely, but these are not known by the researcher. The linear regression, however, provided significant answers and gave a basis to answer the research question.

Recommendations are to add different studies to this base and doing research to this topic in different manners. First, it would be recommended to add another larger city to this study, as the amount of 106 cases is enough, but not much when compared to statistical data. Doing this research study for another city that has more similar characteristics like Groningen, and then adding the data to this dataset, or compare it with the results from this study, could provide a different answer to the research question. It could also provide interesting results if this study was executed in the Randstad, which was specifically not

done in this one. When executed correctly, having the same amount of cases as this study (together or not with more cases from another city) and look if there are significant differences between these two studies.

It might be interesting to research primary data instead of secondary data when it comes to wellbeing, as a supplement to this study. Primary data could be assembled by spreading surveys in multiple different neighborhoods, distinguished in two types: one which has a high percentage of green available against one that does not. The answers on essay questions could also provide insight into the wellbeing and socioeconomic position of people. A likewise study for the subjects of health and lifestyle could also be conducted in the future, as the information is available.

Other recommendations are to use a different kind of regression, or another type of test that relates the different subjects in a likewise manner. It would have been nice to directly associate the aspects of wellbeing in one regression, as it might have given different insights that were lost due to the stricter split of dependent variables.

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APPENDIX 1: DATASET

Buurten	Groningen (Moeite met rondkomen)	Groningen (Eenzaam)	Groningen (Goed/zeer goed ervaren gezondheid)	Groningen (Matig/hoog risico op angst of depressie)	Groningen ((Heel) veel stress)	Groen per buurt
Binnenstad-Noord	23,60	47,70	86,20	57,30	30,70	25,85
Binnenstad-Zuid	26,10	48,40	85,60	58,80	30,80	35,03
Binnenstad-Oost	26,40	49,60	84,20	58,50	30,30	26,27
Binnenstad-West	22,00	48,30	85,90	56,50	28,60	23,33
Noorderplantsoen	8,80	42,80	80,20	38,40	15,10	40,20
Hortusbuurt-Ebbingekwartier	21,50	48,30	84,90	56,30	28,10	40,2
Stationsgebied	18,50	58,60	84,00	55,00	27,80	43,49
De Meeuwen	12,70	50,00	82,90	47,90	22,10	42,82
Oosterpoort	20,80	49,50	81,90	56,80	27,50	33,82
Herewegbuurt	17,10	46,30	85,50	54,10	28,00	36,55
Rivierenbuurt	20,10	50,40	81,10	56,30	28,70	43,49
Grunobuurt	18,50	50,60	82,80	54,60	27,80	39,18
Badstratenbuurt	24,20	50,50	83,00	57,60	30,60	41,63
Zeeheldenbuurt	19,30	50,30	86,30	57,00	31,50	41,63
Laanhuizen	15,30	47,50	84,90	52,70	27,70	51,83
Stadspark	25,80	64,90	74,50	52,00	21,70	59,76
Martini Trade Park	27,30	70,50	79,10	65,50	32,60	51,83
Oranjebuurt	17,50	47,40	81,60	50,00	23,60	48,41
Noorderplantsoenbuurt	18,80	46,60	85,40	54,80	26,80	40,2
Schildersbuurt	18,70	47,40	86,30	53,50	27,50	32,83
Kostverloren	21,80	54,40	78,60	55,40	27,90	44,99
De Hoogte	28,60	55,60	72,40	60,40	28,10	42,14
Indische buurt	26,30	53,40	74,70	59,00	27,90	44,7
Professorenbuurt	20,30	46,60	84,50	55,70	28,30	53,57
Gorechtbuurt	22,90	47,50	82,30	56,40	27,80	38,51
Vogelbuurt	25,20	56,20	73,40	56,30	26,30	48,63
Bloemenbuurt	27,50	56,80	72,50	58,50	27,30	27,43
Florabuurt	17,80	48,70	80,30	50,60	24,30	52,51
Damsterbuurt	21,30	51,90	81,90	56,00	27,50	46,14
De Linie	10,60	42,50	87,10	43,00	21,80	42,83
Europapark	9,50	47,90	79,40	43,80	17,80	42,83
Kop van Oost	12,70	44,60	86,90	47,20	23,00	42,83
Woonschepenhaven	23,00	51,70	75,60	51,50	22,40	37,86
Eemspoort	16,00	42,10	74,70	37,50	13,90	35,48

Euvelgunne	18,50	48,50	76,10	43,10	15,80	35,48
Winschoterdiep	34,50	60,40	65,10	52,90	21,40	56,3
Roodehaan	13,80	41,60	83,10	39,40	17,90	35,34
Sterrebosbuurt	10,60	42,70	85,50	41,30	19,70	52,85
Coendersborg	9,70	46,30	81,70	42,70	18,10	60,55
Klein Martijn	2,70	37,70	85,60	30,60	11,40	60,55
Villabuurt	3,70	40,20	83,70	32,10	12,10	72,14
Helpman	16,20	49,10	81,20	50,00	23,50	49,26
De Wijert	21,20	55,20	74,80	54,70	23,80	53,39
De Wijert-Zuid	6,30	42,30	82,30	36,20	14,10	55,43
Corpus den Hoorn	18,50	53,50	74,40	52,60	21,90	49,54
Hoornse Meer	12,60	49,10	76,60	45,10	17,70	56,72
Hoornse Park	3,10	38,70	85,70	30,90	11,30	56,72
Van Swieten	22,20	75,00	86,00	65,50	31,70	49,54
Piccardthof	3,20	38,20	87,80	31,60	13,40	59,76
Bruilweering	22,10	58,50	66,80	48,30	19,30	59,76
Hoogkerk Dorp	17,50	48,60	74,30	44,90	17,20	40,21
Hoogkerk-Zuid	12,60	45,70	76,90	41,50	15,60	47,54
Leegkerk	8,00	40,80	83,90	33,40	12,80	45,94
Gravenburg	6,50	37,50	87,10	35,80	15,50	45,94
Peizerweg	19,50	71,40	86,90	59,00	31,30	40,42
Bangeweer	11,40	43,20	81,30	37,60	14,10	57,19
De Buitenhof	4,90	38,50	87,20	32,80	14,00	46,5
De Kring	30,10	53,50	68,20	52,50	20,70	40,65
Vinkhuizen-Noord	21,30	55,30	76,10	55,50	25,30	45,04
Vinkhuizen-Zuid	21,60	55,50	69,60	51,90	21,30	56,16
Hoendiep	14,70	49,10	81,60	44,90	22,50	41,84
Friesestraatweg	20,40	49,50	87,70	59,60	31,50	46,78
Reitdiep	9,10	42,90	87,70	40,70	19,40	39
Dorkwerd	10,00	44,50	81,20	34,70	13,60	39
De Held	7,50	41,90	83,20	38,10	15,80	63,91
Westpark	20,60	54,70	78,70	49,60	21,50	63,91
Selwerd	22,90	56,70	73,50	57,20	25,70	53,05
Paddepoel-Zuid	23,80	53,20	74,90	55,50	25,40	48,49
Paddepoel-Noord	19,10	57,50	73,90	55,20	23,60	48,51
Tuinwijk	23,50	51,40	78,90	56,90	28,00	52,65
Beijum-West	16,60	49,20	76,20	46,40	20,20	61,32
Beijum-Oost	22,50	53,30	70,80	50,80	22,30	53,81
De Hunze	6,60	40,60	83,90	37,10	15,70	51,7
Van Starkenborgh	6,70	36,70	88,00	37,30	17,50	51,7
Lewenborg-Noord	19,50	52,20	69,80	48,10	18,40	58,71
Lewenborg-Zuid	19,00	50,40	73,90	47,70	19,30	54,87
Lewenborg-West	12,40	45,40	79,40	42,80	17,70	57,65
Oosterhoogebrug	13,00	46,30	78,00	42,60	17,30	44,6
Ulgersmaborg	10,60	42,60	81,80	39,60	17,10	51,7

Zilvermeer	4,30	37,80	85,20	33,80	14,10	59,3
Drielanden	5,90	39,40	84,20	36,70	14,70	46,97
Noorddijk	4,10	38,50	85,00	32,90	12,20	57,65
Ruischerbrug	9,70	42,70	77,50	40,80	14,40	46,97
Ruischerwaard	7,80	39,20	83,70	38,60	16,30	44,6
Middelbert	7,90	41,30	82,60	35,10	13,20	67,56
Engelbert	9,60	42,30	81,10	37,60	13,60	42,45
Klein Harkstede	3,80	37,10	85,20	30,90	11,00	42,45
Harkstede GN	10,30	42,70	81,10	35,60	13,10	48,78
Lageland GN	14,30	45,00	80,20	38,60	15,60	82,06
Ten Boer Dorp	8,60	41,00	80,40	39,00	14,40	45,66
Garmerwolde	7,60	40,80	81,50	34,70	12,50	53,56
Thesinge	7,10	39,00	80,70	34,10	12,60	44,73
Sint Annen	9,30	37,10	80,70	34,20	13,00	55,83
Bedrijventerrein Ten Boer	6,00	35,70	87,00	33,60	12,70	37,72
Ten Post Dorp	9,50	42,20	81,00	38,30	15,60	49,54
Woltersum	10,00	42,80	79,10	38,50	15,90	57,26
Haren-Centrum	9,20	47,40	77,70	40,80	14,30	64,94
Haren-Zuidwest	6,20	43,50	80,00	36,50	11,80	64,94
Haren-Zuidoost	8,10	43,30	81,00	38,30	14,60	60,90
Haren-Noord	6,70	39,10	85,30	36,20	14,70	68,74
Oosterhaar	9,20	43,10	81,00	38,90	14,70	60,90
Tuindorp	12,10	44,30	77,90	42,30	15,80	60,90
Felland	7,20	34,40	87,30	32,50	13,10	50,63
Glimmen Dorp	8,20	41,70	82,40	33,70	12,20	75,38
Onnen Dorp	8,10	39,20	83,00	34,40	13,10	53,73
Noordlaren Dorp	5,70	39,60	83,70	30,30	11,00	58,47

APPENDIX 2: HISTOGRAMS

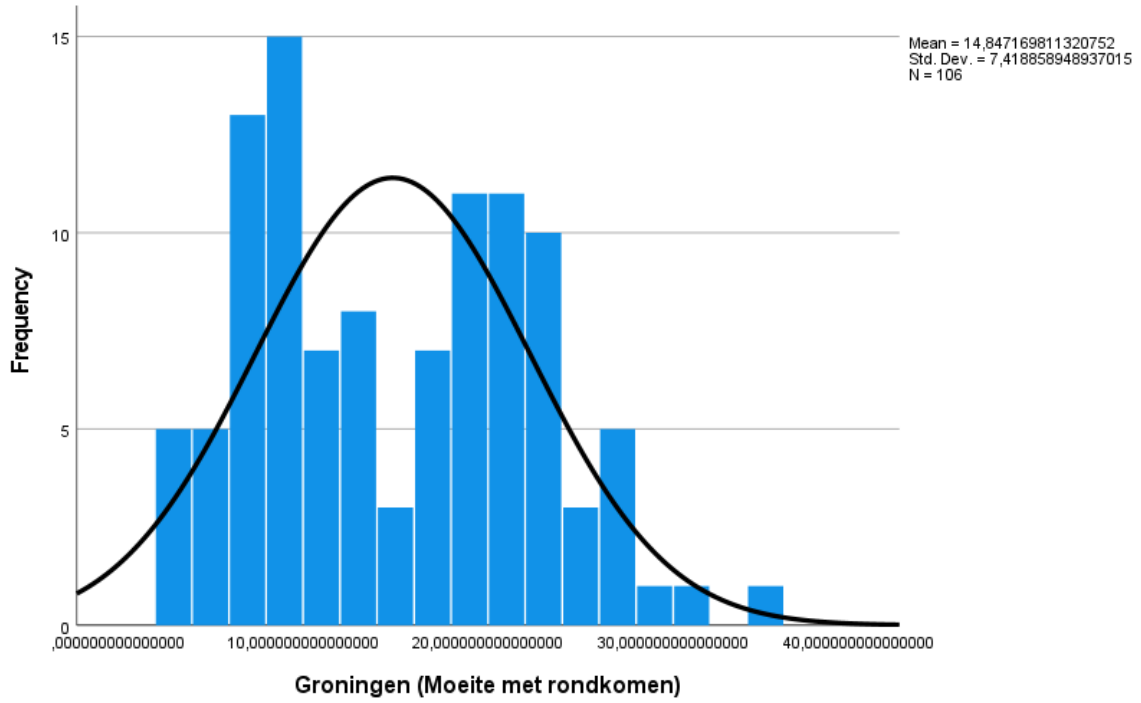

Figure 3: Histogram Moeite met rondkomen

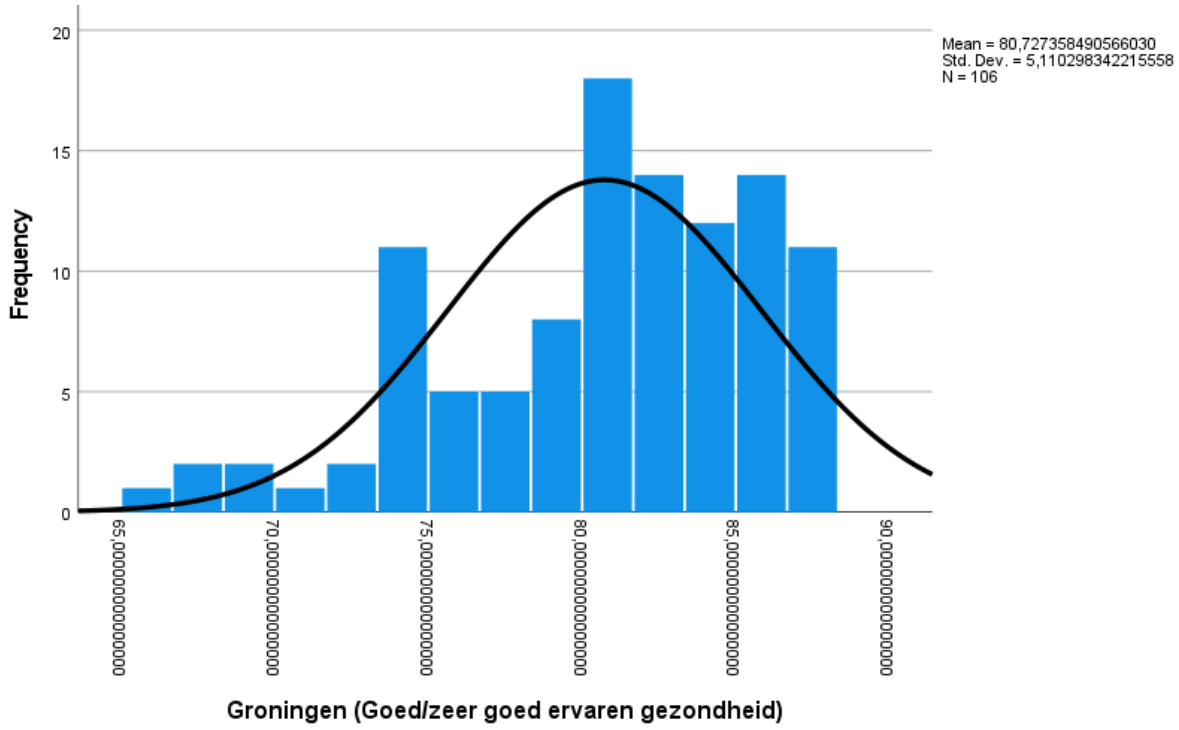

Figure 4: Histogram Ervaren gezondheid

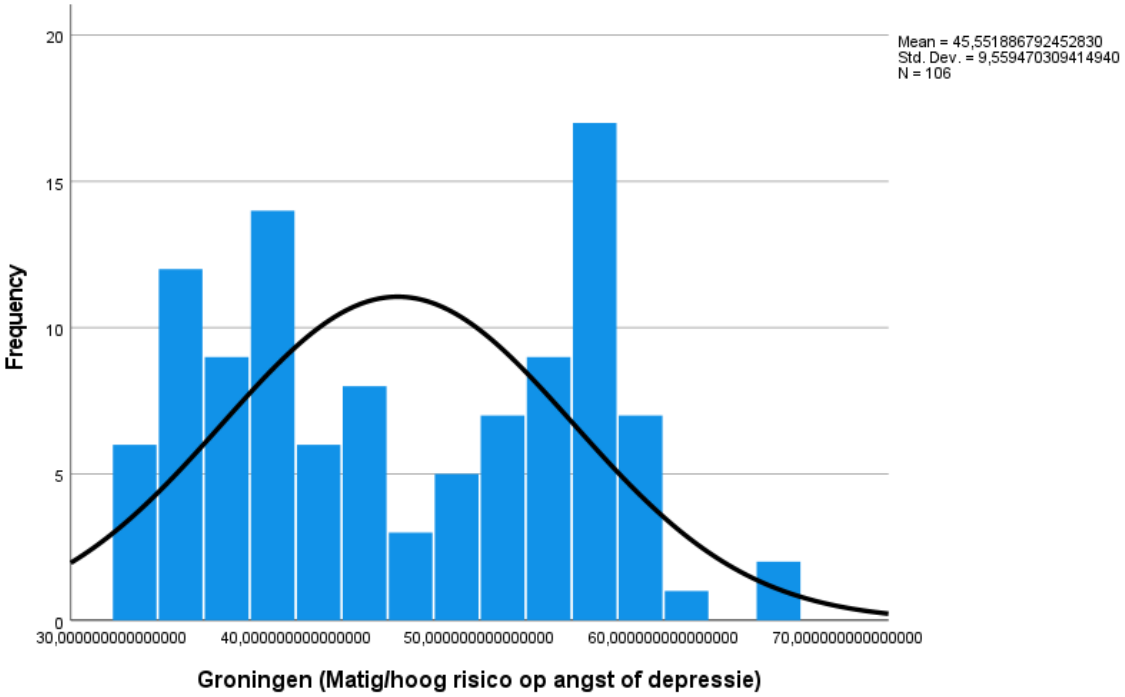

Figure 5: Histogram risico angst of depressie

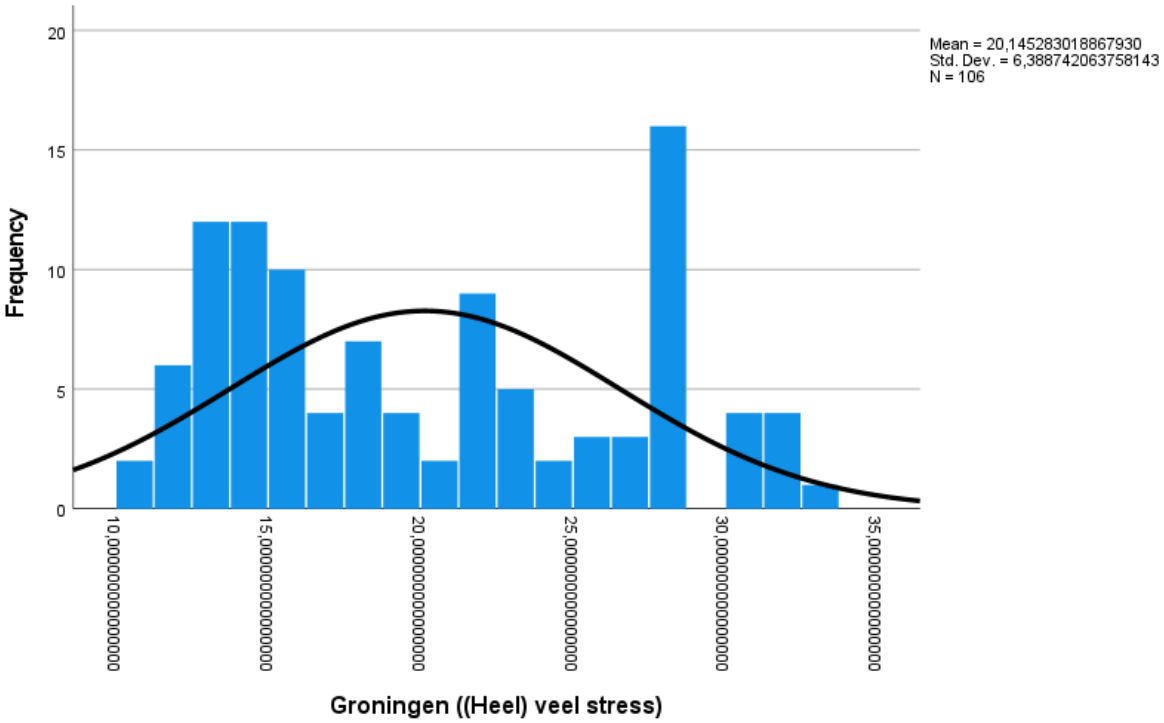

Figure 6: Histogram Stress

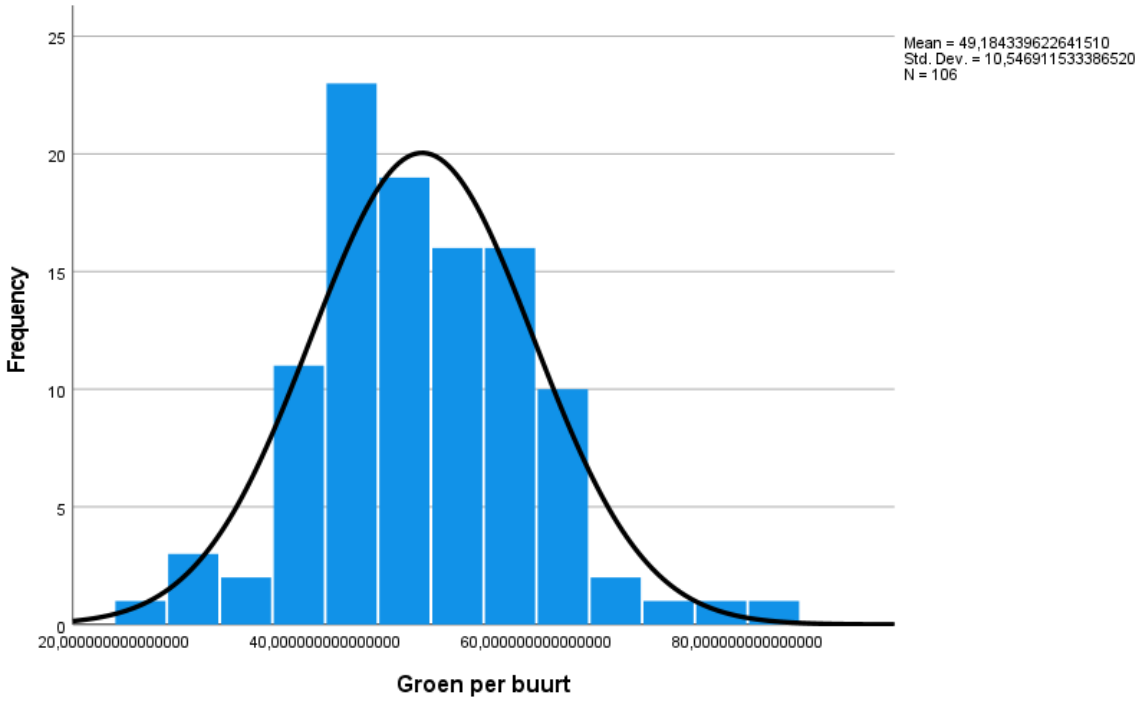

Figure 7: Histogram Groen per buurt

APPENDIX 3: CORRELATION TABLE 1

Correlations

		Groningen (Moeite met rondkomen)	Groningen (Eenzaam)	Groningen (Goed/zeer goed ervaren gezondheid)	Groningen (Matig/hoog risico op angst of depressie)	Groningen ((Heel) veel stress)	Groen per buurt
Groningen (Moeite met rondkomen)	Pearson Correlation	1	,809**	-,526**	,911**	,822**	-,376**
	Sig. (2-tailed)		,000	,000	,000	,000	,000
	N	106	106	106	106	106	106
Groningen (Eenzaam)	Pearson Correlation	,809**	1	-,481**	,829**	,718**	-,148
	Sig. (2-tailed)	,000		,000	,000	,000	,130
	N	106	106	106	106	106	106
Groningen (Goed/zeer goed ervaren gezondheid)	Pearson Correlation	-,526**	-,481**	1	-,278**	-,042	-,132
	Sig. (2-tailed)	,000	,000		,004	,670	,177
	N	106	106	106	106	106	106
Groningen (Matig/hoog risico op angst of depressie)	Pearson Correlation	,911**	,829**	-,278**	1	,962**	-,419**
	Sig. (2-tailed)	,000	,000	,004		,000	,000
	N	106	106	106	106	106	106
Groningen ((Heel) veel stress)	Pearson Correlation	,822**	,718**	-,042	,962**	1	-,480**
	Sig. (2-tailed)	,000	,000	,670	,000		,000
	N	106	106	106	106	106	106
Groen per buurt	Pearson Correlation	-,376**	-,148	-,132	-,419**	-,480**	1
	Sig. (2-tailed)	,000	,130	,177	,000	,000	
	N	106	106	106	106	106	106

**. Correlation is significant at the 0.01 level (2-tailed).

APPENDIX 4: CORRELATION TABLE 2

Correlations

Socioeconomic_position			Groningen (Eenzaam)	Groningen (Goed/zeer goed ervaren gezondheid)	Groningen (Matig/hoog risico op angst of depressie)	Groningen ((Heel) veel stress)	Groen per buurt	Groningen (Moeite met rondkomen)
tertile low difficulty	Groningen (Eenzaam)	Pearson Correlation	1	-,730**	,720**	,356*	,166	,545**
		Sig. (2-tailed)		,000	,000	,036	,341	,001
		N	35	35	35	35	35	35
	Groningen (Goed/zeer goed ervaren gezondheid)	Pearson Correlation	-,730**	1	-,489**	,034	-,184	-,586**
		Sig. (2-tailed)	,000		,003	,847	,291	,000
		N	35	35	35	35	35	35
	Groningen (Matig/hoog risico op angst of depressie)	Pearson Correlation	,720**	-,489**	1	,819**	-,207	,751**
		Sig. (2-tailed)	,000	,003		,000	,233	,000
		N	35	35	35	35	35	35
	Groningen ((Heel) veel stress)	Pearson Correlation	,356*	,034	,819**	1	-,356*	,533**
		Sig. (2-tailed)	,036	,847	,000		,036	,001
		N	35	35	35	35	35	35
	Groen per buurt	Pearson Correlation	,166	-,184	-,207	-,356*	1	-,171
		Sig. (2-tailed)	,341	,291	,233	,036		,326
		N	35	35	35	35	35	35
	Groningen (Moeite met rondkomen)	Pearson Correlation	,545**	-,586**	,751**	,533**	-,171	1
		Sig. (2-tailed)	,001	,000	,000	,001	,326	
		N	35	35	35	35	35	35
	Groningen (Eenzaam)	Pearson Correlation	1	-,145	,729**	,580**	-,051	,689**

tertile medium difficulty		Sig. (2-tailed)		,405	,000	,000	,771	,000
		N	35	35	35	35	35	35
	Groningen (Goed/zeer goed ervaren gezondheid)	Pearson Correlation	-,145	1	,278	,553**	-,234	-,128
		Sig. (2-tailed)	,405		,106	,001	,176	,463
		N	35	35	35	35	35	35
	Groningen (Matig/hoog risico op angst of depressie)	Pearson Correlation	,729**	,278	1	,934**	-,233	,762**
		Sig. (2-tailed)	,000	,106		,000	,178	,000
		N	35	35	35	35	35	35
	Groningen ((Heel) veel stress)	Pearson Correlation	,580**	,553**	,934**	1	-,275	,633**
		Sig. (2-tailed)	,000	,001	,000		,110	,000
		N	35	35	35	35	35	35
	Groen per buurt	Pearson Correlation	-,051	-,234	-,233	-,275	1	-,267
		Sig. (2-tailed)	,771	,176	,178	,110		,121
		N	35	35	35	35	35	35
	Groningen (Moeite met rondkomen)	Pearson Correlation	,689**	-,128	,762**	,633**	-,267	1
		Sig. (2-tailed)	,000	,463	,000	,000	,121	
		N	35	35	35	35	35	35
tertile high difficulty	Groningen (Eenzaam)	Pearson Correlation	1	-,191	,295	-,003	,366*	,168
		Sig. (2-tailed)		,266	,081	,987	,028	,327
		N	36	36	36	36	36	36
	Groningen (Goed/zeer goed ervaren gezondheid)	Pearson Correlation	-,191	1	,564**	,828**	-,498**	-,424**
		Sig. (2-tailed)	,266		,000	,000	,002	,010
		N	36	36	36	36	36	36
	Groningen (Matig/hoog risico op	Pearson Correlation	,295	,564**	1	,881**	-,414*	,146
		Sig. (2-tailed)	,081	,000		,000	,012	,396

	angst of depressie)	N	36	36	36	36	36	36
	Groningen ((Heel) veel stress)	Pearson Correlation	-,003	,828**	,881**	1	-,551**	-,079
		Sig. (2-tailed)	,987	,000	,000		,001	,647
		N	36	36	36	36	36	36
	Groen per buurt	Pearson Correlation	,366*	-,498**	-,414*	-,551**	1	-,107
		Sig. (2-tailed)	,028	,002	,012	,001		,533
		N	36	36	36	36	36	36
	Groningen (Moeite met rondkomen)	Pearson Correlation	,168	-,424**	,146	-,079	-,107	1
		Sig. (2-tailed)	,327	,010	,396	,647	,533	
		N	36	36	36	36	36	36

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

APPENDIX 5: LINEAR REGRESSIONS

Independent green, dependent loneliness

Model Summary

Socioeconomic_position	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
tertile low difficulty	1	,166[a]	,027	-,002	2,937027016460090
tertile medium difficulty	1	,051[a]	,003	-,028	3,728351689091116
tertile high difficulty	1	,366[a]	,134	,109	6,337462967699026

a. Predictors: (Constant), Groen per buurt

ANOVA[a]

Socioeconomic_position	Model		Sum of Squares	df	Mean Square	F	Sig.
tertile low difficulty	1	Regression	8,048	1	8,048	,933	,341[b]
		Residual	284,662	33	8,626		
		Total	292,710	34			
tertile medium difficulty	1	Regression	1,195	1	1,195	,086	,771[b]
		Residual	458,720	33	13,901		
		Total	459,915	34			
tertile high difficulty	1	Regression	211,322	1	211,322	5,262	,028[b]
		Residual	1365,557	34	40,163		
		Total	1576,879	35			

a. Dependent Variable: Groningen (Eenzaam)

b. Predictors: (Constant), Groen per buurt

Coefficients[a]

Socioeconomic_position	Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
tertile low difficulty	1	(Constant)	37,498	2,844		13,184	,000
		Groen per buurt	,050	,052	,166	,966	,341
tertile medium difficulty	1	(Constant)	47,410	3,129		15,153	,000
		Groen per buurt	-,019	,064	-,051	-,293	,771
tertile high difficulty	1	(Constant)	43,596	4,914		8,871	,000
		Groen per buurt	,243	,106	,366	2,294	,028

a. Dependent Variable: Groningen (Eenzaam)

Independent green, dependent perceived health

Model Summary

Socioeconomic_position	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
tertile low difficulty	1	,184[a]	,034	,004	2,740531070954632
tertile medium difficulty	1	,234[a]	,055	,026	3,757717096611888
tertile high difficulty	1	,498[a]	,248	,225	5,680122945954395

a. Predictors: (Constant), Groen per buurt

ANOVA[a]

Socioeconomic_position	Model		Sum of Squares	df	Mean Square	F	Sig.
tertile low difficulty	1	Regression	8,661	1	8,661	1,153	,291[b]
		Residual	247,847	33	7,511		
		Total	256,507	34			
tertile medium difficulty	1	Regression	26,971	1	26,971	1,910	,176[b]
		Residual	465,974	33	14,120		
		Total	492,946	34			
tertile high difficulty	1	Regression	360,894	1	360,894	11,186	,002[b]
		Residual	1096,969	34	32,264		
		Total	1457,863	35			

a. Dependent Variable: Groningen (Goed/zeer goed ervaren gezondheid)

b. Predictors: (Constant), Groen per buurt

Coefficients[a]

Socioeconomic_position	Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
tertile low difficulty	1	(Constant)	86,358	2,654		32,540	,000
		Groen per buurt	-,052	,048	-,184	-1,074	,291
tertile medium difficulty	1	(Constant)	84,912	3,153		26,926	,000
		Groen per buurt	-,089	,064	-,234	-1,382	,176
tertile high difficulty	1	(Constant)	92,451	4,405		20,989	,000
		Groen per buurt	-,317	,095	-,498	-3,345	,002

a. Dependent Variable: Groningen (Goed/zeer goed ervaren gezondheid)

Independent green, dependent anxiety and depression

Model Summary

Socioeconomic_position	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
tertile low difficulty	1	,207[a]	,043	,014	3,234154260221594
tertile medium difficulty	1	,233[a]	,054	,026	5,966012234565897
tertile high difficulty	1	,414[a]	,172	,147	3,585833978897310

a. Predictors: (Constant), Groen per buurt

ANOVA[a]

Socioeconomic_position	Model		Sum of Squares	df	Mean Square	F	Sig.
tertile low difficulty	1	Regression	15,427	1	15,427	1,475	,233[b]
		Residual	345,172	33	10,460		
		Total	360,599	34			
tertile medium difficulty	1	Regression	67,528	1	67,528	1,897	,178[b]
		Residual	1174,579	33	35,593		
		Total	1242,107	34			
tertile high difficulty	1	Regression	90,673	1	90,673	7,052	,012[b]
		Residual	437,179	34	12,858		
		Total	527,852	35			

a. Dependent Variable: Groningen (Matig/hoog risico op angst of depressie)

b. Predictors: (Constant), Groen per buurt

Coefficients[a]

Socioeconomic_position	Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
tertile low difficulty	1	(Constant)	39,239	3,132		12,529	,000
		Groen per buurt	-,069	,057	-,207	-1,214	,233
tertile medium difficulty	1	(Constant)	51,646	5,007		10,315	,000
		Groen per buurt	-,140	,102	-,233	-1,377	,178
tertile high difficulty	1	(Constant)	63,184	2,781		22,723	,000
		Groen per buurt	-,159	,060	-,414	-2,656	,012

a. Dependent Variable: Groningen (Matig/hoog risico op angst of depressie)

Independent green, dependent stress

Model Summary

Socioeconomic_position	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
tertile low difficulty	1	,356[a]	,127	,100	1,877510184091023
tertile medium difficulty	1	,275[a]	,076	,048	4,681323848598824
tertile high difficulty	1	,551[a]	,303	,283	3,321818828788588

a. Predictors: (Constant), Groen per buurt

ANOVA[a]

Socioeconomic_position	Model		Sum of Squares	df	Mean Square	F	Sig.
tertile low difficulty	1	Regression	16,852	1	16,852	4,781	,036[b]
		Residual	116,326	33	3,525		
		Total	133,179	34			
tertile medium difficulty	1	Regression	59,087	1	59,087	2,696	,110[b]
		Residual	723,188	33	21,915		
		Total	782,275	34			
tertile high difficulty	1	Regression	163,178	1	163,178	14,788	,001[b]
		Residual	375,172	34	11,034		
		Total	538,350	35			

a. Dependent Variable: Groningen ((Heel) veel stress)

b. Predictors: (Constant), Groen per buurt

Coefficients[a]

Socioeconomic_position	Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
tertile low difficulty	1	(Constant)	17,849	1,818		9,817	,000
		Groen per buurt	-,072	,033	-,356	-2,186	,036
tertile medium difficulty	1	(Constant)	26,087	3,929		6,640	,000
		Groen per buurt	-,131	,080	-,275	-1,642	,110
tertile high difficulty	1	(Constant)	36,224	2,576		14,063	,000
		Groen per buurt	-,213	,055	-,551	-3,846	,001

a. Dependent Variable: Groningen ((Heel) veel stress)