



# How can the social environment be used to achieve healthier lifestyles for children aged 4-12?

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## Abstract

Recente nieuwsberichten brengen aan het licht dat de sociale leefomgevingen en leefstijlen van kinderen verbetering nodig hebben. Deze scriptie richt zich op de buurt, de aanwezigheid van leeftijdsgenootjes, media opvoeding, en vrije tijdsbesteding als onderdelen van de sociale leefomgeving van kinderen. De verwachting is dat de sociale leefomgeving een relatie heeft met de leefstijlen van kinderen, daarom is het doel van deze scriptie om de vraag te beantwoorden of het verbeteren van de sociale leefomgeving van kinderen ook de leefstijlen van kinderen in de leeftijd 4-12 jaar gezonder kan maken. Dit wordt in deze scriptie onderzocht door middel van een zogenaamde *mixed-methods* aanpak. Dit houdt in dat het onderzoek zowel een kwantitatief als een kwalitatief onderdeel bevat. Voor het kwantitatieve onderdeel is de dataset Kindmonitor 2017 gebruikt, dit is geanalyseerd met behulp van het programma SPSS. Het kwalitatieve onderdeel bevat interviews met de ouders van kinderen in de leeftijd 4-12 jaar in Alblisserdam. Aangezien de resultaten van deze interviews verrassend positief waren, zijn er ook nog aanvullende interviews afgenomen met professionals uit Alblisserdam die veel met deze doelgroep werken. De resultaten van dit onderzoek impliceren dat over het algemeen een gezonde sociale leefomgeving voor kinderen gerelateerd is aan een gezondere levensstijl. Daarnaast is elk aspect van de sociale leefomgeving ten minste gerelateerd aan één aspect van de levensstijl. Concluderend laat dit onderzoek zien dat een gezonde sociale leefomgeving zeker kan bijdragen aan een gezondere levensstijl voor kinderen. Echter, dit onderzoek laat ook zien dat, ondanks dat de gemiddelde staat van de sociale leefomgevingen en levensstijlen van kinderen voldoende is, er ook onderdelen zijn die verbeterd kunnen worden. Dit geldt vooral voor kinderen die kwetsbaar zijn, in de breedste zin van het woord. Daarom is het advies voor beleidsmakers om te focussen op kwetsbare kinderen, omdat zij lager dan gemiddeld scoren op beide variabelen. Hierin zou de focus moeten liggen op de vrijetijdsbestedingen en het contact met leeftijdsgenootjes voor deze kinderen. Deze beiden aspecten kunnen wellicht verholpen worden door mogelijkheden te bieden voor kinderen om te sporten in groepsverband.

*Key words:* Children, Healthy lifestyles, Social environment.

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## **Foreword**

Before you lies the Master's thesis about the relationship between the social environments and healthy lifestyles of children aged 4-12. This study has been written in the context of graduating from the Master's program 'Sociology: Contemporary Social Problems' at Utrecht University. This research was undertaken at the request of the municipality of Alblasserdam, where I did my internship for the past 5 months. Next to conducting this research, I have spent my time working together with the team 'social development', where I got the chance to learn a lot about the organization and the corresponding work and where I got to develop myself into a professional in the field of policy advice.

I would like to thank my thesis supervisor Mathijs Kros for the guidance and support during this process. Additionally, I would like to thank my internship supervisors Laure Ter Stege and Sjors Hendriks, for helping me content-wise in writing my thesis. Furthermore, I also wish to thank all participants, without whose cooperation I would not have been able to conduct the qualitative part of this study. I would also like to thank the staff of GGD zhz, that trusted me enough to let me use their dataset. Lastly, I want to thank all my colleagues from the municipality of Alblasserdam, who warmly welcomed me into the organization and were always ready to answer my questions or help me whenever needed.

I hope you enjoy reading this thesis.

Jasmijn Koutstaal

Papendrecht, 22<sup>nd</sup> of June 2022

## **Ethical Statement**

Both quantitative and qualitative parts of this study were applied for ethical approval in advance of the analyses. The secondary data analysis of this study was applied for ethical approval by the Ethics Review Board of the Faculty of Social Sciences (FERB) of Utrecht University. The approval was permitted on the 6<sup>th</sup> of April 2022 under the number 22-0793.

Regarding the qualitative part of the study, two types of ethical approval were permitted by the Ethics Review Board, before the start of the interviews. Confirmation of the approval for the conduction of the interviews was granted on the 16<sup>th</sup> of March, 2022 with the reference number 22-0682. Additionally, for the recording of the interviews the approval was confirmed on the 21<sup>st</sup> of March, 2022 with the reference number 22-0684.

## **Introduction**

Currently, the notion of the importance of a healthy lifestyle for children is getting spread more and more around the globe (e.g. Lloyd & Wyatt, 2015) However, the research of Teuscher et al. (2015) states that, despite the increased focus on health promotion in society, most lifestyle programs have limited effects. Additionally, the research of Gerards et al. (2013) describes that the prevalence of overweight children and obesity in children is increasing worldwide, and also in the Netherlands. This implies that there might be a lot to gain regarding the lifestyle aspects of the intake of sweet drinks and water. Furthermore, concerning the sleeping habits of children in the Netherlands, an increasing number of children do not meet the age-specific recommended hours of sleep (Komrij et al., 2021). Recent developments concerning the Covid-19 pandemic have shown that the social environments might also not be as healthy as desired. ‘Public health directors worried about the effects of the quarantine policy on youth’ reads a recent article regarding this topic (GGD GHOR, 2022). ‘Mental well-being of pupils under pressure’ reads another (Vos & Hetebrij, 2021). These articles show the increasing worries about the social effects of the lockdowns of Covid-19 on children. Children are suffering from a lack of social contact and they can’t play sports (Vos & Hetebrij, 2021). The pandemic hereby clearly confirms the importance of socialization opportunities and the social environments around children and, furthermore, suggests that the social environments of children nowadays might need some attention. This is relevant as multiple researchers have shown that the two concepts are related, as the social environment of children is an important predictor of a healthy lifestyle (Ståhl et al., 2001; Kimbro & Denney, 2013). This all points towards the importance of investigating the current

state of both the healthy lifestyles and the social environments of children, as they are both essential for children's outcomes concerning health and well-being (Rosenbaum & Blum, 2015). Therefore, this thesis will look into the relationship between these two concepts.

### Scope

The concept of social environments lacks a universal definition as it is a broad concept that consists of many aspects that influence children's behavior and outcomes in multiple ways. In this research, social environments are defined as the microsystems around children, as described by Bronfenbrenner (1979). This commonly used definition concerns the immediate environment of children that closely interact with the child, such as the neighborhood and peers (Onwuegbuzie et al., 2013). For this study, aspects of this microsystem of Dutch children, and children specifically from Alblasserdam, aged 4-12 are investigated. This age group was chosen due to their reachability for the qualitative part of this research as there are only primary schools in Alblasserdam.

Four aspects will together represent the social environment in this study, which are inspired by aspects of Bronfenbrenner's microsystem (1979) that are specifically relevant for children aged 4-12, as they are things that children of this age-group encounter daily. Additionally, the topics of interest for the municipality of Alblasserdam were considered. This leads to a focus on the presence of peers, neighborhood, media education, and leisure. Shortly summarized, the aspect of the *presence of peers* regards the availability of social contacts. Furthermore, the aspect of *neighborhood* concerns whether or not a neighborhood is safe and child-friendly. The aspect of *media education* covers whether parents talk to their children about their media use and rules regarding media use. Lastly, *leisure* regards the different activities that occupy a child's leisure time, which for this research entail reading, gaming, and social media use. Whether or not the social environments of children will be considered healthy depends on how a child scores on these aspects.

The concept of a healthy lifestyle is something that scholars more or less agree on concerning a definition, which entails a lifestyle that improves people's health and well-being. In this research, the focus will be on the following aspects of a healthy lifestyle namely, sleeping patterns, intake of sweet drinks, and water consumption as research shows their importance for a healthy lifestyle (González-Gross et al., 2008; Aranceta et al., 2003).

### **Existing literature**

Multiple researchers have already investigated the relationship between the two concepts, and there seems to be a consensus that the social environment of children is an important predictor as it can influence their lifestyles in multiple ways. First of all, the findings of Leonenko et al. (2019) show that children that participate in certain activities in their leisure time have better physical health. Furthermore, the research of Veitch et al. (2012) shows that neighborhood factors such as social trust and cohesion are related to a lower BMI in children. Additionally, Mustafaoğlu and his colleagues (2018) show that when children inappropriately use technology, this can cause obesity and physical inactivity. Lastly, research by Ståhl (2001) shows the effect that peers can have, as they found that social relations and social support can influence health behavior.

### **The gap in the literature**

These studies illustrate a gap in the literature, as they all focus on the effect of one specific aspect of the social environment on a specific part of lifestyles. However, there does not seem to be an overarching framework about how social environments influence the lifestyles of children, therefore the underlying mechanism remains unknown. Therefore, this thesis aims to investigate the mechanisms behind these potential relations and thereby hopefully contribute to such an overarching framework. Additionally, there seems to be a lack of consensus about which specific aspects of the social environment are important for a healthy lifestyle and in which way. Furthermore, there is also insufficient information available about the current state of the social environments and healthy lifestyles of children. Lastly, existing literature fails to provide a clear answer to how policy can contribute to a more healthy lifestyle and social environment for children.

### **Research questions**

Therefore this thesis aims to investigate the social environment and healthy lifestyles of children to be able to improve them. The first goal is to investigate the current state of the social environments and lifestyles of children. This leads to the first research question: *‘To what extent are the social environments and lifestyles of children aged 4-12 in the Netherlands healthy?’*. Furthermore, another goal of this study is to test the relationship between the two topics. In addition, we want to investigate potential differences in the effects of different aspects of the social environment. That leads to another set of research questions:

*‘To what extent does the social environment of children aged 4-12 in the Netherlands influence their lifestyles?’ and ‘Which aspects of the social environment are most important for achieving a healthy lifestyle for children aged 4-12?’*. Based on the answers to these questions, the last goal is to provide policy advice on how the (local) governments can contribute to making the social environments and lifestyles of children more healthy. That leads us to the policy question, namely *‘In which way can policy contribute to a healthy social environment and lifestyle for children aged 4-12 in the Netherlands?’*.

### **Relevance**

These questions are societally relevant to investigate as when it becomes apparent how to achieve healthy social environments and lifestyles, society can try to provide this to children. That could lead to better outcomes for these children in terms of health and well-being. Since the social environment and healthy lifestyles do not only have short-term effects but can also influence outcomes later in life, for example regarding health (Evans et al., 2008; Szyf, M., 2011) they might thereby increase the contribution that these children will provide to society. In addition, this study is also scientifically relevant as it can help figure out which aspects of the social environment matter for healthy lifestyles for children, which can provide new insights and recommendations for future research. Lastly, this study can extend the knowledge on these two topics by investigating multiple aspects and thereby also provide more clarity about their association. This study is also practically relevant, as the mixed-method approach can provide quality advice on how to contribute toward more healthy social environments and lifestyles for children. This study can thus provide organizations with valuable guidelines on how to approach these two topics and make them more manageable.

### **Municipality of Alblasserdam**

Although this thesis is of value to multiple parties, it is specifically targeted at the municipality of Alblasserdam. This municipality is currently increasingly concerned with the social and physical environment of children which is apparent from its vision to be ‘Fit and green’ and the collaboration with JOGG. JOGG (*Jongeren op gezond gewicht*) is an organization attempting to make the social and physical environments of children more healthy and thereby make children’s lifestyles healthier, which is in line with the vision of the municipality. This is specifically relevant for Alblasserdam as there is a lot to gain concerning healthy lifestyles in Alblasserdam, visible in the 55 percent of the adult population in



Alblasserdam that was overweight in 2016, which is above the national average (GGDzhh). Therefore, the children must achieve healthier lifestyles to prevent these high numbers in the future to reduce health care costs and improve levels of well-being. As the collaboration with JOGG is in the early stages, information regarding how to approach the situation in Alblasserdam can be valuable. Therefore, the policy advice will be specifically aimed at the municipality of Alblasserdam.

### **Research design**

To make this research relevant for both the municipality of Alblasserdam and for a broader audience, the focus will be on the situation in the Netherlands in general, with an additional case study about Alblasserdam. This will be executed using a mixed-method approach. Firstly, the current situation in the Netherlands will be investigated using existing quantitative data. Additionally, to research the specific state of affairs in Alblasserdam, qualitative data will be collected with the aim to dive deeper into the topics and answer questions that cannot be answered with the quantitative data. This will be done by conducting semi-structured interviews with the parents of children aged 4-12 years. As these interviews seemingly only paint part of the picture as they were fairly positive, experts' opinions were also included.

## **Theory**

### **Healthy social environments**

We start by outlining some thoughts about the social environment of children, which in this study consists of the presence of peers, neighborhood, media education, and leisure. Because what exactly makes a social environment of a child healthy? As earlier mentioned there is no clear definition that is universally agreed on. However, McNeill et al. (2006) explain that the social environment influences people's behavior in multiple ways. Such as by shaping people's norms, providing opportunities to engage in certain behavior, enforcing patterns of social control, placing constraints on people's choices, and producing or reducing stress. Therefore, a healthy social environment can be seen as one that reduces stress and provides opportunities for healthy behaviors, such as relaxation and meeting people. Research by Ståhl et al. (2001) additionally states that a healthy environment includes social support from friends and family. Concerning existing literature, it seems like a healthy social environment for children is a concept that is rarely researched on its own. Therefore, the earlier given definition of social environments will be applied to classify them as healthy or unhealthy. This entails that whether a social environment will be considered healthy in this research

depends on whether the scores on the four individual aspects are healthy. This raises the question of when these specific aspects can be considered healthy, which will be discussed later on. -

### **Healthy lifestyles**

As briefly discussed, a healthy lifestyle for children entails one that improves their health and well-being. Multiple aspects are associated with such a lifestyle, such as healthy eating habits and a healthy sleeping schedule (González-Gross et al., 2008). Furthermore, research shows that a healthy lifestyle for children is dependent on multiple factors, such as the way mealtime is structured, and families' physical activities (Cason-Wilkerson et al., 2015). This, therefore, shows that a healthy lifestyle is dynamic, it can easily change if other factors change. As earlier mentioned, in this study lifestyle will be measured by sleeping habits, intake of sweet drinks, and the water consumption of a child. Hereby, the healthier the sleeping pattern, the fewer sweet drinks, and the higher the water consumption, the healthier the lifestyle will be considered.

There is not a large body of research about the current state of the lifestyles of children. However, as discussed in the introduction, some pieces of literature suggest that there is much to gain regarding healthy lifestyles for children. For example as an increasing number of children do not meet their recommended hours of sleep (Komrij et al., 2021). This leads to the expectation that regarding the lifestyles of children in the Netherlands, there is room to make them healthier.

### **Healthy social environments and healthy lifestyles**

We now approach the question of how a healthy lifestyle for children can be achieved. One of the factors that might have a positive relationship with a healthy lifestyle for children is a healthy social environment. The *Socio-Ecological Model* (Robinson, 2008) can provide insights into this relationship. This model includes the interpersonal level, or the social environment, which contains processes such as social traditions, role expectations, and the culture which impact health behavior, such as eating habits. For example, acknowledgment and respect for a young person's dietary goals can be considered supportive, while peer pressure can challenge youngsters to maintain a lifestyle change (Lang et al., 2021).

Additionally, this level includes patterns that occur within families and peer groups. These groups and processes impact health behavior because they provide the individual with

support, role definition, and social identity. Concerning improving health behavior, this theory states that health promotion programs focused on behavioral change through education or other strategies on the intrapersonal level neglect the social and environmental context in which these behaviors occur and are reinforced. Therefore, this theory suggests that improving the healthy lifestyles of children calls for interventions that target multiple aspects of the social environment (Robinson, 2008). This implies that the focus on multiple aspects of the social environment is important, to promote a healthy lifestyle for children as best as possible. It also shows that this theory argues that a healthy social environment is crucial for a healthy lifestyle for children.

There is also existing literature about the relationship between the social environment and healthy lifestyles for children. Robinson (2008) tested the earlier described *Socio-Ecological Model* and found that seven out of eight studies included in his review show that the social environment influenced the food choice of individuals. More specifically, results show that the social environment in general influenced dietary choices and health behavior by providing opportunities, contexts, and meanings for dietary choices. In addition, Veitch et al. (2012) found that a more positive social environment relates to a lower BMI, and thereby more healthy eating and drinking habits, for children. More generally, Dulin (2007) found that the social environment can promote or deter people's well-being and health. Hereby, scholars seem to agree that the social environment is an important factor in achieving a healthy lifestyle for children.

Taken together, the discussed theory and corresponding literature lead to the expectation that a healthy social environment can positively influence the lifestyles of children, which will be investigated by the quantitative and qualitative analyses. We will now turn to the relationship between the individual aspects of the social environment and a healthy lifestyle for children.

### *Presence of peers*

The first aspect of the social environment is the 'presence of peers', which solely entails whether or not children have peers present in their environment. The effect that peers, in general, can have on the lifestyle of children is something that has already been largely explored by existing literature. However, the effect that merely the presence of peers in the environment, not including the interactions with those peers, can have is less researched.

*Social Facilitation theory* (Ward et al., 2016) can be applied to the relationship between the presence of peers and the lifestyle of children. This theory argues that the presence of others can influence the behavior of people. For example, research shows that adults eat more in presence of others than when they are alone, therefore dietary choices might be less healthy in the presence of peers (De Castro, 1993). Research by Ward et al. (2016) suggests that even though this theory is commonly applied to adults, it can also be applied to children. The mechanism behind social facilitation is still unclear, however, there are some suggestions. De Castro (1993) argues that social facilitation might happen through what he calls *producing disinhibition*, which entails that the presence of another person makes an individual more relaxed. This, in turn, ensures that there is less of a brake on the behavior of this individual, therefore there are fewer constraints on his/her behavior. For example, eating with peers leads to a greater level of calmness which makes the individual free of constraints on eating. For the drinking behavior of children, this suggests that children would feel free to drink whatever they enjoy, which for children usually entails sugary drinks (Mennella et al., 2012). Therefore, this theory suggests that the presence of peers leads to less healthy drinking habits for children. However, the theory does not seem to particularly apply to sleeping patterns for children.

Some researchers have already tested the influence that the presence of peers may have on the lifestyle choices of children. First of all, the research of Salvy et al. (2007) investigates the effect of peer presence on the dietary intake of children aged 6-10 years old that are overweight and children that are not. The results show that children who are overweight eat less when they are in the presence of peers, while children who are not overweight eat more when peers are present, suggesting an effect of peer modeling. These results show a clear effect of the presence of peers on dietary choices, which for children that are not overweight relates to less healthy eating habits (Salvy et al., 2007). Furthermore, the research of Larson & Story (2009) specifically looked into the relationship between the social environment and the intake of soft drinks in children. Their results showed that the dietary choices of children, including the consumption of soft drinks of individuals are influenced by the presence of their peers. This influence however depends on the social norms regarding dietary choices. As, according to Larson & Story's (2009) study, soft drinks are one of the most consumed drinks in schools, one could assume that the social norms regarding drinking habits are drinking soft drinks. This suggests that the presence of peers leads to children

feeling the need to follow the social norm and thus relates to less healthy drinking habits for children.

The research of Godsell & White (2019) investigated the influence of peers on the sleeping behavior of 13- and 14-year old's. Their results show that the children admitted that they felt that peers influence their sleep behavior, as they spend their nights communicating with their peers via their mobile phones. The research of Vaughn et al. (2015) showed that even for children of 4 years old, peer relations influenced their sleeping habits, as a higher peer acceptance relates to sleep duration for these children. These two studies show a clear effect of peers on the sleeping patterns of children, however, these entail interactions with peers, not just the presence of peers. Unfortunately, there does not seem to be literature regarding the relationship between the mere presence of peers and sleeping habits.

These theories and research clearly show that the presence of peers can affect the lifestyle choices that children make. With regards to merely the presence of peers, the literature and theories do not point towards a specific relation with sleeping patterns. Regarding the presence of peers and drinking habits, the literature and theory suggest that the presence of peers leads to less healthy dietary choices, which includes a higher consumption of soft drinks. This leads to the following hypothesis:

*H<sub>1</sub>*. The presence of peers relates to less healthy drinking habits for children.

### *Neighborhood*

The second aspect of the social environment is 'the neighborhood', which can be considered positive or healthy when the neighborhood is child-friendly. The relation between the neighborhood and a healthy lifestyle for children is something that has also already been partially explored by theory and research. First of all, Bronfenbrenner's *Ecological Systems theory* (1998) can be applied to this relation. This theory argues that the relationships within the microsystems, or social environments, are bi-directional. This entails that the child is influenced by things in their immediate environment, such as the neighborhood, but the child in turn can also influence their neighborhood. Bronfenbrenner argues that the environment, including the neighborhood, of children is capable of changing the beliefs and actions of a child (Guy-Evans, 2020). In the case of sleeping habits, this entails that the neighborhood can provide resources, such as safety and quietness, to help children sleep properly. Regarding drinking habits, the neighborhood can influence choices by store options that are available in

the neighborhood. Therefore, according to the *Ecological Systems Theory*, the environment can influence the health behavior of children by the resources it does or does not provide (Holt et al., 2009).

A few researchers already investigated the effect that neighborhoods can have on the lifestyles of children, regarding drinking habits and sleeping patterns. The study by Holt et al. (2009) shows that children in neighborhoods with, among other things, high access to healthy supermarkets, parks, and playgrounds tend to have healthier diets, including healthier drinking habits. This can be explained by the fact that people in neighborhoods with more such healthy stores have more opportunities to go there and purchase healthy foods and drinks. Veugelers et al. (2008) researched the relationship between characteristics of the neighborhood and eating habits. Their results show that children in neighborhoods with access to supermarkets with reasonably priced fresh produce have healthier eating habits and were less likely to be overweight. This finding was explained through the opportunity that certain neighborhoods do or do not provide, which leads to different health behaviors. Lastly, the research of Marco et al. (2012) looked into the relationship between neighborhood environment and sleep patterns of young adolescents. Their results reveal that some neighborhood factors are associated with problematic sleep patterns for young adolescents, such as insufficient school-night sleep. There are multiple factors involved in this relation. For example, poorer neighborhood conditions lead to children going to bed later in the night. Additionally, children in neighborhoods with lower social-economic status have been found to have a lower sleep quality, possibly due to neighborhood noise and lightning. Furthermore, feelings of unsafety in the surrounding environment can interfere with the sleeping habits of children. Therefore, in multiple ways, an unsafe and not child-friendly neighborhood leads to less healthy sleeping habits.

Overall, the theories and literature seem to agree that a safe and child-friendly neighborhood promotes a healthy lifestyle for children, by providing these children the needed resources to achieve this lifestyle. The literature clearly points to this effect for both drinking habits and sleeping habits. This leads to the second set of hypotheses:

$H_{2a}$ . A child-friendly neighborhood relates to more healthy drinking habits for children.

$H_{2b}$ . A child-friendly neighborhood relates to more healthy sleeping habits for children.

### *Media education*

The third aspect of the social environment is the 'media education' provided by the parents. This is considered healthy if parents have rules about the media use of their child and if they are engaged in the media use of their child through supervision. The relationship between media education and healthy lifestyles for children is something that remains largely unexplored by theory and research. There are, however, some pieces of literature that can provide some sort of indication. The research of Bickham et al. (2015) shows in this regard that rules about media use are associated with lower levels of depression symptoms in children. The mechanism behind this relationship is not confirmed, but there is a possibility that these types of rules indicate parental involvement which is known to be protective against depression in children. This already provides an indication of a positive effect of media education on the well-being of children.

Furthermore, findings from the research of van den Eijnden et al. (2021) indicate that strict rules about media use predict better quality of sleep for children. This possibly has to do with limiting the opportunities that these children have to engage in social media before going to bed and thereby increasing the time children sleep. Additionally, the research of Rosen et al. (2014) investigated the relationship between technology and eating habits among children and teenagers. Their results point to the importance of parents setting limits and boundaries for their children regarding media use. The idea behind this is that parents can hereby provide opportunities to children to engage in other more healthy activities and habits to do that do not include screens. Furthermore, other scholars also confirm the importance of media education (Reid Chassiakos et al., 2016; Łuszczki et al., 2021), however, they only researched this concept in relation to the effects of media education. For example, Łuszczki et al. (2021) show that the use of media and smartphones for children led to poor sleep and less healthy eating habits, as it leads to fewer hours of sleep and lower sleep quality. As a solution to this problem, they argued for more media education, as appropriate parental control can restrict media use and thereby counter the negative consequences of media.

Despite media education by parents not being a common topic of interest for researchers, the existing literature shows that media education does promote more healthy choices for children. All findings taken together do suggest that this is also the case for dietary choices and sleeping patterns. Therefore, the expectation is that media education associates with

healthier drinking- and sleeping habits for children. This leads to the following set of hypotheses:

*H<sub>3a</sub>*. Media education relates to more healthy drinking habits for children.

*H<sub>3b</sub>*. Media education relates to more healthy sleeping habits for children.

### *Leisure*

The last aspect of the social environment is the activities that occupy the leisure time of children. This study includes the activities social media, gaming, and reading. Hereby, social media use and gaming are considered to be unhealthy ways of spending leisure. Rosen et al. (2014) found in this regard that media and technology use, such as social media and gaming, predicts ill-being in children. They argue that general screen activities, regardless of the number of hours, predict poor health outcomes, such as unhealthy dietary habits and physical inactivity. The reason behind this is that children tend to consume more calories while using technology, such as gaming, and such activities can, furthermore, replace physical activities. Reading in general, however, is considered to have a positive effect on children. Horowitz-Kraus & Hutton's (2018) research shows in this regard that reading is important for a healthy brain- and language development for children, indicating that reading is a healthy way of spending leisure. They also confirmed that screen time, in general, harms the development of children, as it relates to lower cognitive control and language development. Based on these insights, the leisure time of children will be considered healthy when a child spends their leisure time reading and considered less healthy when a child consumes video games or uses social media.

The possible effect that these different ways of spending leisure time can have on the lifestyles of children is something that is not yet as largely explored by theory and research as some of the earlier discussed aspects. There are however some studies that are relevant to this relationship. The research of Maksniemi et al. (2022) looked into the relationship between active social media use and the sleeping habits of children. They found that for young adolescents social media use is associated with delayed bedtime. For middle and late adolescents, social media use is related to emotional exhaustion. The mechanism behind this relationship is that the time spent using social media reduces the time that children sleep and thereby increases psychological problems. Furthermore, the research of Brambilla et al. (2017) looked into the sleeping habits of children aged 1-14 in relation to reading and the usage of video devices. Their results show that reading before bedtime does not associate with



sleeping habits. However, the results do show that using video devices before going to sleep leads to less optimal sleep for children, for example sleeping lightly. A possible mechanism behind this is the light exposure from video devices in combination with the suppression of melatonin production. Mak & Fancourt (2020) looked into the relationship between reading for pleasure in childhood and outcomes in terms of healthy lifestyle behavior in adolescence. They found that reading at age eleven is associated with higher levels of fruit consumption at age fourteen. A possible explanation for this relation is that reading is associated with a better school performance, which relates to a higher chance of being informed on health-related matters. This in turn can increase the chance of healthy life choices. Therefore, it seems like reading for pleasure is a positive predictor of healthy lifestyle choices. In addition, Turel et al. (2017) found that for children video gaming leads to increased consumption of sweet drinks. More specifically, the results showed that children tend to drink more sweet drinks while they are playing video games.

Therefore the existing literature does point towards a positive relationship between more healthy ways of spending leisure time and healthy lifestyle choices of children. In this regard, the literature shows that playing video games leads to increased consumption of sweet drinks, while reading is associated with healthier drinking habits. This leads to hypothesis 4a. The research also clearly shows that social media and gaming relate to less healthy sleeping habits, this leads to the expectation that a healthier way of spending leisure leads to healthier sleeping habits, see hypothesis 4b.

*H<sub>4a</sub>*. A healthier way of spending leisure time relates to healthier drinking habits.

*H<sub>4b</sub>*. A healthier way of spending leisure time relates to healthier sleeping habits.

When looking at the individual aspects of the social environments of children, it is possible that they differ in the way and the extent to which they influence the lifestyle of children. Existing literature does not have a clear answer to this. Whether or not this might be the case will be investigated through the qualitative part of this study.

## **Methodology**

As aforementioned, this study uses a mixed-methods approach, meaning that it contains both quantitative and qualitative data. As these two different forms of data require different methods of analysis, their methods will be discussed separately and in sequence. First of all,

the quantitative methods concerning the dataset will be discussed, after which the qualitative methods regarding the interviews with the parents and experts will be discussed.

## **Quantitative methods**

### **Dataset**

For the quantitative part of this study, data will be used from the *Kindmonitor 2017* from the GDD Zuid-Holland Zuid (GGD zhz, 2017). The *Kindmonitor* is a questionnaire for parents which includes all sorts of questions about their child and its environment. The dataset contains the age groups 0-4 and 4-12, but for this research, only the part concerning the age group of 4-12 was used as the target group for this study is children in primary school. This part of the data contains 4.850 participants. 48.7% of the children of the participants are girls while 51.3% are boys. The data includes children from the age of 4 to 12, with each age being approximately evenly represented. The reach of this questionnaire contains 15 towns in the area of Zuid-Holland Zuid, including Alblasserdam. More specifically, of the 4.850 participants, 299 are from Alblasserdam. Furthermore, all questionnaires took place between September 2017 and December 2017. Regarding the recruitment, 16.000 parents of children aged 0-12 in the area of Zuid-Holland Zuid were invited to participate in the research. The participants did not get paid for participating in the questionnaire.

### **Measures**

#### *Healthy lifestyle*

In order to answer the research questions, several key concepts need to be operationalized. First of all, a healthy lifestyle for children will be measured using multiple variables in the dataset concerning lifestyle. The first question is: ‘Do you have a set bedtime for your child?’, with the answer categories 0 (no) and 1 (yes). The other questions are: ‘How many days a week does your child drink sugary drinks?’, ‘How many glasses of sugary drinks does your child drink on those days?’, ‘How many days a week does your child drink water or tea without sugar?’, and ‘How many glasses of water or tea without sugar does your child drink on those days?’. These four questions have answer categories ranging from 1 (very little) to 8 (very much). The two questions concerning the consumption of sweet drinks have a Spearman’s correlation of .56 ( $p < .001$ ), meaning that their correlation is high enough to be merged into a scale. Therefore, they were recoded and merged together based on their mean scores to one scale about sweet drinks, ranging from 1 (large consumption of sweet drinks) to

8 (little consumption of sweet drinks). The same was done for the two questions regarding water consumption, which have a Spearman's correlation of .634 ( $p < .001$ ). Based on their means, they were merged into a scale ranging from 1 (little consumption of water) to 8 (large consumption of water). As the correlation between the variables for sweet drinks, water, and bedtime is low, they cannot be merged into one scale that includes all three facets of a healthy lifestyle. Therefore, these three will be separately used in the analyses.

### *Social environment*

Furthermore, the social environment will be measured using the four aspects that together represent the social environment in this study.

#### Presence of peers

The first aspect of the social environment regarding the presence of peers will be measured by the following statement included in the dataset: 'There are too few friends for my child to play with outside'. The answer categories for this question range from 1 (low presence of peers) to 3 (high presence of peers).

#### Neighborhood

The second aspect of the social environment, the neighborhood, will be measured by a variable in the dataset that specifically concerns the child-friendliness of a neighborhood. Namely, 'How child-friendly is the neighborhood in which you live?', which answer categories range from 1 (very child-friendly) to 4 (not child-friendly). This was recoded to a higher score meaning a higher degree of child-friendliness.

#### Media education

The third aspect of the social environment, media education is measured by five questions in the dataset regarding this topic. The first question is: 'Do you have rules and agreements with your child about the number of hours that your child can use a computer, laptop, or mobile phone to surf the Internet, play games, or watch TV?', with the answer options 1 (yes) and 2 (no). As this variable is binary, it could not be merged into a scale with other variables.

Therefore, it will be used separately. The other four questions are: 'Do you know which sites your child visits on the Internet?', 'Do you always know who your child is chatting or texting with?', 'Do you watch your child when he/she is on the internet?', 'Do you talk to your child

about what he/she sees on the internet?'. The answer scales of these questions reach from 1 (always) to 4 (mostly not), with an additional answer category of 5 (not (yet) applicable). The last four questions will be merged into a scale of parental supervision with a Cronbach's alpha of .729 reaching from 1 (low media education) to 4 (high media education). Therefore, this aspect of the social environment entails two measures, the question about the rules concerning media use and the scale regarding parental supervision.

### Leisure

The last aspect of the social environment, leisure, is measured using three questions concerning leisure activities in the dataset. The first question is: 'How often does your child read by himself (outside school hours)?', with the answer categories ranging from 1 (every day), 2 (a few times a week) to 3 (never). The other two questions are: 'Does your child use social media?', and 'Does your child play video games?', which could be answered by 0 (no), 1 (yes), and 2 (I don't know), of which the score 2 (I don't know) was coded as missing. These three variables were recoded so that a higher score means more healthy spending of the leisure time. For social media and video games, this entails the answer categories 0 (yes), and 1 (no). As these three variables were not highly intercorrelated, they cannot be merged into one scale. Therefore, they will be used separately.

### *Control variables*

Next to the dependent and independent variables, this study also includes a few control variables. These are age, educational attainment of parents, gender, and parenting difficulty. Age is measured by the question 'What is the age of your child?', with the answer options ranging from 4 to 12. The education of parents is measured by the question 'What was the highest completed education of you and your partner?', with 1 being 'low educated' and 3 being 'highly educated'. Gender of the child is measured by the question 'Is your child a boy or a girl?', with 1 'boy' and 2 'girl'. These three variables are included as control variables as they are potential confounders in the expected associations. Lastly, parenting difficulty is measured by the question 'How do you experience raising your child?', with the answer categories ranging from 1 'very easy' to 5 'very hard'. This variable is included as a control variable as the expectation is that parents that find raising their child difficult can affect the outcomes of their children with regards to lifestyle and social environment. For example, Sadeh et al. (2010) found in this regard that parental difficulty, such as setting limits, relates

to sleep problems for children. Even though the effect of parenting difficulty on other lifestyle behaviors might not have been researched yet, it can't be ruled out that the effect is in fact present. Therefore, parenting difficulty will be included as a fourth control variable.

All missing values on the earlier discussed measures were excluded. In total, the selection of the aforementioned variables leads to a sample consisting of 3853 participants. See Table 3 for the descriptive statistics of all concepts included in this research.

### **Analyses**

To test the hypotheses and thereby answer the research questions, statistical analyses will be conducted using the program SPSS. In advance of the analyses, the variables of interest were tested for multicollinearity. Concerning the analyses, linear regression analyses will be used for the analyses including the consumption of water and sweet drinks. Furthermore, as the variable *bedtime* is binary, the analyses with bedtime as the dependent variable will be executed using logistic regressions. For every analysis, the regression coefficient or odds ratio and the significance level will be presented. Furthermore, for the linear regressions, the t-value and the degrees of freedom will be displayed.

To assess the first hypothesis regarding the relationship between the presence of peers and a healthy lifestyle, two regressions will be conducted, one including sweet drinks and the other including water as dependent variables, and the presence of peers as the independent variable. To test the second set of hypotheses concerning the association between the neighborhood and healthy lifestyles, there will be three regressions conducted, this time including the three variables about healthy lifestyles as the dependent variable and neighborhood as the independent variable. Hereby the regression with bedtime as the dependent variable will be logistic and the other two regressions will be linear. Likewise, for the third set of hypotheses about the relation between media education and healthy lifestyles, three regressions will be conducted with the three variables concerning healthy lifestyles as the dependent variable and media education as the independent variable, with the analysis for bedtime being logistic. To test the fourth set of hypotheses regarding the relationship between leisure and healthy lifestyles, another set of three regression analyses will be conducted with the healthy lifestyle variables as the dependent variable and leisure as the independent variable. Again, the analysis including bedtime as the dependent variable will be logistic. Lastly, to test whether the found effects of the analyses mentioned above will hold, all four

aspects of the social environment will be put into the analyses together. Entailing one multiple regression analysis for sweet drinks and one for water, and a logistic regression for bedtime. Hereby, the aspects of a healthy lifestyle are the dependent variables, and the presence of peers, neighborhood, media education, and leisure are the independent variables. An overview of all variables and the accompanying hypotheses can be found in Figure 1.

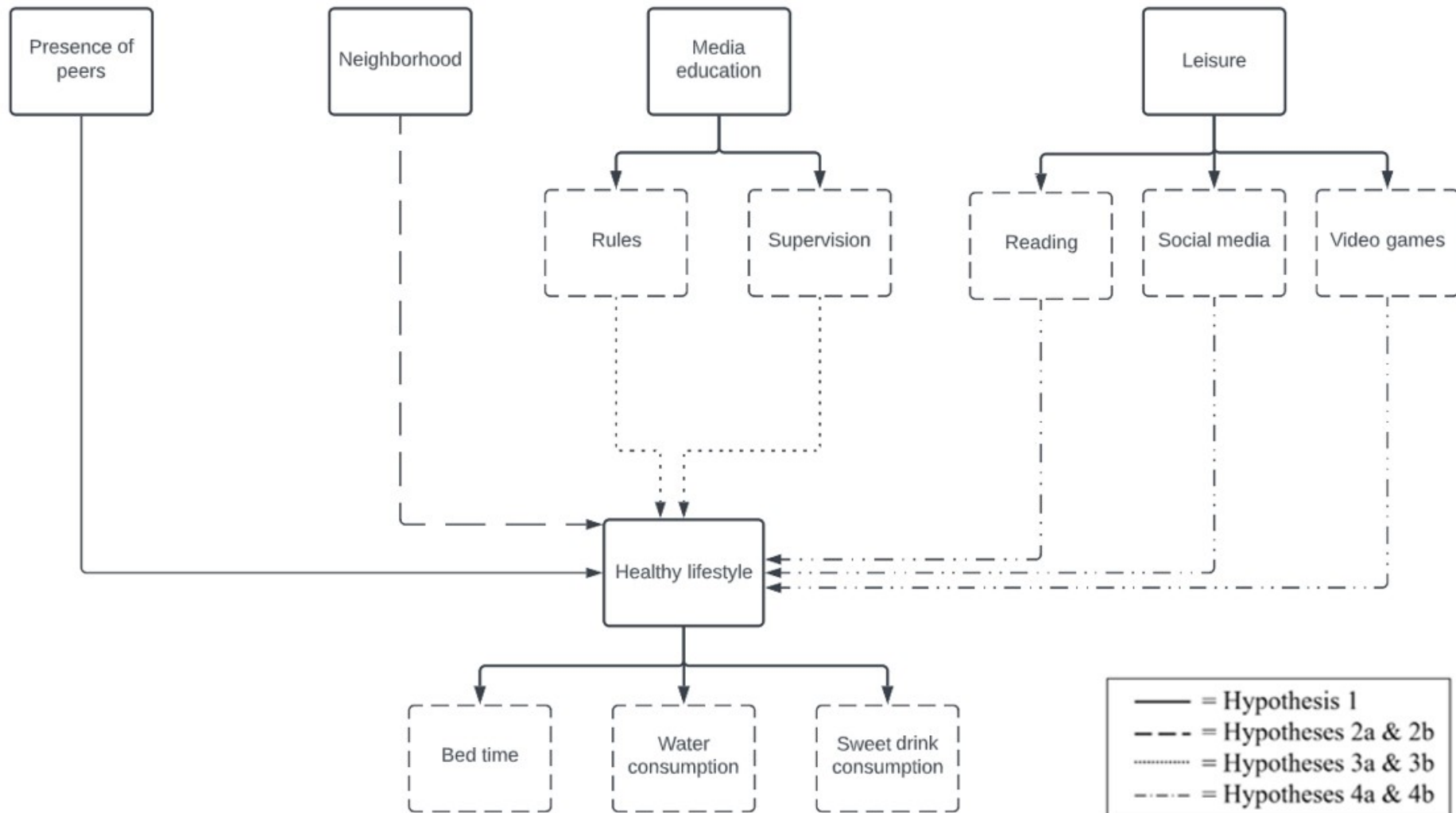
Furthermore, every analysis will firstly be run with the control variables age, education attainment of parents, gender, and parenting difficulty, to rule out the effects of these potential confounders.

### **Ethical considerations**

Potential participants received an invitation letter which, among other things, included information about the goal of the interview, how privacy issues are handled, and whom to reach in case of questions. Furthermore, the questionnaire itself also included a paragraph regarding the freedom to skip questions if respondents felt uncomfortable answering them.

**Figure 1.**

*Path model of all variables and accompanying hypotheses*



## Qualitative methods

To be able to dive deeper into the two topics of interest, this study also entails a qualitative part, which can help to paint the picture behind the quantitative numbers. Therefore, five parents of children aged 4-12 in Alblasserdam were interviewed. As the input of the parents on its own seemed surprisingly positive, the choice was made to also include expert interviews. The aim is that this will bring another perspective and, furthermore, reduce the potential selection bias. The methods of these two types of interviews will firstly be discussed in sequence, after which the joint analyses and the ethical considerations will be discussed.

### Interviews with parents

#### *Selection and recruitment*

Concerning the interviews of the parents of the children in Alblasserdam aged 4-12, the recruitment took place via the schools of their children. All the primary schools in Alblasserdam were firstly introduced to this study via a short introduction in a recurring meeting with all primary schools in Alblasserdam and the municipality. A few weeks later, the directors of the schools got contacted via e-mail asking if they could share an information letter with the target group (see Appendix 1 for the information letter). Via the contact details included in the information letter, the parents could inform the researcher of their willingness to participate in the interviews. Hereafter, appointments were made via e-mail with the parents. In total, five parents were interviewed, whose children go to four different schools and all live in different neighborhoods. See Table 1 for the description of the participants.

**Table 1.**

#### *Description semi-structured interviews with parents*

Participant	Gender	Age child	Gender child	Neighborhood	School
1	Male	7	Girl	De Dijk	Het Kompas
2	Female	10	Girl	Schrijversbuurt	Het Kompas
		12	Boy	Schrijversbuurt	Special education
3	Female	12	Boy	Souburgh	Beukelmanschool
4	Female	4	Boy	Centrum	Beukelmanschool
		6	Boy	Centrum	Beukelmanschool
5	Female	4	Boy	Bloemenbuurt	t' Nokkenwiel



### *Data collection*

As some people might not feel comfortable meeting in person due to the pandemic, the participants were offered the possibility of both an online and offline version of the interview. All participants chose to meet in person. On average the interviews lasted approximately 45 minutes, with some interviews being longer than others. The interview questions were made based on the questionnaire of the earlier mentioned dataset of the Kindmonitor, the website of JOGG, as well as the theoretical framework of this study. See Appendix 3 for an overview of the main interview questions. To provide sufficient space for in-depth and follow-up questions, the interviews took place in a semi-structured manner. Therefore, the content of the interviews differed slightly per interview, depending on the course of the interview. After the interviews were completed, they were transcribed, after which the recordings were deleted. The interviews took place from March-April 2022.

### **Experts interviews**

#### *Selection and recruitment*

After the interviews with the parents took place, the input that the parents provided seemed surprisingly positive. This could be due to participants answering in a socially desirable manner. However, it also leads to the suspicion that it might be the case that mostly parents that are engaged with their child and their lifestyle tend to react to these types of invitations. Therefore, it is possible that these interviews largely include cases in which everything is going very well, but do not cover the more ‘problematic’ cases concerning lifestyles and social environments. Luckily, Alblasserdam knows multiple organizations and experts that are engaged with children and youths in Alblasserdam. Three organizations were chosen, which all in a very different way frequently interact with the target group. The first organization is ‘*Jongerenwerk*’, which aims to be present where children are and tries to support children by organizing fun activities but also activities surrounding prevention, for example concerning drug use. The second organization is the ‘*ABC-team*’, which organizes cultural and sport-related activities for multiple age groups, including children aged 4-12. Lastly, two experts from the organization ‘*Jeugdteams*’ were interviewed together in the third and last interview. Their organization supports families that voluntarily ask for help by helping these families solve their problems or by referring them to other specialists. They were all interviewed as the expectation is that they have relevant experience with our target group, see Table 2 for an overview.

**Table 2.***Description semi-structured interviews with experts*

Participant	Gender	Organization
1	Female	Jongerenwerk
2	Male	ABC-team
3	Female	Jeugdteams
4	Female	Jeugdteams

*Data collection*

Firstly, the experts were asked if they were comfortable with an in-person interview. All participants agreed, however, due to the circumstances the first interview was changed to an online interview. In all three interviews, the same topics were discussed as in the interviews with the parents but this time from the perspective of the expert. Before the interview started the information letter and the informed consent, see Appendix 2, were discussed. The interviews were less structured than the interviews with the parents, as all experts had a different area of expertise. The interviews took approximately 45 minutes. The interviews took place from April – May 2022.

**Analyses**

All interviews were transcribed in Microsoft Word, after which they were analyzed in NVivo. During the analysis, the interviews were, first of all, openly coded through which patterns could be identified. Additionally, the transcripts were coded according to the relevant (sub)themes from the theoretical framework, namely healthy lifestyle, presence of peers, neighborhood, media education, and leisure. This in an attempt to make associations, both within and between different interviews. After both forms of coding, the codes were refined by categorizing codes into overarching categories, the corresponding code tree can be found in Appendix 9.

**Reliability and validity**

There are many aspects that have been taken into account in order to guarantee the reliability and validity of the results of the interviews. This is important as it ensures that our measures are consistent and accurate. First of all, in advance of the interviews, the researcher made sure to establish the hypotheses, research questions, and a topic list with the main interview

questions, in order to have a level of consistency throughout the interviews. This was done to increase the reliability of the interviews and to limit the potential subjectivity of the researcher. Furthermore, the questions are largely inspired by earlier published research, namely from the Kindmonitor 2017, in order to ensure validity. Additionally, the aspects included in the questionnaire concerned subjects that the participants are knowledgeable on. The probability of socially desirable answers was decreased as the participants were informed about the anonymity of the research, which increases the validity of this study. Lastly, to further increase the validity, experts' opinions were included which ensured a better overall view of the situation in Alblaserdam.

### **Ethical considerations**

Included in the e-mail asking to participate in this research is the information letter, which entails detailed information about potential participation in the form of an interview. In advance of the interviews, the information letter was again discussed after which the informed consent was discussed and signed. All participants agreed to participate in the interviews and the parents and the third and fourth experts also agreed to the recording of the interviews. The recordings were made using secured recording equipment borrowed from Utrecht University. The recordings were, furthermore, anonymous as no personal information was mentioned during the interviews. After the interviews were transcribed, the recordings were deleted. The transcripts, furthermore, also did not include any personal information. All interviews were voluntary, participants could stop at any moment without having to explain themselves.

## **Results**

We will now turn to the results of this study. This will again be presented in two parts, first the quantitative results regarding the analysis of the dataset will be discussed. Afterward, the results of the interviews with the parents and experts will be presented.

### **Quantitative results**

In order to answer the hypotheses and thereby the research questions, multiple statistical analyses were run. As one of the aspects of a healthy lifestyle, having a set bedtime, is a binary variable, the analyses including this variable will be logistic regressions. The regression analyses for the consumption of water and sweet drinks will be linear regressions. Therefore, there are three statistical tests run per aspect of the social environment, one for

each aspect of lifestyle. To prevent potential confounding effects the logistic and linear analyses are run with the control variables age, education of parents, gender, and parenting difficulty. The corresponding tables regarding the results of these analyses can be found in Appendix 4 to 7. Lastly, to test whether the found effects of these analyses hold when the other aspects of the social environment are included, three regression analyses are run including all aspects of the social environment and the control variables. This entails one logistic regression for bedtime, one linear regression for sweet drinks, and another linear regression for water consumption. The results of these analyses can be found in Table 4, and will be the guidelines for the discussion of the results. Compared to the individual analyses, only one significant association disappears when the other aspects of the social environments are added. This regards the relation between reading and bedtime, which will be discussed later on.

### **State of the social environment and healthy lifestyles**

To investigate the current state of the social environments and healthy lifestyles of children, descriptive statistics were run, see Table 3. Regarding the current state of healthy lifestyles of children, the data shows that 92% of children have a set bedtime, which indicates relatively consistent and thus healthy sleeping patterns. Furthermore, on average children score 4.71 out of 8 on how much water they consume. Regarding sweet drinks, children on average score 4.4 out of 8 on how few sweet drinks they consume. Therefore, although children do drink water, the drinking habits of children can certainly be healthier.

Regarding the social environments of children aged 4-12, Table 3 also provides multiple insights. Starting off with leisure activities, 79% of children aged 4-12 play video games, and 21% use social media. Regarding how much children read for pleasure, children on average score a 2.34 out of 3, entailing that on average children read at least a few times a week, which is relatively positive. Regarding media education, 67% of the parents of children aged 4-12 have rules regarding screen time. Furthermore, parents on average score a 3.03 out of 4 on how heavily they supervise their child's online behavior. Showing that media education is certainly present, although it could be more. Concerning neighborhoods, the neighborhoods are on average marked as 3.13 out of 4 regarding how child-friendly it is, showing that the average neighborhood is considered child-friendly. Lastly, for the presence of peers, the average score is 2.49 out of 3, regarding how high the presence of peers is in the

environment of a child, entailing that each child has a moderate or high degree of peers in its environment.

**Table 3.**

*Descriptive Statistics*

	N	Minimum	Maximum	Mean	Std. Deviation
<b>Healthy lifestyle</b>					
<i>Bedtime</i>	3853	0.00	1.00	.92	.26
<i>Water</i>	3853	1.00	8.00	4.71	1.91
<i>Sweet drinks</i>	3853	1.00	8.00	4.40	1.65
<b>Leisure</b>					
<i>Gaming</i>	3853	0.00	1.00	0.21	.41
<i>Reading</i>	3853	1.00	3.00	2.34	.63
<i>Social media</i>	3853	0.00	1.00	0.79	.41
<b>Media education</b>					
<i>Rules</i>	3853	0.00	1.00	0.67	.47
<i>Supervision</i>	3853	1.00	4.00	3.03	.58
Neighborhood	3853	1.00	4.00	3.13	.57
Presence of peers	3853	1.00	3.00	2.49	.72
Age	3853	4.00	11.00	8.08	-
Education parent	3853	1.00	3.00	2.00	-
Girl	3853	0.00	1.00	0.49	-
Parenting difficulty	3853	1.00	5.00	2.52	-

**Healthy lifestyle and presence of peers**

The results regarding the first hypothesis, which postulates that the presence of peers leads to less healthy drinking habits, are displayed in Table 4. First of all, Model 2 of Table 4 shows that the water consumption of a child is not significantly related to the presence of peers in the environment ( $B = .049$ ,  $t(3852) = 1.094$ ,  $p = .274$ ). Model 3 shows that the presence of peers is significantly related to the consumption of sweet drinks for a child ( $B = -.079$ ,  $t(3852) = -2.015$ ,  $p < 0.05$ ). Meaning that a higher presence of peers leads to higher consumption of sweet drinks and thus less healthy drinking habits. Therefore, these analyses show that the presence of peers relates to the consumption of sweet drinks but it does not relate to water consumption. Therefore, the hypothesis regarding the negative impact of peers on drinking

habits is only partially supported by the results of this study, only concerning the consumption of sweet drinks.

### **Healthy lifestyle and neighborhood**

The second set of hypotheses, entailing that a child-friendly neighborhood leads to more healthy drinking habits and to more healthy sleeping habits was tested by logistic as well as linear regression analyses. The outcomes of these analyses are, again, displayed in Table 4. Model 1 shows that a child-friendly neighborhood does significantly relate to the bedtime of children ( $B(\text{exp}) = 1.241$ ,  $p < 0.05$ ), meaning that children that live in a more child-friendly neighborhood have a 1.249 higher chance of having a set bedtime. Model 2 of Table 4 shows that a child-friendly neighborhood does not significantly relate to changes in the consumption of water in children ( $B = -.031$ ,  $t(3852) = -.659$ ,  $p = .510$ ). When looking at the relation between the neighborhood and the consumption of sweet drinks, see Model 3, this relation is also not significant ( $B = -.020$ ,  $t(3852) = -.485$ ,  $p = .627$ ). Entailing that again, a more child-friendly neighborhood does not correlate with healthy drinking habits. Returning to the hypotheses, for hypothesis 2a there is no effect of the neighborhood found on the consumption of water and sweet drinks. Therefore, this hypothesis cannot be confirmed. As there is a significant positive effect found of the neighborhood on bedtime, hypothesis 2b is supported by our results.

### **Healthy lifestyle and media education**

Concerning the third set of hypotheses, that state that media education leads to more healthy drinking habits and more healthy sleeping habits, these were also tested by logistic and linear regression analyses. See Table 4 for the results. As displayed in Model 1, rules about media use significantly and positively relate to the bedtime of children ( $B(\text{exp}) = 2.488$ ,  $p < .001$ ), meaning that children that have rules about media education have a 2.497 higher chance of a set bedtime. Furthermore, parental supervision also positively and significantly relates to the bedtime of children ( $B(\text{exp}) = 1.371$ ,  $p < .01$ ), entailing that this aspect relates to a 1.436 times higher chance of a set bedtime for children. Therefore, both aspects of media education, lead to more healthy sleeping habits, which supports hypothesis 3a.

Model 2 of Table 4 shows the results regarding the consumption of water. It shows that both rules about social media and supervision significantly lead to healthier drinking habits ( $B = .256$ ,  $t(3852) = 3.904$ ,  $p < .001$ ) and ( $B = .428$ ,  $t(3852) = 7.766$ ,  $p < .001$ ), as they

both have a positive relation with the consumption of water. Lastly, concerning the consumption of sweet drinks and media education, the outcomes of the analyses are displayed in Model 3. It shows that rules about media have a positive and very significant effect on the consumption of fewer sweet drinks ( $B = .286$ ,  $t(3852) = 5.011$ ,  $p < .001$ ). The supervision of parents also very significantly and positively relates to consumption of sweet drinks ( $B = .391$ ,  $t(3852) = 8.160$ ,  $p < .001$ ). Therefore, as the analyses show that both aspects of media education lead to healthier drinking habits, hypothesis 3b is supported by the results.

### **Healthy lifestyle and leisure**

Lastly, the fourth set of hypotheses postulates that a healthier way of spending leisure relates to healthier sleeping- and drinking habits. These were once again tested by logistic and linear regression analyses, and the results can be found in Table 4. The logistic regression for bedtime did not show any significant effects for social media ( $B(\text{exp}) = 0.989$ ,  $p = .947$ ) and gaming ( $B(\text{exp}) = 1.228$ ,  $p = .220$ ). The analyses of Table 4 did also not find a significant relation between reading and bedtime ( $B(\text{exp}) = 1.153$ ,  $p = .165$ ). However, when the relation between leisure activities and bedtime is individually tested in a linear regression, see Appendix 7, a significant effect does show ( $B = .231$ ,  $t(3852) = 4.633$ ,  $p < .001$ ). This entails that reading relates to a 1.326 higher chance of a set bedtime. That this effect disappears when all other aspects of the social environment are added suggests that it might be that reading only has an effect on bedtime when the other aspects of the social environment are not present. Therefore, only the results regarding reading, to a certain degree, support hypothesis 4a, as the results show that under certain circumstances, reading does affect sleeping habits of children. The results regarding gaming and social media do not support hypothesis 4a.

Regarding the relation between leisure and water consumption, see Model 2, the results show no significant relation between gaming and water consumption ( $B = .007$ ,  $t(3852) = .096$ ,  $p = .924$ ) and between social media and water consumption ( $B = -.170$ ,  $t(3852) = -2.022$ ,  $p = .135$ ). There is however a positive relation between reading and water consumption ( $B = .159$ ,  $t(3852) = 3.176$ ,  $p < .01$ ), meaning that more reading associates with a higher water consumption. Lastly, for sweet drinks, see Model 3, the results show a positive relation with gaming ( $B = .348$ ,  $t(3852) = 5.175$ ,  $p < .001$ ), meaning that playing video games is related with a higher consumption of sweet drinks. Concerning the effect of both reading and social media on the consumption of sweet drinks, no correlation was found ( $B = -.006$ ,  $t(3852) = -.146$ ,  $p = .884$ ) and ( $B = -.117$ ,  $t(3852) = -1.598$ ,  $p = .110$ ). Regarding the relation

between healthy ways of spending leisure and healthy drinking habits, there are mixed results, as not all expected associations were found. However, the effects that are found point to healthy leisure activities leading to healthy drinking habits, therefore, there is some support found for hypothesis 4b.

As displayed in Table 4, the chosen control variables do significantly relate to the dependent variable in most analyses. This suggests that age, gender, parental education, and parenting difficulty do in fact relate to the lifestyles of children.



**Table 4.**

*Regressions with healthy lifestyle as dependent variable and social environment and control variables as independent variables*

Variable	Model 1: Bedtime <sub>1</sub>				Model 2: Water		Model 3: Sweet drinks	
	B	95% CI for Odds ratio			B	s.e.	B	s.e.
		Lower	Odds ratio	Upper				
Presence of peers	.032 [.090]	.865	1.032	1.231	.049	.045	-.079*	.039
Neighborhood	.216** [.094]	1.032	1.241	1.493	-.031	.047	-.020	.041
Media education								
<i>Rules</i>	.912*** [.127]	1.939	2.488	3.192	.256***	.066	.286***	.057
<i>Supervision</i>	.315** [.111]	1.103	1.371	1.704	.428***	.055	.391***	.048
Leisure								
<i>Gaming</i>	-.011 [.167]	.713	.989	1.372	.007	.077	.348***	.067
<i>Reading</i>	.142 [.103]	.943	1.153	1.409	.159**	.050	-.006	.043
<i>Social media</i>	.205 [.168]	.884	1.228	1.705	-.170	.084	-.117	.073
Age	-.016 [.029]	.921	.984	1.051	.035*	.016	.046**	.014
Education parents	-.028 [.090]	.815	.973	1.160	.345***	.044	.143***	.038
Girl	.099 [.124]	.858	1.104	1.419	.180**	.062	.143**	.054
Parenting difficulty	.023 [.084]	.867	1.023	1.208	-.164***	.041	-.127***	.035
Constant	.020 [.682]				2.322***	.341	2.904***	.297
R <sup>2</sup>	.052				.051		.045	
N	3853				3853		3853	

\*\*\*p <.001, \*\* p <.01, \*p <.05, two-tailed

<sub>1</sub> The analyses including the variable bedtime are logistic regressions.

## Qualitative results

### Interviews with parents

In addition to the quantitative results, the analyses of the interviews with parents about the healthy lifestyle and social environments of their children can provide further insights into these topics. For an overview of the outcomes of the parental interviews, see Appendix 8.

#### *Healthy lifestyles*

With regards to the healthy lifestyles of their children, the outcomes of the interviews seem to be fairly positive. When asked to rate the lifestyles of their children, the parents of six children gave their child's lifestyle a score of 8 out of 10 and one child got a 6 out of 10. These high rates were confirmed by the answers that the parents provided to the more in-depth questions about the different aspects of a healthy lifestyle. Most parents seemed invested in making sure their children eat and drink healthy, sleep well, and exercise regularly. For example, one participant stated: *'After school, I always freshly squeeze orange juice, so after school, they usually drink fresh orange juice.'* She also elaborated that she spends large amounts of money to buy fresh and healthy ingredients. What the parents also largely indicate is that healthy lifestyle choices, such as a healthy diet, are something children get used to. This leads to children finding it normal to portray healthy habits, such as asking for a glass of water at a party instead of soda. One parent found his children even started eating vegetables because they felt like it: *'Sometimes they have already eaten their 200 grams of vegetables before I'm awake.'* Another mother said that her son now asks to go to bed when he is tired, as he has grown to have a healthy relationship with sleeping. Most parents indicated that it might take some effort from the parents to get their child to have a healthy lifestyle, but that children easily take over the healthy habits.

#### *Social environment*

With regards to the social environment, the scores that parents gave their children regarding their social environment ranged between a 6 and a 9 out of 10, with an average of 7.7. Regarding the presence of peers in their children's environment, all parents agreed that there are plenty of peers in the lives of their children. However, there were cases where children found it difficult to make friends. One participant stated about her son on the autistic spectrum: *'Making friends is very complicated for him, but he also does not really feel the need to make friends.'* Regarding the neighborhood, all parents found their neighborhood safe

and child-friendly to some degree, with some neighborhoods being safer than others. The biggest cause of unsafety that was mentioned several times was the traffic. One participant recalls: *'This road is busy. The children play on the sidewalks, but the buses sometimes drive so fast, it is really dangerous.'*

One aspect that all parents seem to view similarly is media education. All parents that were interviewed were involved in the media use of their child, and most had very clear and strict rules about technology use. In the cases where children had a mobile phone, the parents were closely monitoring it. One participant said: *'We have connected our accounts to his account, so we can see exactly what he is watching. We are definitely aware of his online behavior.'* Concerning the way they are spending their leisure, six out of seven children included in this study seem to be doing well. Entailing that they barely play video games or use social media, but spent their time reading, playing outside, or going on day trips with their parents. However, for the seventh child, the situation is less healthy, partially as there are no fitting sports clubs for him because of his autism. His mother said: *'A few years ago we had 'JamaarIk', which was a sports club for children with a stimulus processing disorder, where those children could do their thing. He really enjoyed going. Unfortunately, it stopped, due to lack of volunteers.'*

Lastly, in the interviews, the parents were asked whether they feel that some aspects of the social environment are more important than others. Two parents thought that there is no one aspect more important than the other, but *'What is important, is that there is balance.'* Furthermore, two parents thought friends are the most important, and one parent argued that the neighborhood is the most important.

#### *Healthy lifestyle and social environment*

In three interviews, the question arose of whether there is a relation between a healthy lifestyle and the social environments of children. All three parents think that this is the case, and they all argued that they thought it was the environment that influenced the lifestyle. One mother said in this regard: *'I think that your environment always influences the choices that you make. So there is definitely a relationship'*.

#### *Role of the municipality*

All respondents were asked about the role of the municipality in improving the social environments of children. Two respondents indicated that they were very content with the involvement of the municipality, one said *'The municipality is already involved in the aspects*

*that are not going so well. I don't think you can expect more from a government.'* The other three respondents all had one specific aspect in mind that they thought could be improved by the municipality of Alblasserdam. Namely, a sports club for children with disorders that make it hard to join regular sports clubs, fewer cars in residential areas, and the refurbishing of a local skate area for children. As the municipality of Alblasserdam is currently working hard to achieve a *'Fit and green'* village for all residents, the interviews specifically included the question of whether participants felt like there is enough greenery in their neighborhoods. Of the five participants, four indicated that there is plenty of greenery in their neighborhoods. One even said: *'Yes, there is enough greenery. To be honest, I wish they would trade some greenery for parking spaces, as we could use more of those.'* One participant, living very close to the center, said that some more greenery would be welcome, in the form of a grass field to play soccer and such. In three interviews, the parents were also asked whether the municipality has a role in promoting healthy lifestyles for children. Two parents felt like that is a difficult thing to do as lifestyles are something that is largely practiced within people's homes. The other respondent, however, said: *'I don't see anything wrong with pushing towards a healthy lifestyle in a friendly manner.'*

### *Differences and similarities*

When comparing the outcomes of the five different interviews, a few things become apparent. First of all, the children that have trouble in one domain, tend to also have trouble in other domains. For example, a child that had trouble eating also had trouble with a healthy way of spending leisure and frequently exercising. Furthermore, it turned out that the two children that had significantly more trouble with achieving a healthy lifestyle and some aspects of the social environments were both children that were on the autism spectrum, to differing degrees. These were the children that got the lowest scores on the social environment, both around a 6, while the other children scored around an 8 or 9. Therefore, the biggest differences were between children with- and without special needs. Suggesting that children with special needs might have more difficulty with healthy habits and aspects of the social environment, and children without seem to do quite well regarding these aspects in Alblasserdam. For the children that do not have special needs, most outcomes were quite similar regarding healthy lifestyles, peers, media education, and leisure. However, there were some differences in how their parents perceived their neighborhood.

## **Expert interviews**

Furthermore, the experts' opinions can also provide insights from a different perspective compared to the parents which can help to answer the research questions. The outcomes from the interviews with the experts in the field will now be discussed.

### *Healthy lifestyles*

Concerning healthy lifestyles, the outcomes of the expert interviews confirmed that children that are already suffering, for example, children living in poverty, also have trouble achieving healthy lifestyles. The first expert said in this regard: *'It turns out that there are approximately 300 youths in Alblasserdam that are living on or under the poverty line, who are not playing sports in groups in an organized manner.'* The second expert mentioned another group that is having trouble, namely overweight children, which tend to attend fewer sport-related activities. However, the first two experts argue that the average child from Alblasserdam is doing fine in terms of a healthy lifestyle. The second expert also mentioned that quite a lot of children already drink lots of water, although there are still children that drink soft drinks. This was confirmed by the third interview, as the third and fourth experts also do not see anything remarkable regarding the lifestyles of children on average. However, they doubt if they can provide a realistic picture as they have limited relevant knowledge on this topic.

### *Social environments*

Regarding the aspects of the social environment, experts indicate more problems than the parents did. The first expert mentioned three problems, one being that due to the Covid pandemic children struggle with how to behave in groups. Furthermore, she notices that fewer children play outside, and thirdly there is a lot of traffic in Alblasserdam. The second expert also sees an increase in traffic, which prohibits children from playing outside for example as parents find it too dangerous for them to do so. Furthermore, he does not see aspects of the social environments that are structurally bad, but he does see that for children from certain disadvantaged groups there is a lot to gain. For example, for the earlier mentioned overweight children. The third and fourth experts have different expertise, as they only encounter children that need help, which comes with different experiences. They did confirm that children on the autism spectrum tend to struggle more with social contacts. Regarding leisure and neighborhood, they did not receive signals of trouble from parents. What they do get back

from parents is troubles with media education and regulation, which accompanies children spending lots of time gaming or on social media.

### *Greenery*

As Alblasserdam is very concerned with being *'Fit and green'*, the experts were also asked about greenery in Alblasserdam. In this regard, the first two experts agreed that there needs to be significantly more greenery in Alblasserdam. They also both acknowledged that this is hard to change as there is not much space left. However, the second expert provided a solution for this, as he said: *'We should let nature do its thing. This enables children to create their own playgrounds. It is more fun and more challenging for children to play in trees and shrubs. We should just rearrange the greenery in the neighborhoods. That is what the children want.'* The third and fourth experts did not have any specific comments about the greenery in Alblasserdam.

### *Role of the municipality*

Lastly, the experts all had something to say about the role of the municipality. The first expert indicated that the target group that the municipality should focus on is children living in poverty, especially concerning their opportunities of playing sports in an organized manner. She also mentioned that we have a responsibility for children that cannot keep up with the rest because they are autistic or do not get enough support from home. The second expert felt that there are already a lot of activities organized for children, but argued that more organized activities after school could be beneficial for the children. For which, however, more manpower is needed. The third and fourth experts also had some ideas about the role of the municipality. Regarding what touches on the topics of this study, they mentioned the demand for activities for children with behavioral limitations. As a normal sports club does not fit them, they experience trouble finding appropriate leisure activities.

## **Conclusion**

This study aimed to answer the following three research questions: *'To what extent are the social environments and lifestyles of children aged 4-12 in the Netherlands healthy?'*, *'To what extent does the social environment of children aged 4-12 in the Netherlands influence their lifestyles?'*, and *'Which aspects of the social environment are most important for achieving a healthy lifestyle for children aged 4-12?'*. To answer these questions, four sets of hypotheses were formulated and tested using a quantitative dataset. Furthermore, qualitative

interviews were conducted to further deepen the topics and provide additional insights and hereby strengthen the results.

Regarding hypothesis 1, which postulates that the presence of peers correlates with less healthy drinking habits, the results partially support this hypothesis, as it was found that the presence of peers relates to increased consumption of sweet drinks. Peers do not influence water consumption. Therefore, only the results regarding sweet drinks are in line with social facilitation theory. The second set of hypotheses proclaims that a child-friendly neighborhood leads to healthier drinking habits and a set bedtime. The effect of the neighborhood was only found for bedtime, therefore only hypothesis 2b was confirmed, thereby also partially supporting ecological systems theory. Concerning the third set of hypotheses, the expectation was that the two forms of media education relate to healthy drinking- and sleeping patterns. The results show that rules and parental supervision relate to a higher chance of a set bedtime and also to healthier drinking patterns, meaning that there is support for hypotheses 3a and 3b. Lastly, the fourth set of hypotheses proclaims that healthier ways of spending leisure relate to healthier drinking patterns and sleeping patterns. The results indicate that reading, on its own, does associate with a higher chance of a set bedtime. Furthermore, reading relates to higher consumption of water, and playing video games relates to higher consumption of sweet drinks. Implying that to a certain extent, healthier leisure activities associate with healthier sleeping and drinking habits, partially confirming hypotheses 4a and 4b.

Concerning the current state of the social environments and lifestyles of children, the interviews with the parents and the experts revealed that the 'average' child from Alblasserdam is doing fine. This is confirmed by the descriptive statistics. However, certain groups of children need some extra help, such as children with autism, children in poverty, and overweight children, as their environments and lifestyles are less healthy, which makes them vulnerable in that sense. Furthermore, the statistical analyses show that all four aspects of the social environment influence at least one aspect of a healthy lifestyle. Therefore, the social environment and healthy lifestyles are certainly related, which the qualitative interviews confirmed. Regarding their impact, media education and leisure are the only aspects that influence all facets of a healthy lifestyle. However, the interviews suggest that we need to focus on certain groups of children that are not doing well in multiple aspects of the social environment as well as concerning lifestyle, instead of focusing on certain aspects of the social environment.

To conclude, this research shows that a healthy social environment can certainly contribute to a healthier lifestyle for children aged 4-12. This study also shows that although

the average state of the social environments and healthy lifestyles are sufficient, there are still areas that can be improved, which is especially the case for special needs children.

### **Discussion**

Looking back at the results of this study, most outcomes were in line with the formulated hypotheses, as all but one hypothesis were at least partially confirmed. This suggests that, overall, a healthy social environment for children is indeed related to healthier lifestyles for children. Only the presence of peers led to less healthy lifestyles in terms of drinking habits, which was in line with the expectations, which predicted that the presence of peers lead to fewer constraints and thus less healthy drinking habits.

However, multiple other expected relations were not significant. The results show that there is no relation between a child-friendly neighborhood and the drinking habits of children. The reasoning behind the hypothesis is that a neighborhood can influence lifestyles through the resources they provide, such as the presence of healthy food shops. It might be the case that drinking behavior is separate from neighborhood influence as everyone has access to drinkable water at home. Furthermore, sweet drinks usually have a long shelf-life, meaning that quick access to (healthy) supermarkets might not be relevant. Additionally, there was no effect of peers on the consumption of water found, which was against the expectations. A possible explanation could be that children usually consume water in settings where there are not many peers present, such as at home, and therefore it happens outside the influence of peers. Furthermore, for the association between leisure and aspects of a healthy lifestyle, gaming only relates to the consumption of sweet drinks, while reading leads to more water consumption and a set bedtime. The lack of relation between gaming and sleeping habits might be because playing video games for children aged 4-12 does not yet entail very long and intense sessions that influence how they sleep. For social media, there was no association with any of the aspects of lifestyle. This finding is unexpected as the reviewed literature strongly points towards a negative effect of social media on lifestyle. This result can possibly be explained by the fact that the children in this study are young, not yet teens, which might affect the way and the extent to which they use social media, which was not measured in this study.

### **Implications**

This study has some scientific implications. Regarding the not yet largely explored relationship between social environments and lifestyles for children, this research shows that a



healthy social environment clearly relates to a healthy lifestyle for children. Therefore, when trying to improve the lifestyles of children, the social environment is important to take into account. Furthermore, regarding the applied theories, this study shows support for the two ecological models and confirms that social facilitation theory can indeed be applied to children. Additionally, as this study shows no association between social media use and lifestyle choices, this suggests that the effects of media use might be different for children than for teens. It also suggests that when a child uses social media, it does not necessarily have negative consequences. Perhaps it depends more on how much time is spent using social media. In other words, this study provides insights into the effect of social media use on children.

### **Limitations**

Despite all efforts, there are some limitations to this study. One of them is the small sample size of the interviews, as only 5 parents are included in the parental interviews. Even though this has been tried to compensate by including experts' opinions that have more of an overview of all children in Alblasserdam, it remains a threat to the external validity of the outcomes.

Additionally, the four aspects used to conceptualize the social environment are only a part of the social environment of a child. It remains the question of what the effects of the other aspects of the social environment are, and thus what the effect of all aspects of the social environment together would be. Furthermore, the measures for lifestyle are also limited as they exclude important aspects, such as physical activity.

Furthermore, this study uses samples from Zuid-Holland-Zuid and Alblasserdam, which is only a small part of the Netherlands. Therefore, these samples might not be as representative of the Netherlands as a whole or other countries.

The last limitation is that the quantitative analyses could not control for the aspects that turned out to be relevant during the interviews, such as autism and the economic status of the parents. It cannot be ruled out that these factors influence the relationship between the social environment and a healthy lifestyle.

### **Suggestions for future research**

Furthermore, this study provides some suggestions for future research. The first suggestion is to conduct research specifically on vulnerable groups of children in society that struggle concerning their lifestyles and social environments, such as children with autism and children

living in poverty. As the results suggest that these children are the ones that could use help, research should be conducted to investigate what can be done to improve the lifestyles and social environments of these children.

Furthermore, to counter the limitation regarding the limited definition of the social environment as well as healthy lifestyles, a recommendation is to conduct a larger study including all aspects of a healthy lifestyle and all, or at least more, relevant aspects of a child's social environment.

Lastly, during the process of this study, there were multiple signals that Covid-19 harmed the social environments and lifestyles of children. The dataset of this research, however, is from before the pandemic, therefore, the quantitative analyses could not test those claims. As the Kindmonitor of 2022 came out in the meantime, it would be good to research the differences between the situation in 2017 and 2022. For example, in terms of how children behave in groups, but also how children spend their leisure time, to investigate potential differences.

### **Policy advice**

This thesis also aims to answer the policy question: *'In which way can policy contribute to a healthy social environment and lifestyle for children aged 4-12 in the Netherlands?'*. Hereby, the focus will be on the situation in Alblasserdam which is researched by the interviews with the parents and the experts.

Based on these interviews, advice for the municipality of Alblasserdam is to target the social environments of children to try to improve them, as the current study shows that a healthy social environment is also associated with a healthier lifestyle. Additionally, lifestyles are something that is largely practiced at home, and therefore more difficult to change. To improve the social environments of children the focus should be on maintaining the current state of the social environments as well as on improving the social environments of vulnerable children. Hereby, collaborations with organizations such as JOGG that already focus on improving the social environments are valuable to maintain and perhaps even improve the average social environment. For the collaboration with JOGG, it is important to focus on all aspects of the social environment as they are all important, and all aspects approximately have the same amount of room for improvement. However, to improve the social environment of vulnerable children, the insights and experiences of professionals should be taken into account.

This study shows that vulnerable children struggle the most regarding leisure activities and contact with peers. For these children, the aspect of leisure entails reduced or lack of access to sports clubs due to lack of money or disorders such as autism which make it impossible to join regular clubs. Hereby, advice is to look into providing fitting exercise opportunities for children with physical or mental limitations, perhaps in collaboration with professionals, and focus on providing children in poverty opportunities to play sports in an organized manner. This will in turn increase opportunities for meeting peers, therefore also tackling this aspect.

This advice strongly fits with Alblasserdam's vision to be '*Fit and green*', as increased opportunities to play sports for vulnerable groups make society more fit. Furthermore, although most parents are content with the amount of greenery, experts argue for more greenery in Alblasserdam, which also fits the vision of '*Fit and green*'. As there is not much space available, advice would be to look into refurbishing the available space. Hereby, one should think about planting more trees and shrubs instead of grass or pavement. Another possibility is to add more greenery such as trees and shrubs in the area of existing playgrounds to make children's play more creative and challenging. This can make Alblasserdam a more green environment and also encourage children to play, thereby increasing the health of children in terms of lifestyle.

To conclude, overall the social environments and lifestyles of children in Alblasserdam are relatively healthy, although there is room for improvement. Nevertheless, it is essential to focus on the groups of vulnerable children that cannot join existing programs that aim to improve social environments and lifestyles.

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## Appendices

### Appendix 1. Information letter

#### Informatiebrief voor deelname aan sociaalwetenschappelijk onderzoek

Voor: Ouders/verzorgers van kinderen 4, 6, 8, 10 of 12 jaar

Betreft: Onderzoek naar de sociale leefomgeving & levensstijl van kinderen (4-12 jaar)

Beste meneer/ mevrouw,

#### **Inleiding**

In het kader van het afstuderen voor mijn masteropleiding Sociologie loop ik momenteel stage bij de gemeente Alblasserdam. Als onderdeel van mijn stage schrijf ik mijn scriptie met allereerst als doel om de sociale leefomgeving van kinderen tussen de 4-12 jaar in Alblasserdam en heel Nederland in kaart te brengen. Daarnaast hoop ik de relatie tussen de sociale leefomgeving en een gezonde levensstijl voor kinderen te kunnen onderzoeken. De sociale leefomgeving kan gezien worden als het geheel van onder andere sociale, culturele en economische factoren die invloed hebben op het gedrag van mensen. Hieronder vallen heel veel aspecten, maar in dit onderzoek wordt er gekeken naar de aspecten leeftijdsgenootjes, vrije tijd besteding, sociale media, en de buurt. Op basis van de uitkomsten van mijn onderzoek hoop ik vervolgens beleidsadvies geven aan de gemeente Alblasserdam omtrent wat er gedaan kan worden om de sociale leefomgevingen van kinderen te verbeteren en de levensstijl van deze kinderen gezonder te maken. Via deze brief wil ik u uitnodigen om deel te nemen aan dit onderzoeksproject.

#### **Opzet/ uitvoering van het onderzoek**

Voor mijn scriptie-onderzoek wil ik graag een aantal ouders van kinderen van 4, 6, 8, 10, en 12 jaar uit Alblasserdam interviewen over de sociale leefomgeving en levensstijl van hun kinderen. Dit zal gaan over een eenmalig interview van ongeveer een uur. Tijdens het interview zal ik een aantal vragen stellen over de volgende thema's: levensstijl, sociale media, leeftijdsgenootjes, buurt, en vrije tijd. Daarnaast zal ik ook wat overkoepelende vragen stellen over de sociale leefomgeving.

#### **Wat wordt er van u verwacht**

U zal eenmalig geïnterviewd worden. In dit interview wordt er enkel van u verwacht dat u de vragen, zover mogelijk, beantwoordt. Er is geen verdere voorbereiding nodig. Verder wil ik het interview graag opnemen, mits u daar toestemming voor geeft. Het doel hiervan is dat ik me tijdens het interview volledig kan richten op de vragen en het gesprek, wat lastig is als ik ook mee moet typen met het interview. Mocht u dit liever niet willen, dan hoeft het echter niet opgenomen te worden. Het interview zal plaatsvinden op een moment dat voor u uitkomt, online of fysiek.

#### **Vertrouwelijkheid van de gegevensverwerking**

Alle informatie die tijdens dit onderzoek wordt verzameld is geheim en zal vertrouwelijk worden behandeld. Alleen de onderzoekers kunnen de uitkomsten zien.

### **Vrijwillige deelneming**

Deelname aan dit onderzoek is vrijwillig. Als u bepaalde vragen niet wilt beantwoorden bent u daar niet toe verplicht. U kunt uw deelname aan het onderzoek ook op elk moment beëindigen, zonder enige uitleg en zonder enige negatieve gevolgen. Als u de deelname beëindigt, zullen we de tot dan toe verzamelde gegevens gebruiken, tenzij u duidelijk aangeeft dat u dat niet wilt.

### **Audio-opnamen**

In dit onderzoek wordt er, als u hiermee instemt, gebruik gemaakt van audio-opnamen. De opnamen worden gemaakt met een beveiligd opname apparaat. Nadat de audiodata zijn gemaakt worden ze direct op de beveiligde server van de faculteit opgeslagen. Vervolgens zullen de opnamen gelijk getranscribeerd worden, waarna de opnamen verwijderd zullen worden. De transcripten zullen daarnaast volledig anoniem zijn.

### **Contact informatie:**

- **Onderzoekers en contactpersoon**  
Als u vragen of opmerkingen over het onderzoek heeft, kunt u contact opnemen met een van de onderzoekers, maar ook met Mathijs Kros ([M.kros@uu.nl](mailto:M.kros@uu.nl))
- **Klachtenfunctionaris**  
Als u een officiële klacht heeft over het onderzoek, dan kunt u een mail sturen naar de klachtenfunctionaris via [klachtenfunctionaris-fetsocwet@uu.nl](mailto:klachtenfunctionaris-fetsocwet@uu.nl)
- **Functionaris Gegevensbescherming:** [privacy@uu.nl](mailto:privacy@uu.nl) Zie voor verder informatie over uw privacy rechten de informatie in de bijlage.

Mocht u na het lezen van deze informatiebrief besluiten deel te nemen aan het onderzoek, dan wil ik u vriendelijk verzoeken het bijgevoegde toestemmingsformulier te ondertekenen en aan de onderzoeker te overhandigen.

Met vriendelijke groet,

Jasmijn Koutstaal  
[Jl.koutstaal@alblasserdam.nl](mailto:Jl.koutstaal@alblasserdam.nl)

### **Bijlagen:**

- Toestemmingsformulier



## **Appendix 2. Informed consent**

### **TOESTEMMINGSFORMULIER**

**Datum onderzoek:** februari - juni 2022

**Titel onderzoek:** Sociale leefomgeving en levensstijl

**Naam onderzoeker:** Jasmijn Koutstaal

Hierbij verklaar ik de informatiebrief met betrekking tot onderzoek *sociale leefomgeving en levensstijl* gelezen te hebben.

Ook kon ik vragen stellen. Mijn vragen zijn goed genoeg beantwoord. Ik had genoeg tijd om te beslissen of ik meedoe.

Ik stem in met:

- |                                |        |
|--------------------------------|--------|
| 1) Deelname aan het onderzoek  | ja/nee |
| 2) Het maken van audio-opnamen | ja/nee |

Ik weet dat meedoen vrijwillig is. Ook weet ik dat ik op ieder moment kan beslissen om toch niet mee te doen met het onderzoek en kan stoppen. Ik hoef dan niet te zeggen waarom ik wil stoppen.

### **Ondertekening**

Datum:

Handtekening:

Naam:

### **Appendix 3. Interview questions**

#### **Interview-vragen sociale leefomgeving en gezonde levensstijl**

##### Introductie:

- Voorstellen
- Doel interview uitleggen
- Toestemmingsverklaring bespreken + ondertekenen

##### Achtergrond informatie:

Vraag 1. Hoe oud is uw kind? In welke groep zit uw kind?

.....

Vraag 2. Wat is het geslacht van uw kind?

.....

Vraag 3. In welke buurt woont u? (evt. plus de wijk)

.....

Vraag 4. Op welke school zit uw kind?

.....

Vraag 5. Gaat uw kind naar een vorm van kinderopvang? Zo ja, welke vorm?

.....

#### **Deelonderwerp 1: Gezonde levensstijl**

Vraag 1. Wat voor cijfer zou u de levensstijl van uw kind geven (1- heel ongezond, 10- heel gezond)?

.....

Vraag 2. Eet uw kind gezond? Bv. Veel groente of fruit.

.....

Vraag 3. Drinkt u kind zoal veel water of juist veel drankjes met suiker?

.....

Vraag 4. Beweegt uw kind veel?

.....

### **Deelonderwerp 2: Leeftijdsgenootjes**

Vraag 1. Heeft uw kind veel vriendjes/vriendinnetjes?

.....

Vraag 2. Heeft uw kind veel contact met vriendjes/vriendinnetjes?

.....

Vraag 3. Heeft uw kind genoeg/veel leeftijdsgenootjes in zijn/haar omgeving?

.....

Vraag 4. Is uw kind zover u weet tevreden over zijn/haar sociale contacten met vriendjes of vriendinnetjes?

.....

### **Deelonderwerp 3: Vrije tijd**

Vraag 1. Is uw kind lid van een sportclub of een andere vereniging?

.....

Vraag 2. Beweegt uw kind in veel in zijn/haar vrije tijd?

.....

Vraag 3. Doet uw kind veel activiteiten in zijn/haar vrije tijd?

.....

Vraag 4. Is het in jullie gezin belangrijk om samen activiteiten te doen, zoals een dagje weg of een boswandeling?

.....

Vraag 5. Leest uw kind veel of wordt er thuis veel voorgelezen?

.....

#### **Deelonderwerp 4: Buurt**

Vraag 1. Is de buurt kindvriendelijk?

.....

Vraag 2. Zijn er genoeg activiteiten in de buurt om te doen voor uw kind? Denk bijvoorbeeld aan een speeltuin.

.....

Vraag 3. Zijn er zaken zoals brede stoepen en zones waar auto's beperkt zijn zodat uw kind veilig en zorgeloos de buurt kan verkennen?

.....

Vraag 4. Heeft u kind veel vriendjes/ vriendinnetjes in de buurt waar hij of zij mee kan spelen?

.....

Vraag 5. Is er veel groen in de buurt? Denk aan bloemen, bomen, gras etc.

.....

#### **Deelonderwerp 5: Media opvoeding**

Vraag 1. Heeft u met uw kind regels en afspraken over het aantal uur dat uw kind gebruik maakt van computer, laptop, mobiele telefoon om te internetten, gamen of tv te kijken?

.....

Vraag 2. Bent u bewust van de sites die u kind bezoekt op het internet of met wie uw kind appt of chat?

.....

Vraag 3. Heeft uw kind een gezonde relatie met het gebruik van sociale media?

.....

Vraag 4. Heeft sociale media vooral negatieve of positieve effecten op uw kind?

.....

Overige vragen:

Vraag 1. Welk cijfer zou u de sociale leefomgeving van u kind in het algemeen geven? Zou u daarmee zeggen dat de sociale leefomgeving van u kind gezond is?

.....

Vraag 2. Hoe denkt u dat verschillen tussen levensstijlen van kinderen verklaard kunnen worden?

.....

Vraag 3. Heeft u nog iets anders toe te voegen wat betreft de sociale leefomgeving of levensstijl van uw kind wat interessant kan zijn voor dit onderzoek?

.....

**Appendix 4.***Regressions with healthy lifestyle as dependent variable and presence of peers as independent variable*

Variable	<b>Model 1: Bedtime <sub>1</sub></b>				<b>Model 2: Water</b>		<b>Model 3: Sweet drinks</b>	
	B	95% CI for Odds ratio			B	s.e.	B	s.e.
		Lower	Odds ratio	Upper				
Presence of peers	.137 [.081]	.978	1.147	1.345	.049	.22	-.076*	.037
Age	-.029 [.028]	.920	.971	1.026	.029*	.014	.015	.012
Education parents	-.026 [.088]	.820	.975	1.159	.320***	.044	.108**	.038
Girl	.097 [.122]	.867	1.102	1.401	.207**	.061	.186***	.053
Parenting difficulty	.009 [.082]	1.009	.859	1.159	-.191***	.041	-.148***	.036
Constant	2.381 [.431]				4.093***	.22	4.531***	.192
R <sup>2</sup>	.003				.025		.012	
N	3853				3853		3853	

\*\*\*p &lt;.001, \*\* p &lt;.01, \*p &lt;.05, two-tailed

<sub>1</sub> The analyses including the variable bedtime are logistic regressions.



**Appendix 5.***Regressions with healthy lifestyle as dependent variable and neighborhood as independent variable*

Variable	<b>Model 1: Bedtime <sub>1</sub></b>				<b>Model 2: Water</b>		<b>Model 3: Sweet drinks</b>	
	B	95% CI for Odds ratio			B	s.e.	B	s.e.
		Lower	Odds ratio	Upper				
Neighborhood	.223** [.085]	1.057	1.249	1.477	-.007	.044	-.045	.038
Age	-.031 [.028]	.918	.969	1.024	.028*	.014	.015	.012
Education	-.032 [.089]	.814	.968	1.152	.322***	.044	.110**	.039
parents								
Girl	.098 [.123]	.867	1.103	1.403	.202**	.061	.189***	.053
Parenting difficulty	.007 [.083]	.856	1.007	1.184	-.195***	.041	-.144***	.036
Constant	2.069 [.461]				4.245***	.235	4.471***	.205
R <sup>2</sup>	.005				.023		.010	
N	3853				3853		3853	

\*\*\*p &lt;.001, \*\* p &lt;.01, \*p &lt;.05, two-tailed

<sub>1</sub> The analyses including the variable bedtime are logistic regressions.

**Appendix 6.**

*Regressions with healthy lifestyle as dependent variable and media-education as independent variables*

Variable	<b>Model 1: Bedtime <sub>1</sub></b>				<b>Model 2: Water</b>		<b>Model 3: Sweet drinks</b>	
	B	95% CI for Odds ratio			B	s.e.	B	s.e.
		Lower	Odds ratio	Upper				
Media education								
<i>Rules</i>	.915*** [124]	1.957	2.497	3.187	.264***	.065	.267***	.056
<i>Supervision</i>	.362*** [.110]	1.157	1.436	1.781	.449***	.055	.398***	.048
Age	-.010 [.029]	.936	.990	1.048	.059***	.014	.041**	.012
Education	-.015 [.090]	.826	.985	1.174	.348***	.044	.133**	.038
parents								
Girl	.048 [.124]	.823	1.049	1.338	.220***	.060	.202***	.052
Parenting	.010 [.084]	.857	1.010	1.191	-.175***	.041	-.126***	.035
difficulty								
Constant	.962 [.559]				2.329***	.282	2.634	.246
R <sup>2</sup>	.046				.048		.037	
N	3853				3853		3853	

\*\*\*p <.001, \*\* p <.01, two-tailed

<sub>1</sub> The analyses including the variable bedtime are logistic regressions.

## Appendix 7.

*Regressions with healthy lifestyle as dependent variable and leisure as independent variables*

Variable	Model 1: Bedtime <sub>1</sub>				Model 2: Water		Model 3: Sweet drinks	
	B	95% CI for Odds ratio			B	s.e.	B	s.e.
		Lower	Odds ratio	Upper				
Leisure								
<i>Gaming</i>	.207 [.164]	.892	1.230	1.698	.027	.078	.359***	.068
<i>Reading</i>	.276** [.100]	1.084	1.318	1.604	.231***	.050	.061	.043
<i>Social media</i>	.126 [.164]	.823	1.134	1.562	-.129	.084	-.080	.073
Age	-.023 [.032]	.917	.977	1.041	.008	.016	.020	.014
Education	-.034 [.089]	.812	.966	1.150	.312***	.044	.116**	.038
parents								
Girl	.161 [.127]	.916	1.175	1.505	.158*	.063	.120*	.055
Parenting	.006 [.083]	.856	1.006	1.183	-.183***	.041	-.136***	.036
difficulty								
Constant	1.893 [.480]				3.960	.241	4.138***	.21
R <sup>2</sup>	.007				.030		.018	
N	3853				3853		3853	

\*\*\*p <.001, \*\* p <.01, \*p <.05, two-tailed

<sub>1</sub> The analyses including the variable bedtime are logistic regressions.

## Appendix 8.

### *Overview outcomes current state of healthy lifestyle and social environment of children*

Respondent	Healthy lifestyle	Presence of peers	Neighborhood	Media education	Leisure
1	‘Sometimes they have already eaten their 200 grams of vegetables before I’m awake.’	‘I try to stimulate her to bring home a friend after school, but she does not actually have friends here.’	‘We do not need anything else, in fact, every available spot already has a playground or something like that.’	‘I have a tracker on that thing. Although, at the moment they do not yet do much <on digital devices>.’	‘They are not allowed to use the Ipad, so then you have to think of something else. She loves arts and crafts, but she also loves all sorts of things outside.’
2	‘He does not see any benefit to eating, he just does not. He does not find it interesting in the slightest that he needs to eat.’	‘Making friends is very complicated for him, but he also does not really feel the need to make friends.’	‘We have a lot of courtyards, where there are few cars driving by. There are lots of playgrounds, and lots of places where they can skate.’	‘We use google family link, which we closely monitor. Furthermore, after two hours the mobile phone of the oldest automatically closes down.’	‘A few years ago we had ‘ <i>JamaarIk</i> ’, which was a sports club for children with a stimulus processing disorder, where they could do their thing. Unfortunately, it stopped, due to lack of volunteers.’
3	‘He does not like carbonated drinks, so he does not drink sodas like Cola. However, he loves	‘He is kind of an everyone’s friend, so he does have a lot of contacts.’	‘Between neighbors, it is very child-friendly. However, the mentality of the neighborhood is	‘We have connected our accounts to his account, so we can see exactly what he is watching. We are	

water and lemonade.’

going backward fast.’

definitely aware of his  
online behavior.’

‘We keep an eye on  
events, for example, events  
related to trucks. We like  
to do lots of activities  
together.’

4 ‘After school, I  
always freshly  
squeeze orange juice,  
so after school, they  
drink fresh orange  
juice. But I do realize  
that it is a luxury,  
that not everyone can  
do.’

‘I hear from the teacher  
that it is going well in  
school and that he likes  
to play with everyone.  
He always says that  
everyone is his friend.’

‘I do find our street  
child-friendly in the  
sense that there are a  
lot of children living  
here. What makes it  
less child-friendly is  
the fact that it is a main  
road with many cars  
driving by.’

‘When they watch  
something, it is always  
downstairs in the living  
room, as the laptop  
needs to stay  
downstairs.’

‘On Saturdays, we usually  
like to go to the forest or to  
the beach, or do something  
else that we consider fun.’

5 ‘In the morning he  
always drinks a glass  
of soymilk, as we try  
to reduce  
consumption of dairy  
milk. The rest of the  
day he usually just  
drinks water.’

‘He does not  
necessarily have a lot  
of friends, but he has  
enough. In this street,  
he has 3 children that  
he regularly plays  
with.’

‘On the one side there  
is a small playground,  
and, furthermore, a  
street beyond there is a  
bigger playground.  
This is plenty for him.’

‘We do not have a  
tablet, so that makes it  
easier. In principle, we  
started keeping him  
100% childfree when  
he was younger. Now  
we give him very  
limited screen time’

‘Since birth we started  
reading lots, also because  
we really enjoy it  
ourselves. We read to him  
multiple times a day. We  
have been reading to him  
much for 4 years.’

**Appendix 9.**

*Code tree qualitative interviews*

