



Report

# Child monitor St. Maarten

Health of children at St. Maarten  
aged 4-12 years

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The Mulier Institute is an independent non-profit foundation.

Our goal is to contribute to well-founded policies aimed at promoting sports, physical activity, and strengthening the sports sector. We achieve this in several ways:

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We collect data and monitor the Dutch sports sector and policy programs.

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We develop knowledge and research methods through exploratory and in-depth studies.

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We interpret research findings and translate them into policy practice.

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We support policy decisions with expertise and advice.

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We provide requested and unsolicited interpretation and reflection in the role of a 'critical friend' of the sports sector.

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We work towards promoting sports science.

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## Introduction

On Sint Maarten, there is increasing concern about the growing number of children who are overweight or obese. The government aims to reduce these numbers by implementing health programs in schools to promote healthy lifestyle habits among children. This study focuses on the six schools of the Foundation Catholic Education on Sint Maarten, which have already started such a program in their primary schools. The aim is to tailor the program to better fit the needs of their school populations by assessing children's lifestyle behaviours.

## Research question

What are the lifestyle behaviours of children aged 4-12 years from six schools of the Foundation Catholic Education on Sint Maarten?

## Research methods

We used a questionnaire with the following subjects: sleep, nutrition, oral hygiene, exercise, screen time, and health at school. We distributed the questionnaire among parents of children aged 4-12 years. The response rate was 55 percent (674 out of 1,200).

## Most important results

- Sleep: 24 percent of children sleep 9-12 hours per night, 73 percent sleep 6-9 hours, and 2 percent sleep less than 6 hours. 9-12 hours is recommended by the WHO.
- Nutrition: 38 percent of children drink five or more glasses of water a day, which is the recommended amount by the WHO. 81 percent eat breakfast every day. 38 percent eat fruit daily, and 25 percent eat vegetables daily. Children in lower grades eat fruit more frequently, while those in higher grades eat vegetables more often.
- Oral hygiene: 70 percent of children brush their teeth at least twice a day, with children in higher grades brushing more frequently.
- Exercise: 69 percent of children participate in organized sports. 23 percent play outside almost every day, with younger children playing outside more frequently. 82 percent of children go to school by car, 8 percent walk.
- Screen time: on average, children have 2-4 hours of screen time per day.
- Health at school and after school care: 69 percent of parents think school should address exercise. 66 percent think after-school care should focus on healthy nutrition.



# Introduction

In this introduction, we will describe the background, the aim and the research questions of this study.

## 1.1 Background

On Sint Maarten, there is growing concern regarding the increasing number of children being overweight or having obesity, mirroring a trend seen across many other (Caribbean) nations (UNICEF, 2013). In the coming years, the government of Sint Maarten therefore aims to stop this development and to reduce the number of children that are overweight and have obesity. More specifically, by implementing health programs within the school, the government aims to support healthy lifestyle habits in children, which in turn may lower the risk of weight problems.

In this current study, we will take a closer look at the Foundation Catholic Education on Sint Maarten that has already started with the implementation of such a health program in their six primary schools. Within this health program the focus lies on improving children's general health and well-being by focussing on lifestyle behaviours. Additionally, there is a specific focus on reducing the risk of weight problems (i.e. being overweight or obese) in children and developing motor skills in children in their schools.

The current aim of the school is to further tailor the program centred around lifestyle behaviours, in such a way that it will fit the needs of their student population. To ensure the success of these programs, an integrated approach is crucial. This involves making the living environment healthier through local collaboration with all relevant stakeholders: organizations, policymakers, and professionals.

In this study we therefore provide insight into the lifestyle behaviours of children. Additionally we will study parents' perception of their child's lifestyle behaviours. Because parents, especially for children in primary schools, are the most prominent key players in forming a child's lifestyle behaviours (Sanders & Turner, 2018).

Based on this assessment, schools can prioritize their efforts to promote children's lifestyles. Re-assessing children's lifestyle behaviours again in a few years can determine change.

## 1.2 Research question

What are the lifestyle behaviours of children aged 4-12 years from six schools of the Foundation Catholic Education on Sint Maarten?



### **Reading guide**

In the next chapter, chapter 2, we describe the research method. In chapter 3 we provide the results of this research and in chapter 4 we describe the most important conclusions and recommendations.

# Research method

**This chapter provides the research method of the child monitor at schools of the Foundation Catholic Education on Sint Maarten. First, we will describe the topics examined in the monitor. Subsequently, we will discuss the questionnaire, data collection, and analysis.**

## 2.1 Monitor

We have developed a questionnaire based on Dutch public health service questionnaires. We have adjusted the questionnaire to the local context in collaboration with professionals on Sint Maarten. The questionnaire was made available in English, Spanish and Dutch. The topics for the baseline assessment of lifestyle behaviours of children aged 4-12 on Sint Maarten were:

- sleep;
- nutrition;
- oral hygiene;
- exercise;
- screen time;
- attention for health at school and after-school care.

Additionally, parents were asked how they view their child's health and well-being, and whether their child's behaviours fit a healthy lifestyle.

## 2.2 Data collection

A local contact person distributed the questionnaire and encouraged parents to complete it. The questionnaire was distributed among parents of six primary schools of the Foundation Catholic Education at Sint Maarten, with in total approximately 1,200 attending children.

The schools of the Foundation Catholic Education are situated in different areas of the southern Dutch part of Sint Maarten:

- The Sr. Regina School is located in the Simpson Bay district.
- The Sr. Magda School is located in St. Peters Dutch Cul de Sac.
- The St. Dominic School is located in South Reward.
- The Sr. Borgia and the St. Joseph School are located in the capital, Philipsburg.
- The Sr. Marie Laurence School is normally located in the Middle Region, but due to damage from a hurricane, children are now in the St. Dominic School.

Parents with multiple children aged 4-12 years have filled out the questionnaire separately for each child. Parents could fill in the questionnaire online or on paper.

In total, 674 questionnaires were filled in between January and March 2024. This yields a response percentage of approximately 55 percent.

## 2.3 Analysis

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We have analysed the questionnaire using IBM SPSS statistics. We have broken down the data by gender, grade and school. Because age and school grade are strongly related, we will only present data by school grade. But differences by grade in the results may also be attributed to age. In grades 1 and 2, the children are mainly 4 and 5 years old. In grades 3 to 5, the children are mainly 6 to 8 years old. And in grades 6 to 8, the children are mainly 9 to 12 years old.

When available, we will show the global or national standards and/or guidelines with the results.

# Results

In this chapter, we will describe the results of the questionnaire in the different health-related themes: sleep, nutrition, oral hygiene, exercise, screen time, and health at school and after school care.

## 4.1 Participants' characteristics

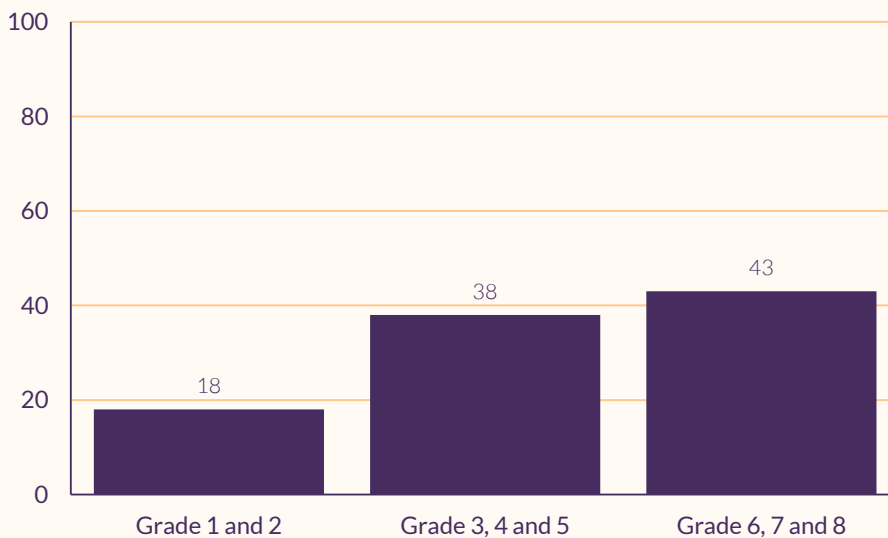
### Language

Most questionnaires were filled out in English (88%). 11 percent were filled out in Dutch and 2 percent in Spanish.

### Age and grade

The average age of the children reported in this research is eight years old. Most children are in the higher school grades (43%). Figure 3.1 shows the distribution of the children by grade.

**Figure 3.1**  
**Distribution of children by school-grade**  
(percentages, n=674)



Source: Questionnaire among parents of six schools at St. Maarten, 2024.

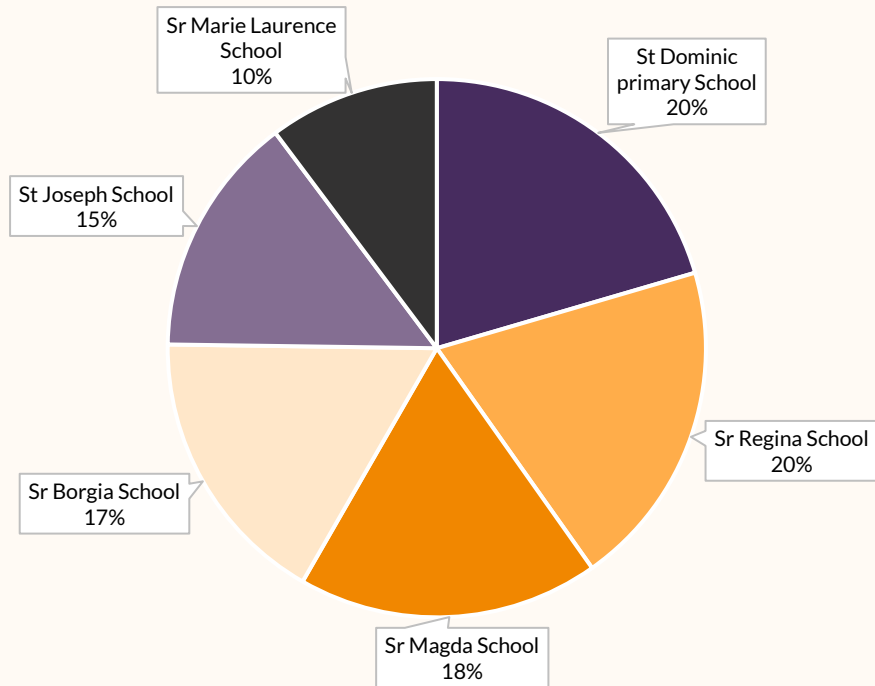
### Gender

More than half of the children reported on are girls (55%), and less than half of the children are boys (45%).

## School

Figure 3.2 shows the distribution of children by school. The majority attend the St. Dominic primary School (20%) or the Sr. Regina School (20%). The smallest proportion of children attend the Sr. Marie Laurence School (10%).

**Figure 3.2**  
**Distribution of children by school**  
(percentages, n=674)



Source: Questionnaire among parents of six schools at St. Maarten, 2024.

## Education of the parents

The educational level of the parents is quite varied. Most parents have a university degree (20%), a higher professional education degree (18%) or a secondary education degree (18%). Another large group of parents did not want to answer the question on educational level (13%).

## 4.2 General health and happiness

In general, parents find their child (very) healthy (79%). Nearly one in five parents find their child reasonably healthy (19%). Very few parents (1%) find their child unhealthy.

Parents have indicated how their children generally feel using the icons in figure 3.3. The percentages describe the distribution of their answers. Parents mostly select the two green faces (89%), which are the happy faces.

**Figure 3.3**

**General feeling of children according to their parents**

(percentages, n=674)



Source: Questionnaire among parents of six schools at St. Maarten, 2024.

Most parents believe that the responsibility for a child's health lies with the parents themselves (average grade: 9.1 out of 10). The responsibility of the school, the government, the grandparents and the after-school care are equally rated (average grade: 6.1). Parents believe that the child itself is least responsible (average grade: 5.6).

### 4.3 Sleep

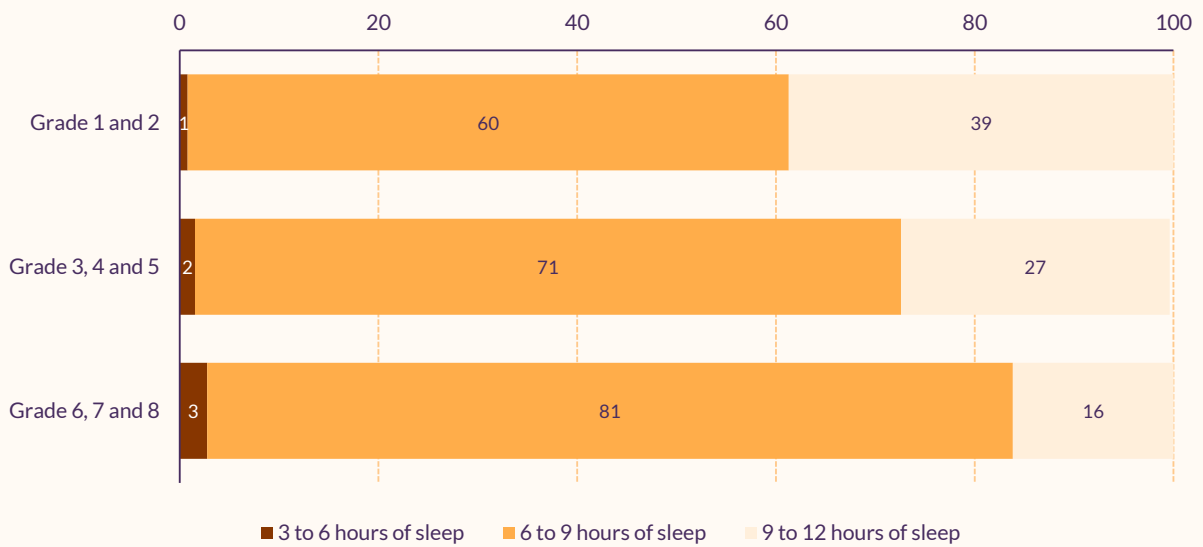
#### Hours of sleep per night

The children sleep 8.8 hours on average per night. A quarter of the children (24%) usually sleep 9 to 12 hours per night. Most children (73%) usually sleep 6 to 9 hours per night. 2 percent sleep less than 6 hours per night. Because the average is close to 9, we know that most of the children in the 6 to 9 hours group are at the upper end of this range.

There are small differences in the average hours of sleep by gender. Girls sleep less on average. The percentage of boys sleeping 9 to 12 hours per night (29%) is slightly higher than the percentage of girls sleeping 9 to 12 hours per night (21%). The percentage of girls sleeping 6 to 9 hours per night (76%) is higher than the percentage of boys (70%).

Furthermore, we have found differences by school grade. Figure 3.4 shows the distribution of sleep into school grades.

**Figure 3.4**  
**Hours of sleep by school grade**  
 (percentages, n=674)



Source: Questionnaire among parents of six schools at St. Maarten, 2024.

Children in higher school grades are more likely to sleep 6 to 9 hours per night than children in lower grades: they tend to sleep longer. Overall, the percentage of children that sleeps 3 to 6 hours per night is very small.



**Sleep recommendations (Paruthi et al., 2016)**

- 4-5 years old: 10-13 hours
- 6-12 years old: 9-12 hours

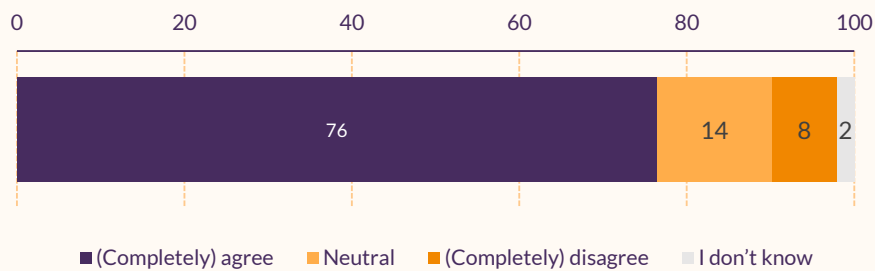
**Parents' perception of sleeping**

The vast majority of parents feel that their child gets enough sleep (76% agree or completely agree; figure 3.5).

**Figure 3.5**

**Parents' response to statement: 'I think my child gets enough sleep'**

(percentages, n=674)



Source: Questionnaire among parents of six schools at St. Maarten, 2024.

**Problems with sleeping**

One in five children (19%) has problems with sleeping. The most common problem is the child not wanting to go to bed (10%), followed by the child having trouble falling asleep and often waking up during the night (figure 3.6).

**Figure 3.6**

**Children's problems with sleeping, according to their parents**

(percentage, n=674, multiple answers possible)



Source: Questionnaire among parents of six schools at St. Maarten, 2024.

There appears to be an connection to school grade. The children in grades 1 and 2 have more difficulty falling asleep and wake up more often during the night than children in grades 3, 4 and 5. Children in grades 6, 7 and 8 also wake up more often during the night than children in grades 3, 4 and 5.

## 4.4 Nutrition

### Drinking habits

The majority of children (62%) drink four or more glasses of water a day or two to three glasses of water a day (31%; table 3.1). The percentage of children that only drink one glass of water or less, is very small (5%).

We have found very different results for sugary drinks. The majority of children (62%) consume either no sugary drinks or (less than) one glass a day. A third of the children drink two to three glasses a day (34%), and only a few drink more (4%). The vast majority of children do not or barely consume sugar-free drinks (75%).

**Table 3.1**  
**Number of glasses children drink a day, according to their parents**  
(percentages, n=674)

	Water	Sugary drinks	Sugar-free drinks
(Almost) none	1	15	75
Less than one, or one glass a day	4	46	15
Two or three glasses a day	31	34	5
Four or more glasses a day	62	4	2
I don't know	2	1	3

Source: Questionnaire among parents of six schools at St. Maarten, 2024.

We have found no differences for gender in the number of glasses of different drinks a day. Children in grades 6 to 8 do drink more glasses of water per day (68% four or more glasses per day) than children in grades 1 to 5 (56% four, five or more glasses per day). The consumption of sugary and sugar-free drinks is equally distributed among the grades. So children drink sugary drinks from a young age.



### Drinking recommendations (NHS, 2022)

- 4-8 years old: 5 cups of water per day
- 9-13 years old: 6-8 cups of water per day

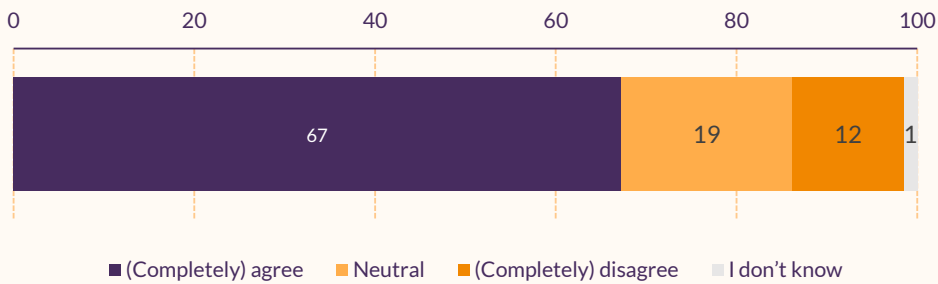
### Parents' perception of drinking habits

The majority of parents feel their child drinks enough water (67% agree/completely agree; figure 3.7).

**Figure 3.7**

**Parents' response to statement: 'I think my child drinks enough water'**

(percentages, n=674)



Source: Questionnaire among parents of six schools at St. Maarten, 2024.

**Eating habits**

A large majority of children eat breakfast every day (81%). Only a very small percentage (almost) never eat breakfast (2%) or less than once day a week (1%). The other children (16%) vary between having breakfast two to six days a week. Eating breakfast is equally distributed among school grades and gender.

Four in ten children eat fruit every day (38%), and a quarter of the children has a daily intake of vegetables (25%; table 3.2).

There does seem to be a difference by school grade: children in the lower grades are more likely to eat fruit on a daily basis than older children (grades 1, 2: 53%; grades 3-5: 38%; grades 6-8: 31%). For the intake of vegetables, we saw an association with school grades in opposite direction. The percentage of children eating vegetables every day in the first and second grade is 19 percent. This is 25 percent in grades 3 to 5, and 27 percent in grades 6 to 8.

**Table 3.2**

**Frequency of eating fruit and vegetables**

(percentages, n=674)

	Fruit	Vegetables
One day or less a week	13	23
Two, three or four days a week	26	32
Five or six days a week	21	19
Every day	38	25
I don't know	2	2

Source: Questionnaire among parents of six schools at St. Maarten, 2024.



### Eating recommendations (WHO, 2020)

- Daily breakfast
- 400 grams or five portions of fruit and vegetables per day

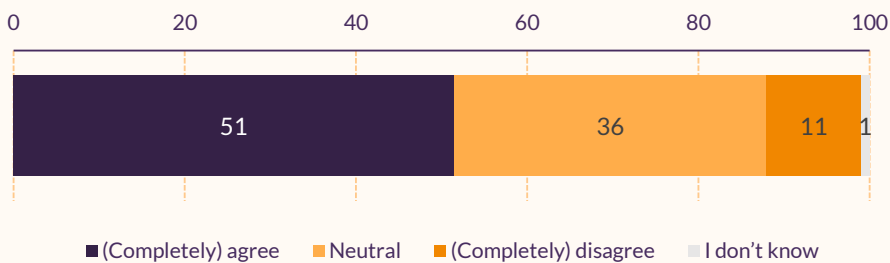
### Parents' perception of eating habits

Half of the parents (51%) feel like their child eats healthy (figure 3.8). There seems to be a slight difference when looking at the different grades. The parents of children in grades 6 to 8 think their child eats healthy more often than the parents of children in the other grades. These parents also mention their kids have fewer snack moments than the kids in the other grades.

**Figure 3.8**

### Parents' response to statement: 'I think my child eats healthy'

(percentages, n=674)



Source: Questionnaire among parents of six schools at St. Maarten, 2024.

### Snacking behaviour

There is variation in the number of moments children eat snacks (for example chocolates, sweets, cookies or chips) during a day (table 3.3). Most children have one or two 'snack moments' a day (55%). A substantial proportion of children has four or five snack moment a day (15%).

**Table 3.4.3**

### Number of snacking moments for children

(percentages, n=674)

Number of snack moments	Percentage of children
One time a day or less	43
Two or three times a day	40
Four or five times a day	15
I don't know	1

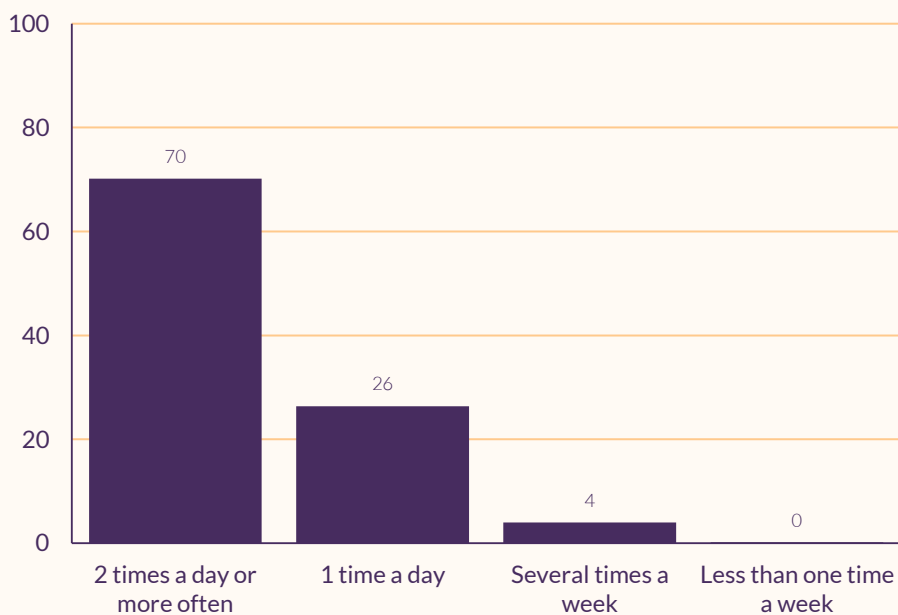
Source: Questionnaire among parents of six schools at St. Maarten, 2024.

## 4.5 Oral hygiene

The majority of children brush their teeth at least two times a day (70%; figure 3.9). A quarter of children brush their teeth once a day (26%). Children in the first and second grade brush their teeth less often (65% twice a day or more) than children in the third, fourth or fifth grade and children in the sixth, seventh and eighth grade (3,4,5: 76% twice a day or more; 6,7,8: 75% twice a day or more).

**Figure 3.9**  
**Number of times children brush their teeth in a day**

(percentages, n=674)



Source: Questionnaire among parents of six schools at St. Maarten, 2024.

## 4.6 Exercise

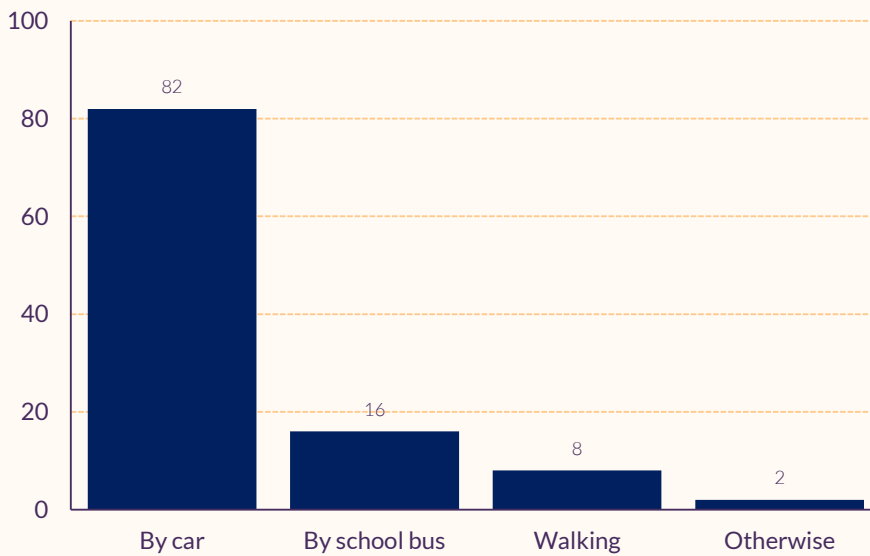
### Mode of transportation to school

The vast majority of children go to school by car (82%; figure 3.10). Nearly one in ten children walk to school (8%). Half of these children walk to school daily.

**Figure 3.10**

**Mode of transportation to school**

(percentages, n=674, multiple answers possible)



Source: Questionnaire among parents of six schools at St. Maarten, 2024.

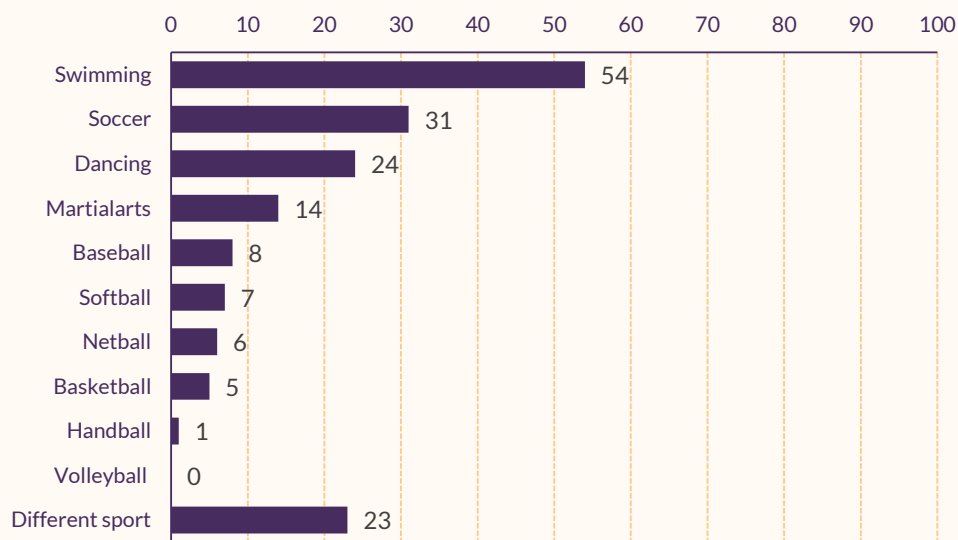
We found no differences in mode of school transportation between school grades and gender.

**Sports**

Two-thirds of the children participate in organized sports activities offered on the island (69%). Of those, children in the lower school grades mostly participate in organized sports one or two days a week (grades 1 and 2: 68%; grades 3 to 5: 55%). Children in the higher school grades (6 to 8) mostly participate in organized sports two to five days a week (77%).

The sport most children participate in is swimming (54%). This is followed by soccer (31%, played by more than half of all the boys) and dancing (24%, almost half of all the girls). Figure 3.11 depicts the percentage of the children who play sports engaging in each sport. Among the children engaged in a 'different sport', the most practiced sports are athletics and gymnastics.

**Figure 3.11**  
**Sports practiced by children**  
(percentages, n=674)

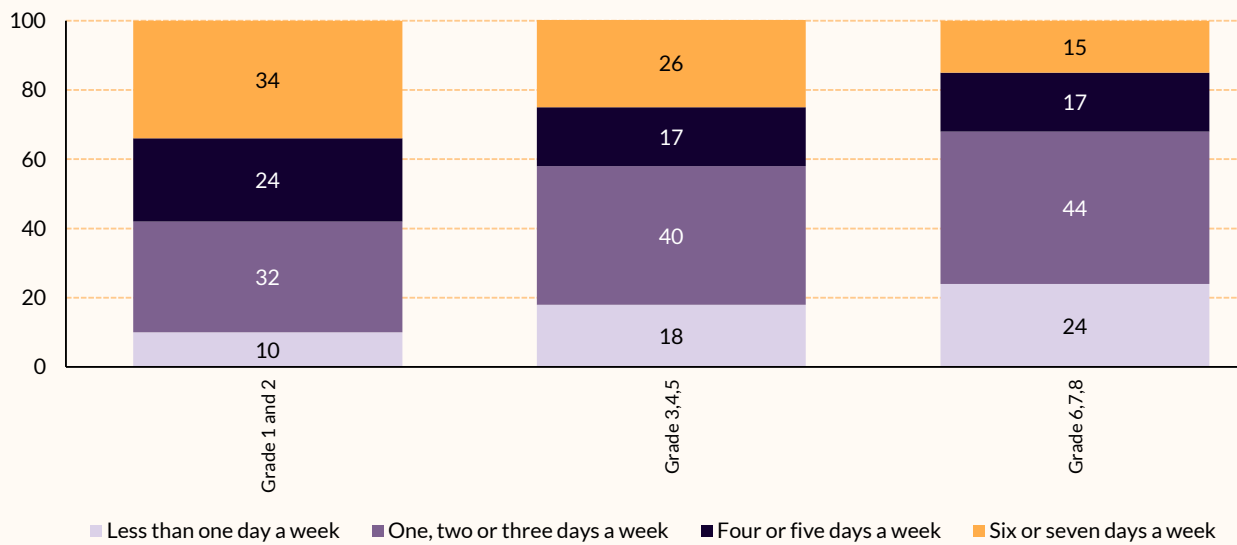


Source: Questionnaire among parents of six schools at St. Maarten, 2024.

### Playing outside

Two in ten children play outside less than one day a week (19%). A quarter of children play outside almost every day (six or seven days, 23%; figure 3.12). Children in the lower school grades (1 and 2) play outside more often (34% six or seven days a week) than children in the higher school grades (grades 3-5: 26%; grades 6-8: 15%).

**Figure 3.12**  
**Number of days children play outside**  
 (percentages, n=674)



Source: Questionnaire among parents of six schools at St. Maarten, 2024.

We have asked parents about the outdoor play opportunities in their neighbourhood. Most parents indicate that children can play outside in their own outdoor space (garden, balcony, terrace; 77%). Besides that, children can mainly play in a playground with play equipment (23%) or in the school playground (21%). Children also play outside the most in these three types of outdoor play areas.

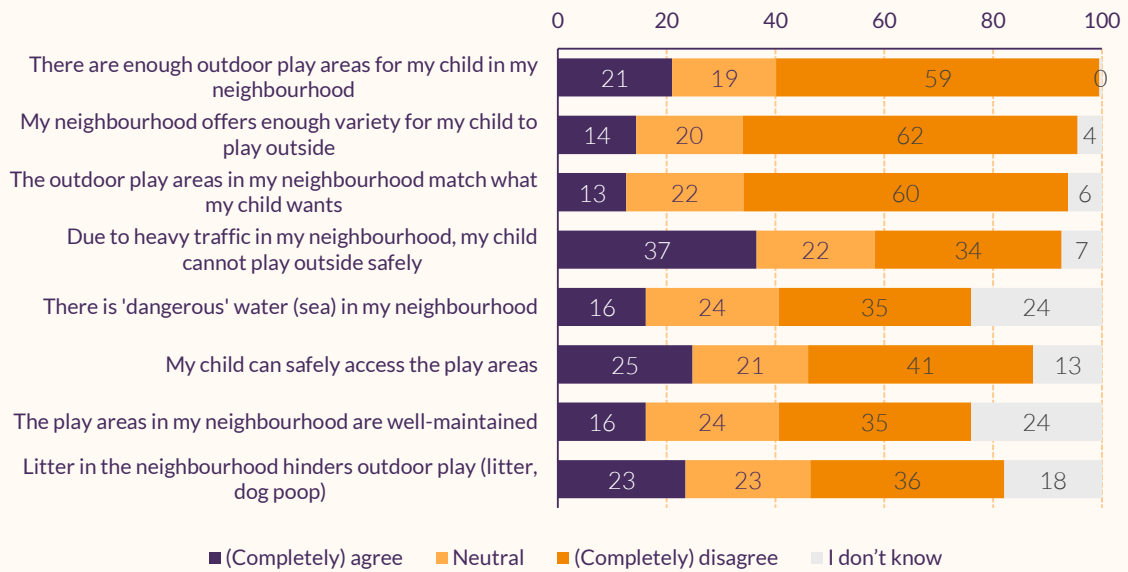
Figure 3.13 shows parents' opinions on the outdoor play opportunities for their child. The statement most agreed on by parents is: 'Due to heavy traffic in my neighbourhood, my child cannot play outside safely' (37% (completely) agree). The statement most parents disagreed with is about the neighbourhood offering enough variety to play for a child (62% (completely) disagree).

One in five parents think there are enough play areas for their child (21%), and one in ten parents think the outdoor play areas match with what their child wants (13%). One in four parents think their child can safely access the play areas (25%).

**Figure 3.13**

**Parents' response to statements on outdoor play opportunities**

(percentages, n=674)



Source: Questionnaire among parents of six schools at St. Maarten, 2024.



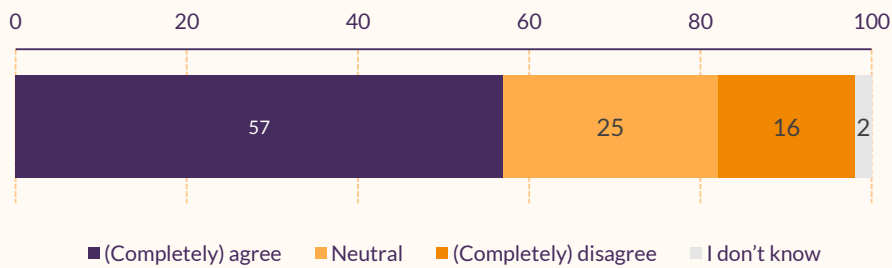
**Exercise recommendations (WHO, 2010)**

- At least 60 minutes of moderate to vigorous intensity of physical activity per day

**Parents' perception of exercise**

A majority of parents (57%) think their child gets enough exercise (figure 3.14). Only 16 percent of parents do not think their child gets enough exercise. Gender appears to influence these ratings. Parents of boys more often think their children exercise enough (boys: 60%; girls: 54%).

**Figure 3.14**  
**Parents' response to statement: 'I think my child gets enough exercise'**  
 (percentages, n=674)



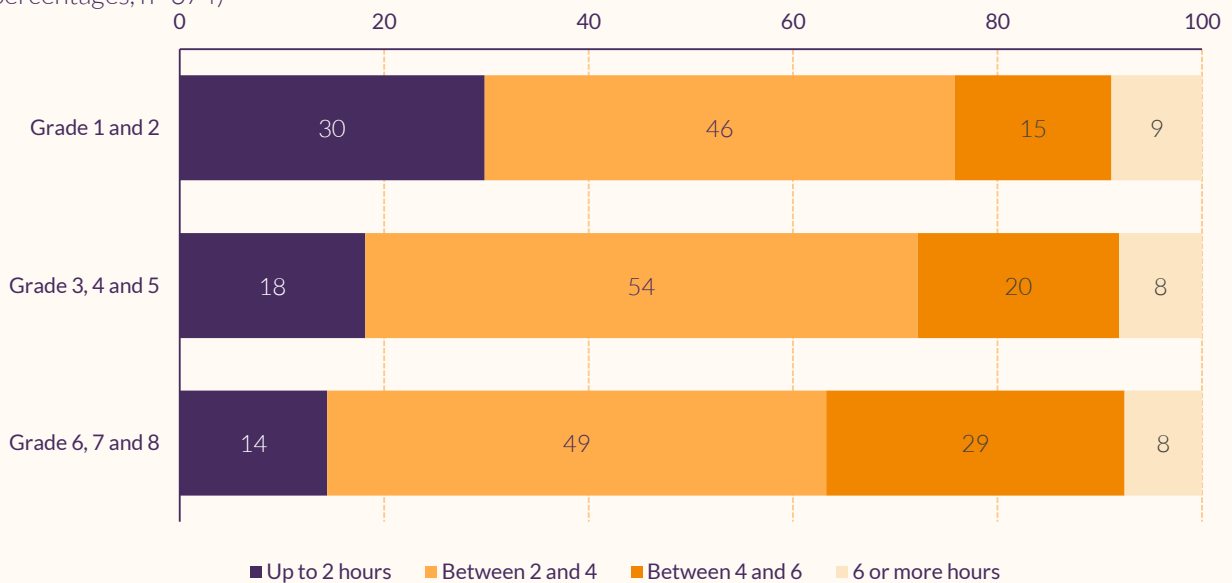
Source: Questionnaire among parents of six schools at St. Maarten, 2024.

## 4.7 Screen time

We have found that half of the children watch television, movies or series every day (52%), a third spends time on a smartphone daily (31%), and also a third plays electronic games daily (32%). Parents report that their children have between two and four hours of overall screen time a day on average in their free time.

The higher the grade a child is in, the more screen time they have (figure 3.15). 37 percent of children in the higher school grades (6,7,8) have four hours or more screen time a day.

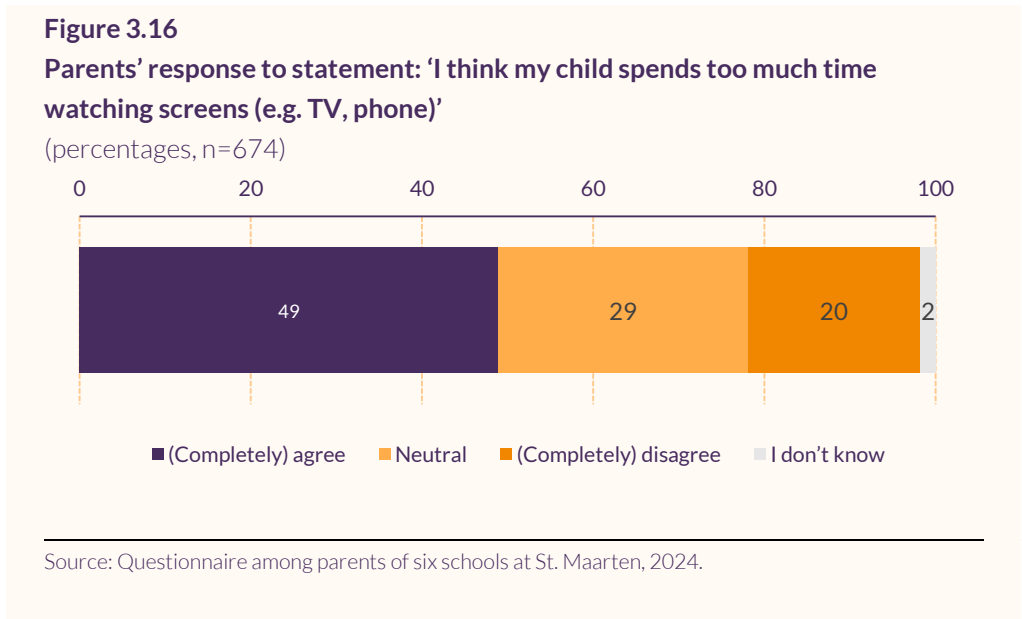
**Figure 3.15**  
**Hours of screen time in children's free time**  
 (percentages, n=674)



Source: Questionnaire among parents of six schools at St. Maarten, 2024.

### Parents' perception of screen time

Half of the parents think their child spends too much time watching screens (49%; figure 3.16).



## 4.8 Health at school and at after-school care

### School

We have found that most parents find it important for schools to address exercise to children (69%; figure 3.17). One in five (17%) of these parents believe that schools currently pay insufficient attention to exercise.

Secondly, most parents find it important for schools to address healthy nutrition to children. One third of these parents believe that schools currently pay insufficient attention to healthy nutrition.

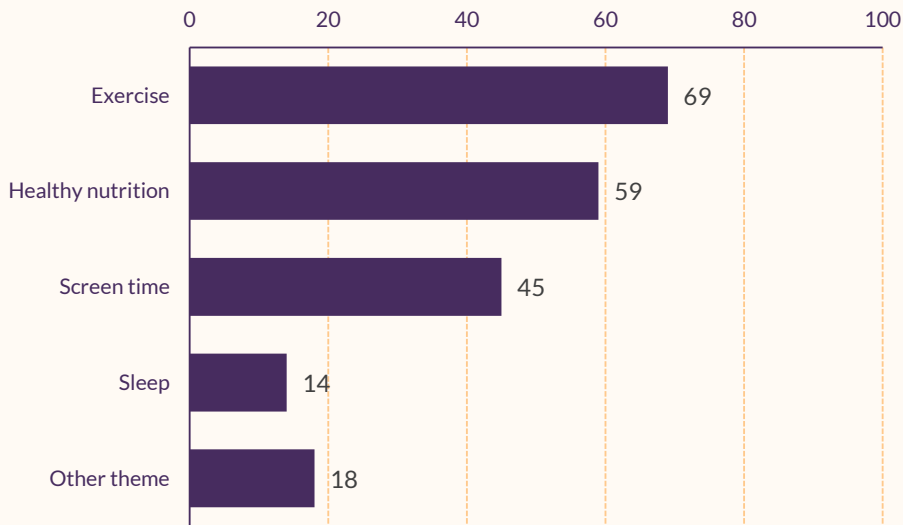
Other themes parents find important for schools to focus on are primarily hygiene and mental health.

Specifically, parents of children in grades 6 to 8 think that schools should pay attention to screen time (52%). The other themes are more often considered important by parents of children in the lower school grades (healthy nutrition: 62%; exercise: 73%; sleep: 15%).

**Figure 3.17**

**Health aspects to which school should pay attention, according to parents**

(percentages, n=674, multiple answers possible)



Source: Questionnaire among parents of six schools at St. Maarten, 2024.

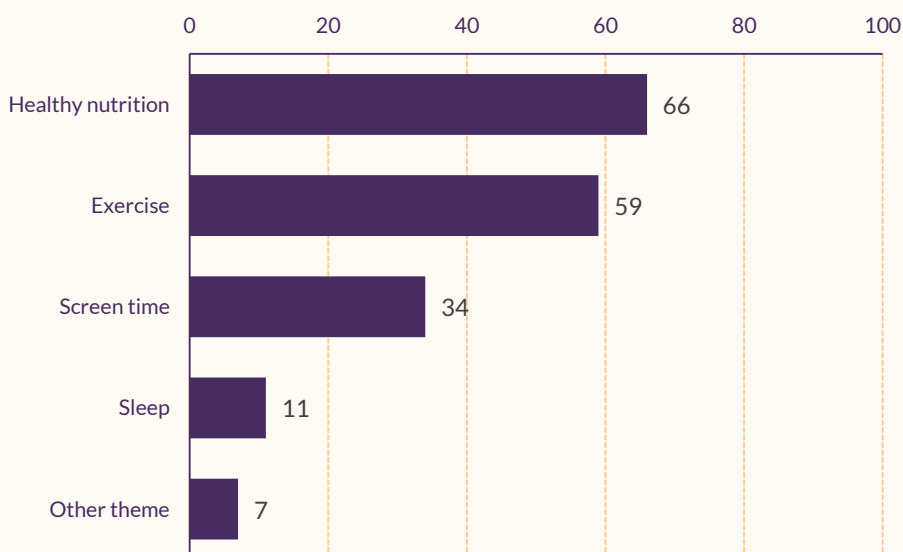
**After-school care**

We have found that parents find it primarily important that after-school care pays attention to healthy nutrition (66%). One fourth of these parents believe that the after-school care currently pays too little attention to healthy nutrition.

**Figure 3.7.2**

**Areas of focus for after-school care, according to parents**

(percentages, n=674, multiple answers possible)



Source: Questionnaire among parents of six schools at St. Maarten, 2024.

## 4.9 Significant differences between schools

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### General health

Parents of children attending the Sr. Regina school report higher ratings of their children's health compared to parents of children in the other schools. 88 percent of parents at the Sr. Regina school rate their child's health as (very) healthy, whereas the overall average is 79 percent.

### Nutrition

Three schools stand out in the number of days children eat fruit. More children attending the St. Joseph school, the Sr. Regina school and the St. Dominic primary school eat fruit every day (44%, 44% and 49%) than in the other schools (average: 38%).

When looking at the number of days children eat vegetables, the Sr. Marie Laurence school stands out. Only 12 percent of children there eat vegetables every day, whereas the overall average is 25 percent.

### Exercise

The percentage of children participating in organized sports is very low among children attending the Sr. Marie Laurence school. 39 percent of children of this school participate in organized sports, whereas the overall average is 69 percent. In addition, only 35 percent of parents in the Sr. Marie Laurence school think their child gets enough exercise. The average of all schools is 57 percent.

In the St. Dominic School, children play outside less than in the other schools. The average percentage of children playing outside almost every day is 23 percent. At the St. Dominic School, this is 13 percent.

The St. Joseph School stands out positively in the opinions on outdoor play areas. Parents of children at this school are significantly more positive on the outdoor play areas matching their child's wishes, on children being able to get to the play areas safely, and on how well-maintained the areas are, compared to the other schools.

### Screen time

The percentage of children watching television, movies or series every day in their free time is slightly higher among those attending the Sr. Magda school (66%) than among those attending other schools (average: 52%).

### Health at school

Of those who think school should pay attention to exercise, more parents of children in the St. Dominic primary school (33%) find that the school does not pay enough attention to exercise than in other schools (17%).

# Conclusions & recommendations

In this report, we have described the lifestyle behaviours of children at six schools of the Foundation Catholic Education on Sint Maarten. In this chapter, we will list the most relevant results on each theme and compare them to children's health guidelines or reference data from other countries.

## 5.1 Conclusions and interpretation

### Children sleep less than recommended

The vast majority of children in this study (75%) sleep less than 9 hours a night. The average of all children is 8.8 hours per night, so we must interpret this result with caution. These children do not get enough sleep, but most children are reasonably close to the recommended hours of sleep.

Children in higher school grades and older children are likely sleep 6 to 9 hours. Surprisingly, the majority of the parents feel that their child does get enough sleep during the night. This suggests that parents may be unaware of how much sleep a child needs a night.

The results are worrisome, as getting enough sleep is important for a child's development. Sleeping the recommended number of hours on a regular basis has been positively associated with physical and mental health outcomes, including improved behaviour, attention, memory, learning and emotional regulation, and a general better quality of life (Paruthi et al., 2016). On the other hand, sleep deprivation has been linked to several health risks in children, such as high blood pressure (Sparano et al., 2019) and the development of obesity (Miller et al., 2018).

In addition to too little sleep, some children have problems with sleeping (19%). Young children (in grades 1 and 2) mostly struggle with falling asleep and waking up during the night. This is regarded as common sleeping behaviour at that age (Galland et al., 2012). Remarkably, children in grades 6, 7 and 8 also wake up more often during the night than children in grades 3, 4 and 5.

### Variations in healthy nutrition of children

A healthy diet includes, among others, having breakfast (Hoyland et al., 2009), eating fruits and vegetables on a daily basis, drinking enough water, and limiting the daily sugar intake in a day (WHO, 2020). About half of the parents in our study feel like their child has a healthy diet (51%).

#### ● One in five children do not have breakfast daily

The majority of children seem to meet the recommendations for breakfast. 81 percent of children eats breakfast every day. However, about a fifth (19%) does

not meet the recommendations. For these children, it is crucial to investigate what can be done to increase the number of times they eat breakfast per week. Having breakfast on a daily basis is important, as it is vital for proper growth, immunity, physical and mental development, health and well-being (WHO, 2020).

### ● **Most children do not eat fruit and vegetables daily**

The majority of children in this study do not meet the recommendations of the World Health Organisation regarding fruit and vegetable consumption. The children in this study that eat fruit and/or vegetables every day is considerably low. Less than half of the children eat fruit every day, and only a quarter of the children eat vegetables every day.

Fruits and vegetables are a good source of vitamins, minerals and fibres, which are the building blocks for growth. Eating fruits and vegetables therefore aids in a healthy development. Fruit and vegetables are also usually low in fat and calories. Eating them can therefore support maintaining a healthy weight. It has even been associated with lowering the risk of heart disease and other diseases such as cancer (NHS, 2022).

Most children in the study (55%) have one or two snack moments a day (with for example sweets, cookies or chips). One in six children have four or five snacks daily. It is important to minimize the intake of such snacks with (added) sugar, because they contribute to weight and dental problems.

### ● **Children drink too little water and too many sugary drinks**

Water is regarded as the best choice of drink for children (WHO, 2022). The majority of the children in this study drink four or more glasses of water a day (62%) 38 percent drink five or more glasses of water a day and meet the guideline.

A third of the children drink two to three glasses of sugary drinks a day (34%). Children who consume many sugary drinks are more likely to become overweight. Moreover, sugar intake can lead to dental problems. Therefore, drinks with high sugar levels should be avoided or consumed with moderation (WHO, 2022).

### **Oral hygiene in young children can be improved**

Children aged 4 and over are recommended to brush their teeth at least twice a day for about two minutes. This is essential for keeping a child's teeth free from decay. Before the age of 7, parents or caregivers are advised to brush their children's teeth. Older children should be able to brush their own teeth. However, parents are still advised to check that their children brush their teeth properly (NHS, 2022).

The majority of children in this study meet the recommendation of brushing their teeth twice a day. However, about a third of children do not brush their teeth enough, especially younger children (first and second grade).

### **Many children participate in sports, but few play outside daily**

Active transport to school (cycling or walking) and participating in sports and active play (unstructured, outdoor physical activity in children's free time) can be major contributors to physical activity among children.

These contributors to physical activity show diverse results. The majority of children (69%) in the study participate in organized sports activities weekly. In the Netherlands, 62 percent of children participate in organized sports activities weekly (CBS, 2023).

Few children walk to school (8%). A quarter of children play outside almost every day (23%), while two in ten (19%) do so less than one day a week. The percentage of children playing outside almost every day is rather low compared to research in the Netherlands (40%; Ten Tije, Slot-Heijs & Singh, 2023).

The barriers for playing outside that parents report most often, are not enough outdoor play areas (60%) and heavy traffic that makes playing outside unsafe (37%). About half of the parents feel like their child gets enough physical activity.

Together, these findings suggest that children on St. Maarten may be at risk to engage into too little physical activity. This is worrying, because physical activity is essential for the physical, mental and social development of a child. Moreover, physical activity is a prominent determinant for musculoskeletal, cardiovascular, and metabolic health (WHO, 2010) and has been associated with prevention of childhood obesity and early metabolic risk factors (Kuzik et al., 2017; Moore et al., 2017).

### **Half of the children spend a lot of time looking at screens**

There appear to be no strict guidelines for screen time for children over 5 years old. However, the overall recommendation is to be careful with screen time. Most parents report their child has over 2 hours of screen time a day. Half of the parents feel like their child spends too much time looking at a screen.

### **Parents are most responsible for their children's health**

Parents rate themselves as having the most responsibility for their child's health. They also see some responsibility for the school, the after-school care and the government. School and after-school care should pay attention to exercise and healthy nutrition, according to most of the parents. Some of the parents think school and after-school care do not do this enough at the moment.

## **5.2 Strengths and limitations of the research**

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The response to the questionnaire was high (55%), reflecting the local effort invested in motivating parents to participate. Unfortunately, there were no data available on the distribution of characteristics of children at the Foundation Catholic Education. Therefore, we cannot determine whether the results are representative for all children at the schools. Boys seem slightly underrepresented, as 55 percent of

respondents were girls, while the population at Sint Maarten has slightly more boys (U.S. Census Bureau).

Furthermore, we can not say anything about the socioeconomic status of the parents who responded, nor the distribution at the six schools in this research. Since this can be a major predictor of a healthy lifestyle, this may have affected the overall results and might explain some of the differences between the schools.

The questionnaire stretched a wide range of health topics, but to reduce the burden and stimulate response, we had to be selective with the number of questions. Therefore, we cannot compare all results to international health norms.

## 5.3 Recommendations

### **Focus on sleep, fruit and vegetables, and physical activity**

A few results stood out: most children do not sleep enough, most children do not eat fruit and vegetables as recommended, and very few play outside daily. The schools at Sint Maarten could think of ways to support improvements in these health behaviours.

It is important to involve parents and the government, because for some themes, the school's influence may be limited. For example, to stimulate playing outdoors, the environment may have to be made safer or more shade may need to be provided at playgrounds.

### **Educate parents on child health behaviours**

Parents, especially of children in the school age, are the most prominent players in forming a child's lifestyle behaviours (Sanders & Turner, 2018). The parents of the children in this study agree, indicating that they feel highly responsible for their child's health.

Relatively few parents disagreed with statements on their child's healthy behaviours. For example, most parents think their child sleeps enough. However, the results suggest most of the children do not sleep enough. Therefore, it may be worthwhile to educate parents on guidelines on children's health, so parents can better stimulate their children's health behaviours and become more aware of the importance of a healthy lifestyle.

### **Monitor and evaluate efforts**

We recommend repeating the assessment in some time, to track changes in health behaviour of school children at Sint Maarten. And, in addition, to record the efforts made to improve the lifestyle behaviours and environment. Based on the reflection on such results, the efforts of the health program can be adjusted to continue targeted interventions.



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A large, thick, orange abstract graphic that starts at the top left, loops around, and then curves downwards towards the bottom right, resembling a stylized '3' or a calligraphic flourish.

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