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# **Chubby Children: The Role of Social Norms on Parents Food Choices**

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### **Abstract**

The prevalence of childhood overweight and obesity is high in urban Vietnam. Understanding parents' perceptions on child weight and food choices may help to understand this high prevalence. The goal of this study was to examine and compare parents' perception of a child's weight, and the effect of unhealthy social norms on food choices. The first study (n = 342), assessed the perceptions on child weight using a pictorial vignette. Participants were asked to respond to a situation illustrated in a vignette by stating how they imagine a third person would react. In the second study (n = 330), participants were exposed to either a social norm message (e.g. "Did you know that some Vietnamese mothers prefer chubbier kids?"), and/or a health message (e.g. "Did you know that 33.7% of the primary school children are overweight, which can profoundly affect children's physical health"). Following the message, participants were asked to divide vouchers between snacks they would purchase for their children. Effects of these messages on food choice were compared against each other and a no-message control condition. Overall, the study included 345 parents of first graders from three schools in Dong Anh district. These three schools were randomly selected out of 12 schools that were part of an overarching project. In each of these three schools, four classes were selected to be in the sample. The results did not reveal differences in the perception of parents between a healthy weight and a chubby weight child. Apparently, these parents did not perceive chubbier children as differently as previous research might have caused us to expect. The results also showed no effect of the messages on parents' food selection. Further testing of the effectiveness of such messages is advised to discover how to make effective interventions targeting food choices as emphasizing these message alone are not sufficient to shift behavior. The implication of these findings concerning theory and practice, and suggestions for improvements of future studies are also discussed.

*Keywords:* Overweight; obesity; primary school children; social norms; health message; food choices; food norms; Vietnam

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## **1. Problem Definition**

### **1.1. Substantive Motivation**

Childhood obesity is one of the most serious public health challenges of the 21st century, and may soon be an equally important health threat as undernutrition and infectious diseases (World Health Organization [WHO], 2018b). The problem is global and is steadily affecting many low- and middle-income countries, particularly in urban settings. According to WHO (2018a) data, the prevalence of overweight and obesity among children and adolescents aged 5-19 has risen dramatically from just 4% in 1975 to just over 18% in 2016 globally. The prevalence of overweight and obesity is even greater among school children in South-eastern Asia with 30% of children affected in some settings (Hoang et al., 2018). This development increasingly extends into low- and middle-income countries now facing a double burden of malnutrition (WHO, 2018a).

Since the Doi Moi reform in 1986, Vietnam shifted from a centrally planned economy to an open market economy. Thereby, the country has transformed from one of the poorest in the world into a lower middle-income country (WHO, 2018a). During the transitional period, the prevalence of childhood underweight decreased, while at the same time, the prevalence of overweight and obesity has increased, also among children. For primary school children in Vietnam data is limited. The most recent study, which included 2,872 children aged 5–11 years from 6 provinces in Vietnam, showed that that overweight/obesity affected up to 33.7% of children (Le Nguyen et al., 2013). These numbers can be mainly explained by the dietary shift from high-carbohydrate, low fat, high fiber to high-fat, high-energy dense foods (Pham, Worsley, Lawrence, & Marshall, 2017). One important contributor is the lag in health-related knowledge and perceptions among the general population, compared with the speed of change in social and economic condition. This is particularly common among the generation who experienced underweight, undernutrition, food shortage, physical hardship and deprivation in

the Vietnamese War. The rise in the number of overweight children is disturbing because it causes health problems associated with obesity, which become obvious in adulthood. Excess weight may increase the risk for many health problems, including high blood pressure, heart disease, strokes, and diabetes, putting Vietnam in the interesting position of figuring out how to provide more food to some groups, while convincing other groups to eat less (WHO, 2000).

Body weight perceptions and the influence of body image can impact self-esteem, happiness, wellbeing, and health and can consequently results in obesity. Thinness is desired in western societies because it is believed to be attractive (Poobalan & Aucott, 2016). In developing countries, thinness has only recently become the desired body type among the middle and upper classes in mainstream culture, and obesity is generally more prevalent in children and adults of lower socioeconomic status. They hold a different perception in which being ‘big’ is seen as a sign of prosperity and good health (Esenay, Yigit, & Erdogan, 2010; Hoang et al., 2014; Poobalan & Aucott, 2016; Rachmi, Hunter, Li, & Baur, 2017). The cultural perception that “fat is prosperity” is believed in because it would show your wealth through the fact that you have a lot to eat (Hoang et al., 2014). This notion is said to have persisted in the Vietnamese culture for years as well (Do et al., 2016). Firstly, Vietnamese mothers believe that a chubby child is a lovely and healthy child. While secondly, it makes parents feel more secure when they have a chubby child. In the past Vietnam underwent long periods of war and famine, and most people, especially children, suffered from a lack of food resulting in high prevalence of underweight in children over long periods of time. Thinness, therefore, is still avoided in many families (Huff, 2019). Despite its obvious significance, the number of studies that examine the severity of the epidemic is limited. Ultimately, to reduce problems with overweight and obesity, behavior changes need to be made, therefore, altering the cultural perception that “fat is prosperity” is essential for curbing the rise in overweight and obesity.



## 1.2 Theoretical Motivation

Unlike adults, children are only partially responsible for their eating choices. Parents and other caregivers can govern their children's consumption, especially when children are young (Lindsay, Sussner, Kim, & Gortmaker, 2006). Diet is a major factor in the development of childhood overweight and obesity and the dietary habits formed in childhood are likely to persist into adulthood, so an unhealthy diet in childhood has implications for health throughout the life course (Clark, Goyder, Bissell, Blank, & Peters, 2007). Friends, school, the media, and their own tastes and preferences may also influence children's diets. However, parents' influence is thought to be strongest in early childhood, when parents act as providers, enforcers and role models. Children's consumption, therefore, depends strongly on the parent's knowledge and attitudes, but also on social networks and cultural systems.

The pursuit of a healthy diet for adults is associated with perceptions regarding food consumption, dieting behaviors, and preferred body size of other people in our social environment. Conceptually this is formulated as "descriptive norm", which, more generally, refers to people's beliefs about what is practiced in society in general or among their families and friends. Healthy and unhealthy descriptive norm perceptions have been found to be positively associated with healthy and unhealthy food intake, respectively (Burger & Shelton, 2011; Campbell & Mohr, 2011; Higgs, 2015; Mollen, Rimal, Ruiter, & Kok, 2013). However, empirical evidence related to social norms on a child's body size is scarce; relatively few studies have examined the association of this social norm with food choice, and findings are conflicting. Evidence is especially missing within our population; most of these studies have been done on university students, minorities, or immigrants in developed countries. More generally, there is a lack of studies that investigate the attitudes to obesity in different population in the Asia Pacific region, especially studies on the psychosocial determinants of childhood obesity such as the impact of social norms and peers.

Research on the relationship of perceived norms and dietary choices is sparse. There are some studies in developing countries that substantiate the notion “chubbier children are better”; however, not all parents think that way. Moreover, most of the previous research has been conducted in Mexico, Turkey, Indonesia, and China. China ruled over Vietnam for over a thousand years, therefore, many of China’s culture still exist within Vietnam (Quang & Vuong, 2002). Scholars who examined Vietnamese culture found many similarities between the Vietnamese and the Chinese culture, however, many foreign cultural values were added to the Vietnamese culture too because of the long aggressions of other countries. The hypotheses of this study are developed within the context of the socio-cultural relationships that Vietnam shares with China, however, it can’t be assumed that the beliefs that are held in China also persist in Vietnam due to its dispersion in growth and foreign influences.

### **1.3 Policy Motivation**

Studies like these are needed as the results of such studies can guide planned interventions (WHO, 2000). As social norms are shaped by what people think others do and think should be done and thus are inherently shaped by social relationships or networks rather than individuals and are upheld by social approval or social sanctions (Aransiola, Akinyemi, & Fatusi, 2014). Therefore, the behavior of others in our social environment strongly influences our own decisions and action. Given the influence that such norms have on people's attitudes and behaviors, understanding them within local contexts is important. The studies that have been done so far pointed to the need for public health intervention strategies with parents as crucial agents of change. Investigating positive and negative influences regarding food choice stemming from the social environment is necessary, as it can provide a key to accelerate behavior changes. Moreover, understanding these perceptions could assist in the development of culturally sensitive intervention projects designed to assist in weight

reduction or the prevention of obesity in a setting in which this is a new and emerging problem.

#### **1.4 Research Objective and Question**

Given the fact that the prevalence of overweight among children has increased dramatically and that most children's diets are too high in fat and too low in fruits and vegetables, it is crucial to understand how parents' perception towards their children's body size contributes to the obesity of their children and the quality of their children's diets. The purpose of this study was to investigate (1) if unhealthy descriptive norms regarding children's body size exists in our research population; and (2) explore the domains of perceived norms, health and nutrition knowledge related to selecting low-calorie snacks. Therefore, the overall quest of the research project can be formulated as follows: *Does the notion that chubbier children are better lead to poorer food choices?* The research objectives pursued in order to answer the research question are:

- Explore whether an unhealthy descriptive norm exists in our population among parents of young children

Previous research suggests that chubbier children are perceived differently from their peers in some developing countries as well as Vietnam. This study aimed to explore whether the unhealthy descriptive norm also exists in our study population, and to get a better understanding of what the notions in this social norm exist off.

As noted, social norms can influence food choices. Social norms can be communicated via text or via cues and they do not only influence healthy food choices but also unhealthy choices.

- Assess if an unhealthy descriptive norm message leads to poorer health choices among parents of young children

Participants' food selection was measured when they were exposed to an unhealthy descriptive norm message, communicating that the majority of the parents prefer a chubby child. In line with previous studies that have investigated the negative effects of other unhealthy descriptive norm messages, I hypothesized that an unhealthy descriptive norm message, communicating the preference for chubbier children, would result in food choices that are relatively higher in calories, compared to both a no-message control condition and health message.

- Assess if a health message leads to poorer health choices among parents of young children

Participants' food selection was measured when they were exposed to health information regarding obesity among school children. This message is included to assess whether knowledge on the gradation of the problem leads to better food choices. In line with previous studies that have investigated the positive effects of messages, I hypothesized that the health message results in food choices with relatively lower calories, compared to both the control condition and the unhealthy descriptive norm message.

- Explore whether an unhealthy descriptive norm has a stronger or weaker effect on food choices than the health message among parents of young children

It was hypothesized that combining the unhealthy descriptive norms and the health message would result in less unhealthy food choices, compared to the unhealthy descriptive norm messages. This study explored whether this results in higher or lower levels high calorie food choices compared to the health message and control group.

## **1.5 Outline of the Thesis**

The remaining of this thesis will be organized as follows: the next chapter contains the theoretical framework, explaining the main concepts on social norms. Next, the method of data collection and the methodology for the analysis is discussed. The fourth chapter presents

the results from the quantitative analysis, whereas the fifth chapter discusses the results from the analysis. Finally, the thesis will be concluded in chapter 6 and raises questions for future research.

## **2. Theoretical Framework**

This chapter serves to provide the theoretical framework of this thesis. It therefore serves as a basis for the remainder of the thesis by identifying the main concepts. The chapter is structured as follows: the first section is about social norms, what they are and the distinction that is made between injunctive and descriptive norms. This is followed by a section on the unhealthy social norms in China and Vietnam.

### **2.1 Social Norms**

Social norms are unwritten rules about how to behave and what is ought to be acceptable in a group or society. Individuals in a social group seek to conform to that behavior. Often the distinction is made between two types of norms; descriptive norms and injunctive norms. Descriptive norms refer to the perceptions of which behaviors are typically performed (Stok, 2014). Generally, they refer to the perception of behavior of others' in our social environment. Descriptive norms are thought to impact our own decisions and actions. The underlying thought here is that if others are doing it, it must be correct. Because descriptive norms function as social proof they often serve as a heuristic or shortcut in the decision-making process. Therefore, impact our behavior, especially at low levels of effortful cognitive activity (Mollen et al., 2013). Injunctive norms describe the behavior that most others approve or disapprove of. When individuals seek social permission and prevent disapproval of others they confirm to their injunctive norms.

Multiple studies found that perceptions of most others regarding food consumptions and dieting behavior, descriptive norms, as well as the perceptions of other individuals approval towards food consumption and dieting, injunctive norms, predict intentions to consume healthy foods and pursue a healthy diet even though injunctive and descriptive norms differ in the processes that underlie their effectiveness (Smith-McLallen & Fishbein, 2008; Yun & Silk, 2011). When presenting a descriptive norm message, it informs the

recipient what is being done or thought by another group of individuals. This other group of individuals is called the referent group. Research is not conclusive yet on the effects of how much one identifies themselves with the referent group, and therefore the effect of written descriptive norms on people and their behavior (Stok, de Vet, de Ridder, & de Wit, 2016).

Several studies have examined how whether people follow norms conveyed by messages. In reviewing this literature, experimental evidence suggest that descriptive norms influence actual food choices people make. Healthy descriptive norm perceptions have been found to be positively associated with healthy food intake and unhealthy descriptive norm perceptions have been found to be positively associated with unhealthy food intake (Burger et al., 2011; Collins et al., 2019; Lally, Bartle, & Wardle, 2011). In addition, priming people with overweight images has been shown to lead to an increase in quantity consumed (Campbell & Mohr, 2011). People can hold a given individual attitude and yet act in a manner that is contrary to that attitude in order to adhere to a social norm. This can occur on a large scale, with most people in a group holding an attitude opposed to a particular behavior, but still engaging in that particular behavior because they belief that others expect them to.

The perception of a healthy or desirable body weight or size is influenced by cultural values and social norms, especially for infants, young children, and women. In some settings, overweight and obesity are becoming social norms and, thus contribute to the perpetuation of the obesogenic environment (WHO, 2016). Research showed that the perceived cultural norms of South Asians in the UK population that overweight is acceptable, even desirable (Pallan, Hiam, Duda, & Adab, 2011). As a result of the rising incidence rates of overweight and obesity, more and more social circles include people who are overweight or obese, as obesity spreads through social networks and are sustained by social comparison (Christakis & Fowler, 2007; Etilé, 2007). This is disturbing because behavioral influences are passed from one generation to the next as children inherit socio-economic status, cultural norms, and

behaviors as well as habits of family eating and physical activity, therefore unhealthy social norms are likely to persist through generations. Unhealthy social norms provide no reason for people to change and may even encourage those who have a healthy diet to eat less healthy in an attempt to conform to the majority (Mollen et al., 2013).

## **2.2 Prevalence of Unhealthy Social Norms**

As said previously, where in developed societies, thinness is believed to be attractive, as well as being elegant and in control, this perception is different and contrary in some developing countries where being large or slightly fat is a sign of prosperity and good health (Hoang et al., 2014; Poobalan & Aucott, 2016; Rachmi et al., 2017). In China parents and grandparents are constantly worried that their child/grandchild is not eating enough. A recent study showed that 72% of Chinese mothers thought their overweight children were normal or underweight (Hoang et al., 2018). Moreover, Chinese grandparents are likely to overfeed their grandchildren because fat children represented health and success to them (Li et al., 2017). Thus, the cultural perception that “fat is prosperity” exists because you are able to show your wealth through the fact that you have a lot to eat.

This notion is said to have persisted in the Vietnamese culture for years as well. Do et al. (2016) performed interviews among 33 mothers, of which 12 were overweight, and sixteen mothers had overweight or obese children between 4 and 6 years old. The mothers mentioned to prefer to have a chubby child and to like this appearance. The mothers believe that when they have a chubby child they would get more compliments from other mothers because a chubby child is cute and often a lovely child making the mothers feeling happier. They also think that a chubby child might be healthier than other children. Social approval is important in Vietnam, and receiving compliments on the child weight is therefore important to mothers to feel assured that they are doing a good job raising their child. Moreover, in Vietnamese culture, chubby children are considered a sign of prosperity (Janet, 2001). Vietnamese parents



may also want to spoil their children and they may not realize that fast food may contribute to weight gain, while it also makes parents feel more secure when they have a chubby child.

Vietnam experienced in the past long periods of war and famine, and most people, especially children, suffered from a shortage of food resulting in high prevalence's of underweight in children over long periods of time (Huff, 2019). Similarly to the hardship that Chinese grandparents experienced during China's catastrophic famine, in the mid-20th century, which is associated with the tendency to overindulge their grandchildren with food (Li et al., 2017). The Chinese grandparents observed that chubby children could be healthier than non-chubby children since they would recover faster from illnesses, and the potential effects, such as diabetes, of overweight on health was only seen a minor problem.

### **3. Methodology**

This chapter serves to describe the data and methods used in the analysis of this thesis. First, the data collection is described, how the questionnaire is constructed and why and which sampling methods were used. This is followed by an elaboration on the methodological approach.

#### **3.1 Data Collection**

##### **3.1.1 Population and Study Sample.**

The study population are the parents of first graders in the capital city of Hanoi. The inclusion criteria were: participant is at least 18 years of age, and is (co-)responsible for the caretaking of the child. The sample included 345 participants from three schools in Dong Anh district, of which 28 were non-parent caregivers. These will be referred to as parents as well in the following chapters. The three schools were randomly selected out of 12 schools that were part of an overarching project. In each of these three schools, four 1st grade classes were randomly selected to be included in the sample. The participants were expected to be at the school for a parents meeting after which all parents were asked to participate in the experiment. The research took place in a two-day weekend. Due to extreme weather conditions, the show up rate on the first day was low. This study chose to conduct the study with parents of 1st graders as overweight and obesity rates are higher among these age groups for primary school students, compared to other at school-age children (Do et al., 2017; Le Nguyen et al., 2013). Moreover, between 5 and 7 years of age is known to be a critical period in childhood for the development of obesity in adulthood (Dietz, 1994). The 345 individuals were randomly assigned to the 4 conditions in both experiments. Participants were told that they would take part in a study investigating social factors that influence people's food choices. The research ran during the 2018-2019 school year in May 2019.

### **3.1.2 Ethics Statement.**

The institutional review board of the The Hanoi School of Public Health approved the study. Before distribution of the questionnaires, study participants were informed about the purpose of the study and that participation in the study was completely voluntary, followed by documentation in a written, signed, and dated informed consent form. Participants were paid a small fee for participation. All data is and will be kept confidential.

### **3.1.3 Demographic Questionnaire.**

A short demographic questionnaire was developed specifically for this study. This was given to the participants after signing for consent. The questionnaire was designed to capture general demographic information about the participating parents. The measure asked participants to provide information about their age, gender, education, household composition, and income (as a surrogate for socioeconomic status). The measure also provides information for other potential confounding variables such as the family member in charge of family meals, weight of the parent and child, perception on own and child's weight, own estimates of social influence of others, and the perception of the ideal body shape of a body.

### **3.1.4 Study 1 - Elucidate the norm.**

It's important to acknowledge the difference between social norms and individual attitudes and it's practical implications. Asking the study participants whether they individually agree with the norm, whether parents prefer chubbier children, might not be enough to anticipate their actions, especially if their actions are motivated less by their personal attitude or preference than by their belief of what others believe. Therefore, to elucidate the norm this study made use of vignettes. Vignettes are short stories, in a text, photo, or video, about hypothetical characters in specified circumstances to elicit respondents' perceptions, beliefs, and attitudes (Finch, 1987). Participants were asked to respond to a

situation illustrated in a vignette by stating what they would do or how they imagine a third person would react. Due to its fictitious nature, which enhances depersonalization, as body perceptions and diets tend to be sensitive issues, the vignette technique removes personal disclosure and eases difficulty for the respondent.

A few studies made use of vignettes to elucidate attitudes towards obesity. However, these aimed at elucidating anti fat attitudes in developed countries (Čolić & Vidojević, 2017). No prior research used a vignette to elucidate norms of children with overweight. Therefore, the vignettes needed to be developed. The STRIVE measurement brief (2017) on measuring social norms was used as a guideline. A vignette needs to appear plausible and real to participants and needs to contain sufficient context for respondents to have an understanding about the situation being depicted, but be vague enough to ‘force’ participants to provide additional factors that influence their decisions. Moreover, they need to be consistent and not too complex. A pilot with 4 parents has been performed to test if the vignettes were readable and relevant, after which the vignettes were adjusted accordingly.

After completing the demographic questionnaire, participants were then given an ‘example’ vignette question to practice using a line scale and to explain what is expected from them. The demonstration vignette is unrelated to the research topic. Next, the participants received the research vignette. The vignette showed a short description of a child, either a boy or girl, with a photo sketch of either an overweight or healthy-weight child. Participants were randomly assigned to one of the four vignette conditions among and within classes. The children’s weights in the vignette conditions were manipulated, while the rest of the vignette remained identical across conditions.

A short and plain description was added alongside the sketch. Only a picture may not allow the participant to create their own image of the child and could make it too vague, while a detailed and long description would distract the participants’ attention from the photo. The

assignment stated, *“Please take a good look at the photo when answering the questions”* to steer participants attention to the photo. The story was the same for all 4 versions, only the boys and girls vignette differ in name. The vignettes can be found in Appendix B.1.

The questionnaire that followed the vignette consisted of seventeen statements. The participant could respond to the statements on a five point scale (Likert Scale) in which the participant had to express how much they agreed or disagreed with that particular statement. First, to check whether the vignettes represent an ‘average’ child, the participants were asked to express their agreement with the statement *“(Name of the child in the vignette) is like every other child.”* Thirteen statements are of particular interest to see the degree the participants confirm with the norms regarding chubbier children, these statements and their substantiation are shown in table 1. To disguise the purpose of the questionnaire three additional statements have been added: *“is kind to his/her sibling”*, *“likes to drink bubble tea”*, and *“likes to play with stuffed animals”*, these statements are not used in the analyses.

*Table 1. Vignette Statements and Rationale*

Statement	Rationale
<i>“Other parents will think that Tùng/Hoa*...”</i>	
<i>“...looks healthy”</i>	Studies in Vietnam, China, Turkey and Indonesia show that (grand) parents associate chubby children with being healthier (Do et al., 2016; Esenay et al. 2010; Li, Adab, & Cheng, 2015; Li et al., 2017; Rachmi et al., 2017). In Indonesia this was especially common among low and high socioeconomic groups (Rachmi et al., 2017). In China grandparents believe that being slim is a symbol of undernutrition or bad health and being fat is a symbol of health (Li et al., 2017). However, in all cases health effects related to overweight were common concerns for the caretakers as well.
<i>“...is very active”; “...is probably not very active”</i>	A child's physical activity level is associated with the child's weight (Do et al., 2016; Rachmi et al., 2017). Inactivity is seen by most as the main cause of overweight by children. A counter statement is included to measure consistency.
<i>“...eats whatever</i>	Mothers observed that overweight children eat too much, and that

<i>he/she likes</i>	most parents don't stop their children when they do so (Do et al., 2016; Esenay et al. 2010; Li et al., 2015; Li et al., 2017; Rachmi et al., 2017).
<i>"...looks wealthy"</i>	Vietnamese mothers perceive that improved family economy influences a child's weight. Better economy means that parents could buy more food for the children, offer favorite foods to them and let them eat whatever they want (Do et al., 2016). Similar findings in Indonesia, Turkey, and China where a fat is seen as a lucky thing because it represents a wealthy and contented life (Do et al., 2016; Esenay et al., 2010; He, Ding, Fong, & Karlberg, 2000; Li et al., 2015; Li et al., 2017; Rachmi et al., 2017).
<i>"...gets good grades"</i>	In Mexico normal weight children are perceived to be smarter than their obese peers (Bacardi-Gascón, Leon-Reyes, & Jiménez-Cruz, 2007). No documentation of cases in Asia was found of the perception of (grand)parents between a child weight and their intelligence.
<i>"...looks happy"</i>	Being overweight was associated with a contented life (Rachmi et al., 2017).
<i>"...is cute"</i>	Mothers believe that chubby children look cuter (Do et al., 2016; He 2000; Li et al., 2017; Rachmi et al., 2017).
<i>"...has proud grandparents"</i>	In China many grandparents are proud of their 'big' grandchildren and often say that the 'big' child is the outcome of their successful hard work (Li et al., 2015; Li et al., 2017). Also, in Do et al. (2016) some Vietnamese mothers indicated that the grandparents could be happy for having a heavy grandchild.
<i>"...has proud parents";</i>	Parents of chubby children could get parents from other parents because they look lovely and cute, that makes the mothers happy (Do et al., 2016).
<i>"... 's weight is a sign of bad parenting and poor health"</i>	Some mothers acknowledged mistakes of their own that contribute to the child's overweight (Do et al., 2016; Rachmi et al., 2017). Some mothers viewed overweight as negative or even embarrassing (Do et al., 2016).
<i>"...should gain weight"; "...should lose weight"</i>	In addition to the above statements this statement is included to see whether parents believe the child should gain or lose weight to get the perceived 'ideal' body weight and whether parents should act on the weight.

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\* Name of the child in the vignette, Túng was used for the boys' vignettes and Hoa for the girls' vignettes.

### 3.1.5 Study 2 - Linking the norm with food choice behavior.

After finishing the vignette participants were asked to imagine that they have been given 10 vouchers, worth 10,000 VND each, to shop for snacks for their children. It was made explicitly clear that they needed to use all of the vouchers. They were given a list of twenty-two snacks and were then asked to divide the vouchers between the snacks on the list like they would usually do when shopping for snacks. The list of snacks included relatively higher calorie and lower calorie snacks, and both sweet and savory options. The relatively lower calorie snacks probably won't make children chubbier, while the relatively higher calorie snacks are associated with generating chubbier kids. Twelve snacks are considered to be higher calorie snacks, the other 10 are lower calorie snacks. I use the terms lower-calorie and higher-calorie here because they distinguish foods more on their relative position on a scale of calories rather than making assumptions about their absolute status. I don't claim that the higher-calorie snacks are less nutritional or healthy, only that they contain relatively higher calories. Table 2 shows the list of snacks, these foods were selected because participants in the pilot study reported that they ate these foods often.

Before participants are asked to allocate the vouchers, but after the vignette, the participants will be randomly assigned to three different treatments, which would prime them to spend more or less on the higher calorie snacks. In the first treatment, the participants will be told about the fat norm: "Did you know that some Vietnamese mothers prefer chubbier kids. *\*Based on a study in 2016\**" based on a study of Do et al. (2016). In the second treatment, parents will be told about the degree of the problem. The health condition message read "Did you know that 33.7%\* of the primary schoolchildren are overweight which can profoundly affect children's physical health. *\*Based on a study in 2018\**" based on a study of Le Nguyen (2013). The messages were conveyed via posters (see Appendix C.1) and showed

to the participants after they finished the vignette. The treatments were crossed in a 2x2 design, yielding four conditions:

1. No message-control
2. Descriptive social norm only
3. Healthy message only
4. Descriptive social norm-Healthy message.

*Table 2. Selected Snacks*

<b>Higher-Calorie Snacks</b>	<i>(Vietnamese name used)</i>	<b>Lower-Calorie Snacks</b>	<i>(Vietnamese name used)</i>
1. Cream egg cookie	1. Bánh Típo	1. Plain yoghurt	1. Sữa chua
2. Bubble tea	2. Trà sữa trân châu	2. Apple	2. Táo
3. A nut with a crispy layer around it	3. Đậu Phộng Da Cá	3. Salted popcorn	3. Bông ngô Popcorn (vị muối)
4. Knock off Oreo	4. Bánh Cream-o	4. Low fat milk	4. Sữa tươi
5. Chips	5. Poca	5. Soy milk	5. Sữa Đậu Nành Vinasoy
6. Chocolate cake	6. Bánh Choco-Pie	6. Banana	6. Chuối
7. Cake filled with cream	7. Bánh Custas kem sữa	7. Grapefruit	7. Bưởi
8. Ice cream	8. Kem dâu Vinamilk hộp	8. Cereal	8. Ngũ cốc dinh dưỡng
9. Grilled pork sausage	9. Xúc xích rán	9. Mandarin	9. Quýt Thái
10. Instant noodles	10. Mì hảo hảo xào khô	10. Oat Bar	10. Nestle Fitness
11. Flavored milk	11. Sữa tươi có đường /vị dâu		
12. Peanuts	12. Lạc		

### 3.2 Model and Variables

#### 3.2.1 Study 1 - Modeling the social norm.

First, the respondents were categorized into two groups; the group who received a healthy weight child vignette and the group who received an overweight child vignette, disregarding gender. Next, the answers to the statements have been recoded to numbers between 1 and 5, a value of "1" for "strongly disagree," "2" for "disagree," up to a value of "5" for "strongly agree". Three statements have been reversed recoded (see table 3). The Cronbach alpha has been calculated to test whether all statements measure the same concept, the norm, and a check for internal consistency. Mallery and George (2003) provide the following rules of thumb: “  $\alpha > .9$  – Excellent,  $\alpha > .8$  – Good,  $\alpha > .7$  – Acceptable,  $\alpha > .6$  –



Questionable,  $\alpha > .5$  – Poor, and  $\alpha < .5$  – Unacceptable”. A Cronbach’s alpha values of at least 0.70 is therefore considered to be sufficient when hypothesizing measures of a construct, however, an alpha of .8 was aimed for. To further refine the construct, items that have consistently low correlations across the statements have been removed from the construct based on the criteria of internal consistency reliability. The guideline of StatsDirect was used, which suggests that if alpha increases with more than 0.1 it must be considered to be deleted along with the "real world" relevance. The statements that have been removed from the construct have been analyzed as a single statement. A student's t-test has been performed to test whether the mean between the two groups differ for each statement, and to test the mean difference between the two groups in the construct. In addition, these analyses are performed to test for difference between genders in the vignettes. This was not part of the pre-analysis plan. A probability value of  $\leq 0.05$  is considered as a statistically significant difference.

*Table 3. Coding Statements*

<b>Statement</b>	<b>Coding</b>
<i>“looks healthy”;</i> <i>“is very active”;</i> <i>“looks wealthy”;</i> <i>“gets good grades” ;</i> <i>“seems happy” ;</i> <i>“is cute” ;</i> <i>“has proud</i> <i>grandparents” ;</i> <i>“has proud</i> <i>parents”;</i>	1" for "strongly disagree," "2" for "disagree," up to a value of "5" for "strongly agree."
<i>“eats whatever he</i> <i>likes”</i> <i>“is probably not very</i> <i>active”</i> <i>“weight is a sign of</i> <i>bad parenting and</i> <i>poor health”</i>	1" for "strongly agree," "2" for "agree," up to a value of "5" for "strongly disagree."

### 3.2.2 Study 2 - Linking the norm with food choice behavior.

The dependent variable reflects the food choices made by the parents measured as the proportion of the vouchers spent on higher-calorie snacks. For example, if participant A spends 4 vouchers (equivalent of 40,000VND) on apples and 6 vouchers (equivalent of 60,000 VND) on chips the proportion of participant A will be 0.6, hence, apples are classified as low-calorie and chips as high-calorie snack. The proportion instead of the number of vouchers was used since some (17%) of the participants weren't able to count and/or add up to 10. The three different treatments and the control group will give the design of this study four different experimental conditions. To measure mean differences across conditions ordinary least square (OLS) regression was used. Balancing tests have been performed to check whether one or more variables are found to be unbalanced across conditions and correlated with the main dependent variable. I used standard data analysis to measure the treatment using the regression of the form:

$$Y_{ij} = \beta_0 + \beta_1 T1_j + \beta_2 T2_j + \beta_3 T3_j + \beta_4 X_{ij} + \mu_i$$

where  $Y_{ij}$  denotes the outcomes, the proportions of vouchers spend on unhealthy snack of the parents  $i$ , and their treatment  $j$ .  $T1_j$  is a treatment dummy, equal to one for treatment 1, the health message, and zero otherwise,  $T2_j$  is also a treatment dummy, also 1 for treatment 2, the social norm, and zero otherwise.  $T3$  is also a treatment dummy, 1 for treatment 3, the health message and social norm, and zero otherwise. The value of coefficient determines the treatment effect.  $X_{ij}$  are the individual-level covariates such as the socio-economic characteristics.  $\mu$  is the error term. Potential confounding variables that are added are age, gender, educational attainment, household composition, parents and child's BMI, income class, food knowledge, weight perception, own perception of social influence, and class dummies. All data analysis was conducted with STATA 13.1.

***Confounding and moderating variables.***

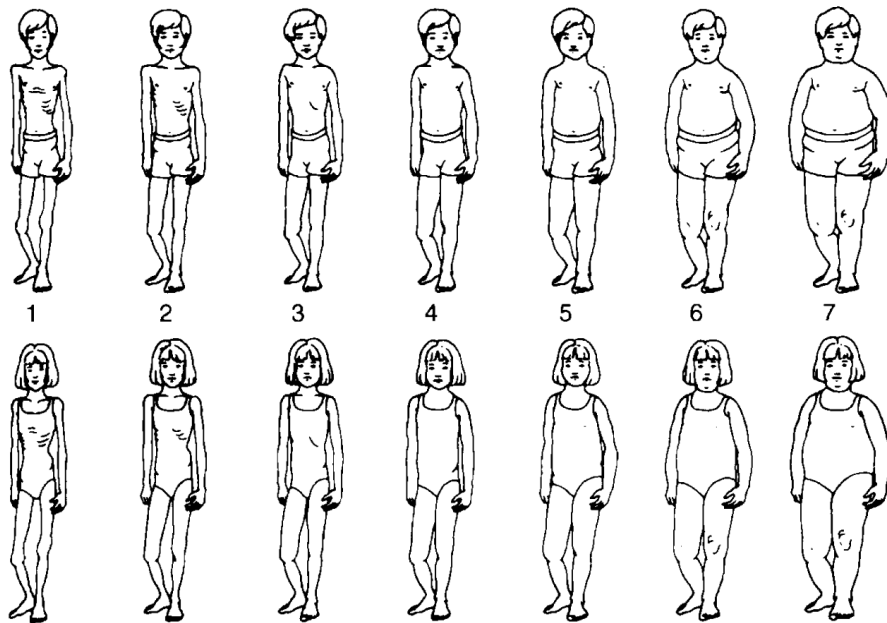
**Food knowledge.** In the questionnaire parents were asked, “*Which foods are more likely to make children gain weight?*”. They were asked to mark all the snacks from a list of 13 options. The list (Appendix C.2) included 7 higher calorie snacks, and 6 lower calorie snacks. A variable between 0 and 1 is constructed indicated a percentage score of correct answers.

**BMI and weight perception.** Parents were also asked to report the estimated weight and height of their child and themselves. For each individual the body mass index (BMI) is calculated based on the participants’ self-reported weight and height. The BMI was calculated as mass in kilograms divided by height in meters squared. For the parents the Asia-Pacific classification of BMI (WHO, 2000) was used to compare to this value. Parents weight status was defined as overweight if their BMI was greater than or equal to 23. For children these values were compared with the WHO sex-specific BMI-for-age (Onis et al., 2007). A child’s weight status was defined as overweight as their BMI is at or above the 85th percentile ( $>+1SD$ ; equivalent to BMI 25 kg/m<sup>2</sup> at 19 years). Parents and children will then be classified into two groups; non overweight and overweight. Those with missing information on perceived height or weight, and implausible perception were excluded.

Parents were also asked to classify themselves and their child as either: underweight, healthy weight, overweight, or obese, of which the latter two are merged in the analyses into overweight and the first two into non-overweight. To assess misperception of weight status, a dummy is generated indication either a correct or incorrect perception. In both questions the option “*I don’t know*” indicates a lack of awareness and is recoded to an incorrect perception.

Participants also received seven sex-specific silhouettes of the same height, with weight ranging from underweight to obese, these are presented in figure 1. In order of weight, the first two silhouettes represent an underweight child, the middle three a healthy weight, and

the last two an overweight child. Participants are asked to select the figure they perceive is the most desirable for a child in the 1st grade. The line drawings for boys and girls were arranged randomly on the page in terms of body size. Four dummies are generated, one indicating a preference for an overweight boy, one for a preference for an overweight girl, and the same is done for the preference of the underweight silhouette.



*Figure 1.* Gendered silhouettes adopted from Parkinson, Tovée, & Cohen-Tovée (1998).

**Social influence.** Two questions ask participants to self-report how prone they are to influences of others. The first question asks the participants to complete the sentence “Opinions and actions of my peers are ..... to me.” The answers to the statements are recoded to numbers between 1 and 5, a value of “1” for “Not important,” “2” for “Slightly Important,” up to a value of “5” for “Very Important”. In the second question participants were asked how much they agree with the statement: “I tend to be influenced by the opinions and actions of my peers.” The answers to the statements are recoded to numbers between 1 and 5, a value of “1” for “Strongly disagree,” “2” for “Disagree,” up to a value of “5” for “Strongly agree”.

**Educational attainment.** Three dummies have been generated from the highest level of formal education that the participant completed. The first one indicates a “1” if the

participant had no formal education or only completed primary or secondary school, and "0" otherwise. The second, indicates a "1" if the participant only completed high school, and "0" otherwise. The third one indicates a "1" if the participant completed any higher form of education (vocational college, college, or university), and "0" otherwise. These dummies are also generated for the educational attainment of the participant spouse.

## **4. Results**

In this chapter the results of the vignette and the food choices of the parents are discussed. I will start with some descriptive statistics providing information about the parents and children.

### **4.1 Descriptive Statistics**

All participants that were able to complete the experiments are included in analyses. In the first study 3 (0.87%) participants weren't able to complete the experiment and in the second study 15 (4.35%) participants weren't able to complete the experiment. This resulted in a final sample of 342 participants in this first study, corresponding to  $n = 86$  and  $n = 87$  in the control condition with a healthy weight girl or boy was shown, respectively, and  $n = 90$  and  $n = 79$  in the experimental condition in which an overweight girl or boy was shown. In study 2 this resulted in a final sample of 330 participants, corresponding to  $n = 77$ ,  $n = 87$ ,  $n = 81$ , and  $n = 85$ , in the control, health message, unhealthy descriptive norm, and health message and unhealthy descriptive norm condition, respectively.

#### **4.1.1 Characteristics of participants.**

Female participants comprised 76.5% of the sample, and ages ranged from 22 to 70 ( $M = 35.18$ ,  $SD = 7.25$ ). The mean BMI of the sample was 21.6 ( $SD = 2.3$ , range = 15.9-29.7), which is within the healthy weight range of 18.5 – 23.0. Thirty-eight participants (11%) did not provide information regarding their weight and/or height. The results indicate there were no significant differences (Appendix A.2) between the parents in the four different treatment groups according to the respondents sex, child sex, number of children in household, household size, parents weight status, child weight status, parents education, income level, or knowledge of high calorie snacks. This means that the sample is balanced, randomization was successful, and for this reason there is no need to control for imbalances with covariates in the subsequent analyses. Demographics may be found in Table 4.

*Table 4. Demographics*

	Observations	Mean (%)	Std. Dev.	Min	Max
Age	338	35.180	7.245	22	70
Women	345	(76.522)			
Child girl	217	(48.39)			
Nr. of household members	345	4.945	1.364	2	11
Nr. of children in household	345	2.217	.607	1	5
<i>Education parent</i>	344				
< High school	41	(11.88)			
High school	114	(33.04)			
> High school	189	(54.78)			
<i>Education spouse</i>	344				
< High school	40	(11.59)			
High school	119	(34.59)			
> High school	185	(53.62)			
BMI parent	307	21.564	2.287	15.9	29.7
Overweight parent	307	(24.42)			
Incorrect weight perception	307	(19.21)			
BMI child	246	16.317	3.389	9.8	33
Overweight child	244	(33.61)			
Incorrect weight perception of child	244	(27.87)			
<i>Income percentile</i>	345				
1st percentile	88	(25.51)			
2nd percentile	115	(33.33)			
3rd percentile	66	(19.13)			
4th percentile	76	(22.03)			

The average participant lived in a household with 5 people and 2 children. About 33% of the participants completed high school, with 12% having completed less than high school and 55% completed a form of higher education. Similarly, about 35% of the participants spouses completed high school, with 12% having completed less than high school and 54% completed a form of higher education. Also, the gender of the participants' child was almost equally represented in this study, 48% had a daughter and 52% had a son in grade 1. The estimated BMI of the child is 16.3 (SD = 3.4, range = 9.76-33), which is within the healthy weight range for both boys and girls. The reported household income was divided by the number of household members to get the per capita household income. Per capita household income was then divided into quartiles; this resulted in 25.51, 33.33, 19.13, 22.03 percent for the 1st, 2nd, 3rd, and 4th income percentile, respectively.

To assess the participants their knowledge on what type of foods are high in calories, and are therefore more likely to make children gain weight, participants were asked to mark all the high calorie snack foods from a list of 13 snacks. On average participants were able to correctly mark 38.55% of the snacks in the list with 8/345 identifying all high calorie foods.

***Parents' and child's weight and perception.***

Overall, 24% of the parents were classified as overweight according to their reported weight and height, while 37% of those who are overweight or obese didn't classify themselves as being overweight. A third of their children are classified as overweight, while 78% of the parents with an overweight or obese child didn't classify their child as either overweight or obese, while according to their BMI estimates they are. These values are consistent with previously reported prevalence of overweight for adults and children in our population (Do et al., 2017).

The most desirable body size for first graders was assessed by asking participants which silhouette they prefer for a girl and boy (table 5). Almost all parents (90.7% for girls



and 94.2% for boys) chose ideal figures within one standard deviation of the mean, which corresponds to the healthy weight category. Only 4.4% and 3.5% of the parents marked an overweight boy and or girl, respectively. There is no evidence that the mean is statistically different between boys and girls. 1.5% and 5.8% of the parents marked an underweight boy and or girl, respectively. These differences in means are statistically different from each other at any level greater than 0.5%. Participants' perception on "skinny" children was measured by their reaction to the statement: "*having a "skinny" child is considered to be a sign of bad parenting and poor health.*" 72.5% of the participants disagreed to some degree, and 20.3% of the participants agreed to some degree (Appendix A.1).

*Table 5. Preference Silhouette*

	Boy silhouette		Girl silhouette	
	Frequency (N=345)	%	Frequency (N=345)	%
Underweight silhouette	5	1.5	20	5.8***
Healthy silhouette	325	94.2	313	90.7
Overweight silhouette	15	4.35	12	3.48

\*\*\*  $p < 0.01$ . \*\*  $p < 0.05$ . \*  $p < 0.1$

To account for participants' own perception on how prone they are to social influences, two statements have been included in the baseline. The internal consistency was unacceptable ( $\alpha = 0.21$ ) to conclude they measure the same concept. 20.9% of the participants indicated they agree to some extent with the statement that they tend to be influenced by the opinions and actions of their peers, while 87.8% of the participants find the opinions and actions of their peers at least slightly important. Results of both questions are shown in table 6.

*Table 6. Social Influence Statements*

<i>Statement: Opinions and actions of my peers are ..... to me.</i>			<i>Statement: I tend to be influenced by the opinions and actions of my peers.</i>		
	Freq. (N = 345)	Percent		Freq. (N= 345)	Percent
Not important	42	12.17	Strongly Disagree	27	7.83
Slightly Important	76	22.03	Disagree	196	56.81
Fairly important	74	21.45	Neither agree nor disagree	50	14.49
Important	112	32.46	Agree	66	19.13
Very important	41	11.88	Strongly Agree	6	1.74

## 4.2 Study 1 - Vignette

### 4.2.1 'Healthy weight' and 'chubby child' vignette.

To check whether the vignettes represent an 'average' child participants were asked to express their agreement with the statement "*(Name of the child in the vignette) is like every other child*". A majority (69.3%) of the participants agreed with this statement, 24% disagreed, the remaining 6.7% neither agreed nor disagreed. There are no significant differences in response between the 'healthy weight' and 'chubby child' vignette.

A t-test for each individual statement of interest finds no significant differences in response between the 'healthy weight' and 'chubby child' vignette (table 7).

The original questionnaire consists of 11 subscales. The alpha coefficient for the 11 items is 0.717, suggesting that the items internal consistency is acceptable (Appendix B.1). In order to have a relatively higher internal consistency, without losing content validity of the measure seven subscales were chosen to assess the social norm in our sample. The scales: ... looks wealthy, ... is not active, ... eats whatever he/she likes, and ... weight is a sign of bad parenting were therefore not included in further analysis. The reliability of the remaining

seven subscales was again assessed using Cronbach's alpha ( $\alpha = 0.8252$ , Appendix B.2). The subscales were: ...looks healthy, ...seems happy, ...get good grades, ...is very active, ...had proud parents, ...has proud grandparents, and ...is cute. The mean of the item scores were calculated to give an overall norm score. As the individual statement anticipated the results conclude that there is no significant differences between the two groups (table 8).

*Table 7. All Vignette Statements*

Statements <sup>a</sup>	Chubby child		Healthy weight child		Unadjusted p-values	Adjusted p-values (Hochberg)	Adjusted p-values (Holm)
	Mean	SD	Mean	SD			
is like every other child	3.480	1.032	3.479	1.053	0.997	1	1
looks healthy	3.665	0.878	3.645	0.984	0.845	1	1
looks wealthy	3.000	0.988	3.124	0.933	0.233	1	1
is probably not very active	3.272	0.995	3.213	1.013	0.589	1	1
is very active	3.387	0.918	3.379	0.912	0.517	1	1
seems happy	3.572	0.877	3.633	0.857	0.533	1	1
eats whatever he likes	3.185	1.095	3.112	1.055	0.289	1	1
gets good grades	3.237	0.925	3.337	0.816	0.931	1	1
has proud parents	3.520	0.912	3.533	0.907	0.900	1	1
has proud grandparents	3.636	0.902	3.592	0.882	0.648	1	1
is cute	3.723	0.780	3.746	0.859	0.795	1	1
weight is a sign of bad parenting and poor health	3.543	0.931	3.527	0.894	0.866	1	1

a Scale 1 to 5. \*\*\* p<0.01. \*\* p<0.05. \* p<0.1 unadjusted two tailed. \*\*\* p<0.01. \*\* p<0.05. \* p<0.1 unadjusted one tailed.

*Table 8. Combined Statements*

	Chubby child		Normal weight child		P-value
	Mean	SD	Mean	SD	
Statements combined <sup>a</sup>	3.534	0.640	3.552	0.596	0.7913

a Scale 1 to 5. \*\*\* p<0.01. \*\* p<0.05. \* p<0.1 two tailed.

Furthermore, no significant difference was found in responses between the vignettes on whether the child should gain weight. Moreover, I do find that the means are statistically different (table 9) from each other for the statement the child should lose weight; The mean of the 'healthy weight' vignette scores significantly higher than the mean of the 'chubby child' vignette, with 1= strongly disagree to 5= strongly agree. The results show that more

participants agree that the ‘healthy weight child’ vignette should lose weight, and fewer participants agree that ‘chubby weight’ vignette should lose weight.

*Table 9. Acting on Weight*

Statements <sup>a</sup>	Chubby child		Normal weight child		P-value
	Mean	SD	Mean	SD	
Should gain weight	2.422	0.863	2.314	.853	0.244
Should lose weight	2.428***	0.794	2.935	1.047	0.000

#### 4.2.1 Gender analyses.

In addition to comparing the ‘healthy weight’ vignette with the ‘chubby child’ vignette, the same tests were performed between the boys and girls’ vignettes, and the ‘chubby boy’ and ‘chubby girl’ vignette. The results show no significant differences in participants' responses to whether the vignette represent an ‘average’ child between the boys and girls vignette, and the ‘chubby boy’ and ‘chubby girl’ vignette.

A t-test for each individual statement of interest shows that the mean for the girls vignettes is significant larger for three statements compared to the boy vignettes (see table 10). The mean is significantly larger for the statements: “... looks healthy”, “...is probably active”, “... looks happy”, “... has proud grandparents”. In addition, the mean is significant different for the statement “... looks healthy”. However, when the statements are adjusted for the false discovery rate (FDR) and family-wise error rate (FWER) all the statements remain insignificant. The same tests were performed between the ‘chubby boy’ and ‘chubby girl’ vignette (see table 11). The mean for the ‘chubby girl’ vignette is significant larger for five statements compared to the ‘chubby boy’ vignette for the statements: “... looks healthy”, “... looks happy”, “... has proud grandparents”, and contradictory for “...is probably not very active” and “...is probably active”. In addition, the results show again that the mean is significant different for the statement “... looks healthy”. However, also these statements

remain insignificant adjusted for the false discovery rate (FDR) and family-wise error rate (FWER).

*Table 10. All Vignette Statements Girls vs. Boys*

Statements <sup>a</sup>	Girls		Boys		Unadjusted p-values	Adjusted p-values (Hochberg)	Adjusted p-values (Holm)
	Mean	SD	Mean	SD			
is like every other child	3.540	1.058	3.416	1.022	0.271	0.860	1.000
looks healthy	3.790 <sup>+++</sup>	0.866	3.512 <sup>***</sup>	0.977	0.006	0.068	0.068
looks wealthy	3.080	0.988	3.042	0.936	0.720	0.860	1.000
is probably not very active	3.318 <sup>+</sup>	1.015	3.163	0.987	0.152	0.860	1.000
is very active	3.688 <sup>++</sup>	0.848	3.512 <sup>*</sup>	0.879	0.061	0.670	0.670
seems happy	3.159 <sup>++</sup>	1.078	3.139	1.073	0.860	0.860	1.000
eats whatever he likes	3.313	0.868	3.259	0.880	0.572	0.860	1.000
gets good grades	3.443	0.886	3.319	0.941	0.211	0.860	1.000
has proud parents	3.602 <sup>+</sup>	0.889	3.446	0.924	0.111	0.860	1.000
has proud grandparents	3.693 <sup>++</sup>	0.860	3.530 <sup>*</sup>	0.919	0.091	0.860	0.910
is cute	3.795 <sup>+</sup>	0.802	3.669	0.834	0.153	0.860	1.000
weight is a sign of bad parenting and poor health	3.585	0.897	3.482	0.926	0.295	0.860	1.000

a Scale 1 to 5. \*\*\* p<0.01. \*\* p<0.05. \* p<0.1 unadjusted two tailed. +++ p<0.01. ++ p<0.05. + p<0.1 unadjusted one tailed.

*Table 11. All Vignette Statements Chubby Girls vs. Boys*

Statements <sup>a</sup>	Chubby Girls		Chubby Boys		Unadjusted p-values	Adjusted p-values (Hochberg)	Adjusted p-values (Holm)
	Mean	SD	Mean	SD			
is like every other child	3.367 <sup>+</sup>	1.088	3.578	1.016	0.195	0.720	1.000
looks healthy	3.430 <sup>+++</sup>	1.082	3.833 <sup>***</sup>	0.851	0.008	0.090	0.090
looks wealthy	3.152	0.893	3.100	0.972	0.720	0.720	1.000
is probably not very active	3.076 <sup>++</sup>	0.984	3.333 <sup>*</sup>	1.028	0.099	0.720	0.890
is very active	3.506 <sup>++</sup>	0.845	3.744 <sup>*</sup>	0.855	0.071	0.720	0.780
seems happy	3.051	0.986	3.167	1.114	0.477	0.720	1.000
eats whatever he likes	3.304	0.774	3.367	0.854	0.619	0.720	1.000
gets good grades	3.253 <sup>++</sup>	0.940	3.489 <sup>*</sup>	0.877	0.094	0.720	0.890
has proud parents	3.443	0.902	3.611	0.908	0.230	0.720	1.000
has proud grandparents	3.468 <sup>++</sup>	0.875	3.700 <sup>*</sup>	0.880	0.089	0.720	0.890
is cute	3.671	0.796	3.811	0.911	0.291	0.720	1.000
weight is a sign of bad parenting and poor health	3.468	0.903	3.578	0.887	0.429	0.720	1.000

When we test the seven selected subscales we find again that the mean between the girls and boys vignettes is significantly different, and that the mean is significantly larger for

girls. Similarly, we can see that the mean between the ‘chubby’ girl and ‘chubby’ boy vignette is significantly different and larger for girls.

*Table 12. Combined statements gender*

	Girls		Boys		P-value
	Mean	SD	Mean	SD	
Statements combined <sup>a</sup>	3.618**	0.601	3.464	0.627	0.021
Statements combined <sup>b</sup>	3.651**	0.602	3.439	0.572	0.011

a Scale 1 to 5. b comparing only chubby girls and boys. \*\*\* p<0.01. \*\* p<0.05. \* p<0.1 two tailed.

No significant results were found between the ‘healthy weight girls’ and ‘healthy weight boys’. Moreover, the results show no significant difference in responses between the vignettes on whether the child should gain or lose weight (results not shown).

### 4.3 Study 2 - Food Choice

A linear regression model (OLS) was used to regress the impact of the messages on parents' food choices measured as the proportion of vouchers spend on high calorie snacks. Participants' gender, age, race/ethnicity, and BMI were included as covariates. Figure 2 shows the percentage of vouchers used for high calorie snacks in each condition.

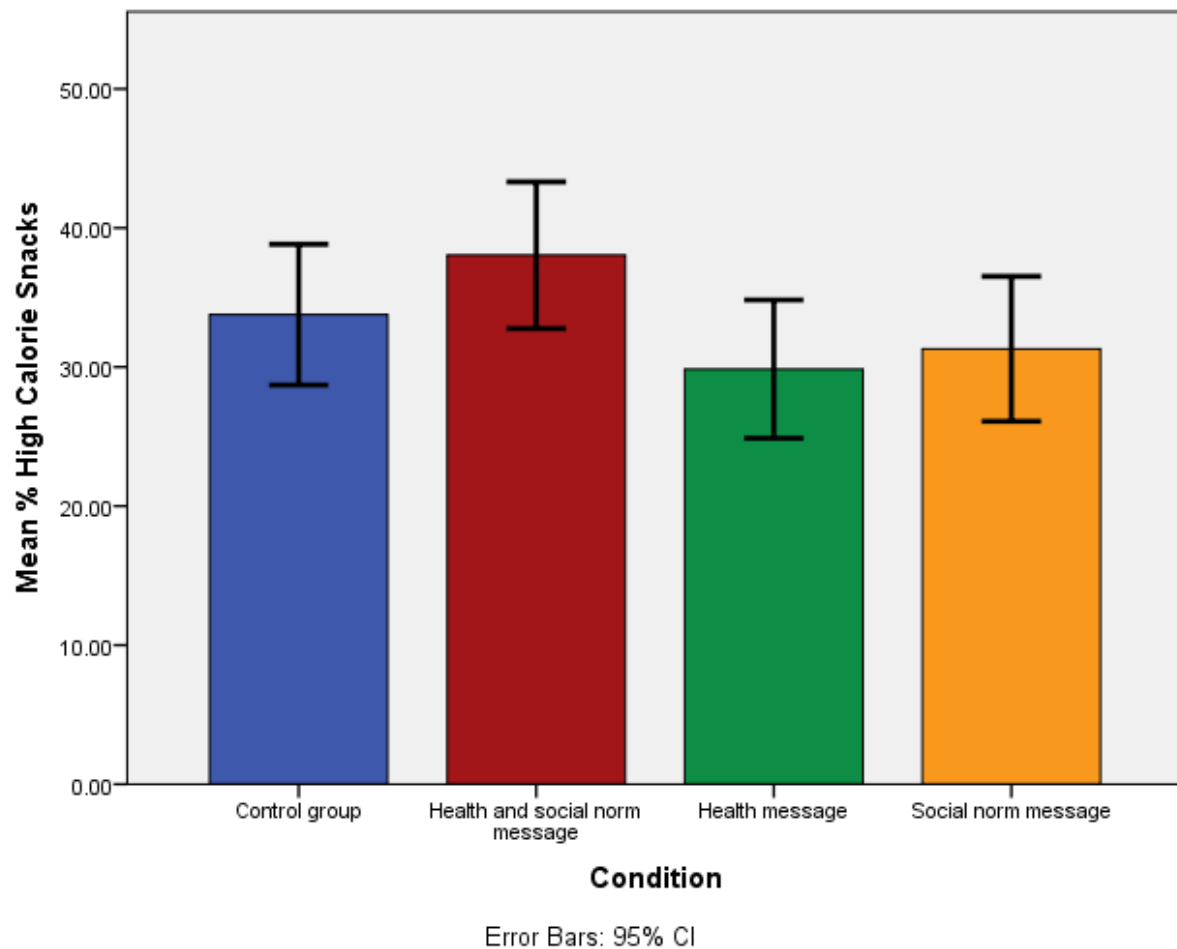


Figure 2. Mean percentage vouchers spend on high-calorie snacks per condition.

The model with only the health message, social norm message, and health and social norm message (see table 13) as predictors explained 0.89% of the variance in the proportion of selection of high-calorie snacks ( $R=0.018$ ,  $R^2=0.0089$ ,  $F(3, 326)=1.99$ ,  $p<0.1154$ ). However, prediction was significantly improved by the inclusion of control variables. The results of the analysis are shown in table 14. The intercept in this model has no meaning, hence the proportion of voucher spent in the control group is not equal to 0.85. This could indicate missing variables, and indeed when looking at the adjusted R-squared (Appendix C.3) the model can only explain 7.3% of variation in the treatment and control variables of the variation in the proportion of vouchers used. The model suggests that holding all other variables constant, the health condition would result in an increase of the proportion of vouchers used with 0.006. The social norm condition would result in a decrease of the proportion of vouchers used with 0.02, and combining both conditions would result in an

increase of the proportion of vouchers used with .08. These findings are contradictory to the hypothesis of the coefficients. Hence, there is no credible evidence that the different treatments lead to a different proportion vouchers spend on high calorie snacks since none of the interventions reached a level of significance. Therefore, I cannot conclude that there is effects of the treatments on the proportion vouchers spend on high calorie snacks.

The third income percentile and own perception of social influence emerged to be significant predictors of parents high-calorie snack selection. The results suggest that participants with income levels in the third percentile use a higher proportion of vouchers on higher calorie snacks. Furthermore, the results suggest that those indicating that they are more prone to influences of others use a lower proportion of vouchers on high calorie snacks. Additionally, at 10% significance, the results suggest that if their child has a higher BMI the proportion of vouchers spend on high calorie snacks is lower and if participant indicate they are prone to influences of others the proportion decreases. Results don't show significant results of sex respondent, sex child, number of children, educational attainment, household size, age, BMI participant, participant or child classified as overweight, perception of weight, and food knowledge on the proportion of vouchers used on high calorie snacks.

*Table 13. Selection of High-Calorie Snacks Without Additional Control Variables*

Independent Variables	Proportion of High Calorie Snacks
Health Condition	-0.0392 (0.0367)
Social Norm Condition	-0.0246 (0.0373)
Health and Social Norm Condition	0.0427 (0.0267)
Constant	0.3377*** (0.0267)

Robust standard errors in parentheses

\*\*\* p<0.01. \*\* p<0.05. \* p<0.1



*Table 14. Selection of High-Calorie Snacks*

Independent Variables	Proportion of High Calorie Snacks
Health Condition	0.0058 (0.0491)
Social Norm Condition	-0.0223 (0.0501)
Health and Social Norm Condition	0.0770 (0.0521)
Gender	0.0455 (0.0532)
Age	-0.0039 (0.0032)
Household size	0.0213 (0.0175)
BMI Parent	-0.0073 (0.0123)
Overweight parent	0.0434 (0.0814)
Incorrect weight perception	-0.0425 (0.0442)
<i>Education parent</i>	
High school	-0.0771 (0.0710)
> High school	-0.1132 (0.0693)
Nr. of children in household	-0.0169 (0.0359)
Gender child	0.0439 (0.0357)
BMI Child	-0.0194* (0.0107)
Overweight child	0.0522 (0.0642)
Incorrect weight perception of child	0.0449 (0.0612)
Food knowledge	-0.0561 (0.0698)
<i>Income percentile</i>	
1st percentile	0.0301 (0.0581)
2nd percentile	-0.0242 (0.0461)
3rd percentile	0.1103** (0.0531)
Opinions of other	0.0253* (0.0147)
Influenced by others	-0.0527*** (0.0197)
Constant	0.8493*** (0.3522)

Robust standard errors in parentheses

\*\*\* p&lt;0.01. \*\* p&lt;0.05. \* p&lt;0.1

### 4.3.1 Additional results study 2.

After study 2, participants were asked to mark all the snacks, from the list of snacks in study 2, they would consider to be a healthy snack for a child. Only 15%(N=52) of the participants marked all four fruits as healthy, 25%(N=86) marked three fruits, 25%(N=86) marked two fruits, 19%(N=67) marked one fruit, and 16%(N=54) marked none of the fruits as healthy (Appendix C.4).

An additional dependent variable was generated to assess whether the message had an impact on the foods that a majority (>50%) of the participants considered to be healthy. A majority of the participants considered cereal (53%), plain yoghurt (78%), low fat milk (53%), bananas (63%), and grapefruits (64%) to be a healthy snack for a child (Appendix C.5). The explanation of predictors in the model remained poor to explain the variance in the proportion of their own selected 'healthy' snacks without ( $R=0.0198$ ,  $R^2=0.0108$ ,  $F(3, 326)=2.2$ ,  $p<0.0880$ ) and with control variables ( $R=0.0994$ ,  $R^2=-0.0158$ ,  $F(22, 172)=0.86$ ,  $p<0.6436$ ). The regression results are shown in table 15 and 16. The results show no statistically significant evidence at  $\alpha=0.05$ , to conclude that the treatment groups affected the selection of healthy snacks. The health condition approaches but fails to achieve a conventional level of statistical significance ( $p=0.053$  without additional control variables,  $p=0.084$  with additional control variables).

*Table 15. Selection of 'Healthy' Snacks Without Additional Control Variables*

Independent Variables	Proportion of 'Healthy' Snacks
Health Condition	0.0723* (0.0372)
Social Norm Condition	0.0052 (0.0379)
Health and Social Norm Condition	-0.0125 (0.0374)
Constant	0.4665*** (0.0271)

Robust standard errors in parentheses

\*\*\*  $p<0.01$ . \*\*  $p<0.05$ . \*  $p<0.1$

Table 16. Selection of 'Healthy' Snacks

Independent Variables	Proportion of 'Healthy' Snacks
Health Condition	0.0877* (0.0504)
Social Norm Condition	0.0218 (0.0514)
Health and Social Norm Condition	0.0327 (0.0535)
Gender	0.0110 (0.0546)
Age	-0.0008 (0.0033)
Household size	-0.0063 (0.0179)
BMI Parent	0.0045 (0.0127)
Overweight parent	-0.0370 (0.0659)
Incorrect weight perception	0.0873* (0.0454)
<i>Education parent</i>	
High school	0.0515 (0.0729)
> High school	0.0461 (0.0711)
Nr. of children in household	0.0511 (0.0368)
Gender child	-0.0353 (0.0367)
BMI Child	-0.0118 (0.0110)
Overweight child	0.0395 (0.0835)
Incorrect weight perception of child	0.0247 (0.0628)
Food knowledge	0.0710 (0.0717)
<i>Income percentile</i>	
1st percentile	-0.0150 (0.0597)
2nd percentile	-0.0229 (0.0474)
3rd percentile	-0.0946* (0.0545)
Opinions of other	-0.0064 (0.0151)
Influenced by others	0.0142 (0.0202)
Constant	0.4491 (0.3616)

Robust standard errors in parentheses

\*\*\* p&lt;0.01. \*\* p&lt;0.05. \* p&lt;0.1

## 5. Discussion

### 5.1 Results

#### 5.1.1 Study 1.

This study aimed to examine parents' attitudes towards children's body size, and thereby to address some issues identified in the literature. Specifically, it was expected that the parents perceived chubbier children differently from their peers. Further, this study intended to create a better understanding of what the notions exist off. The study used an indirect measure, vignettes, rather than asking parents directly whether they thought or other parents thought they perceived chubbier children differently. This may be seen as a limitation of the study; however, this method was deliberately chosen because direct questioning often generates socially desirable answers. Moreover, it was anticipated that this would results in more action as parents may be more motivated by their belief of what others believe.

The data did not support these expectations. Individually the thirteen statements showed no difference between the chubby child and healthy weight child vignette and neither did the parameter that combined the statements. This is contrary to earlier qualitative studies where opinions like 'a bigger infant is a better infant' have been seen in Vietnam and other developing countries (Do et al., 2016; Esenay et al., 2010; He et al., 2000; Li et al., 2015; Li et al., 2017; Rachmi et al., 2017).

A study by Craig in Vietnam (as cited in Do et al., 2016) discusses how different views are hold in urban and rural contexts as well as by elderly and youth regarding being large or slightly fat. This may, to some extent, explain the views of today's parents about overweight and obese children and those of older family members who were brought up under different economic conditions. Moreover, Vietnam is quickly changing culturally and socially. Ko et al. (2015) show that in urban Vietnam a drive for thinness and body dissatisfaction is rapidly increasing. As thinness becomes a symbol of beauty this coincides

with a fear of being fat. For these reasons, it might be that the perceptions in urban Vietnam have shifted, and these norms are only prevalent in less developed areas such as the northern mountains and the central highlands; however, these are only speculations. To continue, it is not uncommon for children and their parents to live with their grandparents. Grandparents are greatly involved in raising their grandchildren and in taking care of the child's nutritional needs (Moestue & Huttly, 2008). Future research should, therefore, not only aim at the parents but also the extended family members, especially grandparents given their role in the household.

The additional analyses, between the boys' and girls' vignettes, and the 'chubby boy' and 'chubby girl' vignette were performed as I hypothesized that the perception holds more strongly towards boys than towards girls. This is also somewhat similar to several studies, in developed countries, where the desire for girls and women to be thin is larger than for boys and men (Lowes & Tiggemann 2003; Thelen & Cormier, 1995). The unadjusted results for each statement suggest that girls are differently perceived than boys with regards to health, happiness, activity level, and how proud their grandparents are. However, adjusting these p-values for the false discovery rate (FDR) and family-wise error rate (FWER) the differences appeared to be insignificant.

Evaluating the generated instrument for this social norm, the combined statements, the results show, contradictory to the hypotheses, that the mean is significantly larger for girls. Meaning that parents score girls higher, agree more, with the seven statements; ...looks healthy,...seems happy, ...get good grades, ...is very active, ...had proud parents, ...has proud grandparents, and ...is cute. This could indicate a more positive attitude towards girls, which is surprising given the documented son preference in Vietnam in the past (Guilmoto, 2012; Haughton & Haughton, 1995). This should further be investigated; however, this is outside the scope of this study.

The reliability of the scale, measuring the social norm, could be greatly improved by additional items and future research is needed to examine the validity of the scale in other samples.

### **5.1.2 Study 2.**

The goal of the second study was to explore the effects of social norms on food choice. For this purpose, a lab in field experiment was conducted in which unhealthy descriptive norms, as well as a health message, was communicated. With regards to unhealthy descriptive norms, it was hypothesized that the message would have a negative effect on food choice. Contradictory, those in the norm message condition chose less high-calorie snacks; however, this study finds no evidence that the proportion of those in the norm message condition differs from those in the control condition. For the health message, it was hypothesized that the message would have a positive effect on food choice. Again, contradictory to those expectations, highlighting a health message resulted in a tendency towards more high-calorie choices. Those exposed to the health message, however, did not make significantly more high-calorie food choices than those in the control condition or make it significantly less high-calorie food choices than those in the social norm condition. A combination of the health and norm message increased the number of high-calorie snacks compared to the other conditions; however, these results also did not make it significant. Although some of the findings align with the predictions, food choices remained unaffected by the messages. There was also no evidence that the social norm message had a greater effect than the health message.

The current study appears to support findings from some other studies focusing on the effects of social norms on food choices. Burger et al. (2010) and Mollen et al. (2013) demonstrated there are no differences between an unhealthy descriptive norm and a control group on food choice, and various studies showing very small or even negative results (Stok

et al., 2016). However, the results contradict to many other studies that did (partly) find descriptive norms affecting food choices. (Burger et al. 2011; Collins et al., 2019; Higgs, 2015; Lally et al., 2011; Smith-McLallen & Fishbein, 2008; Yun & Silk, 2011). It is possible that additional unpublished studies exist that also showed no relationship between social norms and food choices or intake.

A couple of reasons for no effect of the unhealthy descriptive are suggested. One explanation for this finding might be that the parents do not perceive themselves to be adhering to the norm presented in this study. The message was so formulated that participants were unaware whether this norm came from within their own group, and the participant, therefore, may not identify with this norm. Moreover, I also did not measure how strongly participants in our studies identified with the other parents in the school. It could also have been that those in the control group already conformed to the norm, although I do not find evidence for this in the first study.

The study also suggests that those to whom the unhealthy norm message was communicated chose less high-calorie snacks. One reason for this may be that when parents are confronted with an unhealthy description norm, e.g. seeing that some parents have a bias for chubbier kids, a healthy injunctive norm is activated. Similarly, it might be that when parents' are confronted with an unhealthy cue from their social environment this may trigger someone that this is unhealthy, which subsequently results in more healthy choices.

Investigating what makes people resist to these messages with regard to food choices is important, as it can provide a key in solving increasing problems with childhood overweight and obesity. Another reason may be that the intervention causes reactance; however, these suggestions are speculative, and evidence is needed to confirm this. Lastly, the study design made it possible for parents to divide their vouchers anonymously. It may be the case that the parents did not feel a desire to 'fit in' without other people 'judging' them or looking at them,

and since the message described only the perception of others they may not know whether others approve of this information.

For the health message, it is possible that health messages about overweight and obesity are now commonplace, so the health implications are already well understood. Health messages might be particularly important to parents with higher health concerns but they may have little or less effect on parents with a lower health concern (Robinson, Harris, Thomas, Aveyard, & Higgs, 2013). Parents health concern was not measured in this study. However, the results suggest that brief interventions aimed at increasing healthy eating, or lower-calorie snacks, are probably not effective enough by simply communicating messages.

This study has shown that food choice may also differ to some extent by the BMI of the participants' child. A higher BMI of a child is associated with somewhat less high-calorie snacks. This result could suggest that the parents are taking sensible approach acting on their child weight, however, this is somewhat conflicting with the results from the first study in which more participants agree that the 'healthy weight' vignette should lose weight, and fewer participants agree that 'chubby child' vignette should lose weight. Moreover, general knowledge about food, measured by knowledge on high-calorie snacks, was not related to food choices, though this type of knowledge is often the focus of nutrition intervention materials.

Results also show that those, participants who fall within the third percentile use a higher proportion of vouchers on higher calorie snacks. Education and income, as socio-economic status, are often associated with overweight and obesity, however, studies in Vietnam are scarce in providing evidence for this. Educational attainment of the participant did not affect food choice in this study. The study of Trinh, Nguyen, Phongsavan, , Dibley, & Bauman (2009) find an association for wealthy women and women who completed college with overweight and obesity, with those more wealthy or educated being less of risk. While Nguyen, Beresford, & Drewnowski (2007) find that education was inversely associated with



overweight and wealthier people are more at risk. Clearly, evidence for Vietnam isn't conclusive yet on the association of education and income on overweight and obesity.

The hypothetical nature of this experiment perhaps induced respondents to make different food choices than they would have made in real life because respondents are not obliged to make the choices they indicate in the experiment. In the experimental setting, participants may pay more or less attention to their decisions. Furthermore, this experiment was not incentive compatible. If the hypothetical choices may not be comparable to the actual choices this would concern the external validity of the results.

It was also tested whether the construct of food choice was maybe not valid, as in other studies often healthy food is used instead of high-calorie snacks to measure the impact of messages. Therefore, the participant's perception of healthy snacks was used as an outcome of the impact of the messages on food choices, but I also found no effect of this. This suggests that the impact of message was low.

For future research it is of crucial to better understand for whom and when social norms are effective in changing food choices and to gain more insight into for whom and when social norms are not effective tools to changing food choices.

### **5.1.3 Additional findings.**

Many parents in this sample did not recognize that their children were overweight. A majority (78%) of the parents with an overweight or obese child didn't classify their child as either overweight or obese, while according to their BMI estimates the child is overweight or obese. Overall, 27% of the parents were not able to identify their children's weight category accurately. Surprisingly, a majority of the parents did select a healthy weight silhouette for both boys and girls. This finding is consistent with other studies that found that parents, especially those with an overweight child, hold an inaccurate perception of what constitutes a healthy weight status (Do et al., 2016; Maximova et al., 2008). Parents must be able to recognize their children as overweight, for programs to be effective. Because underestimation

of weight is common in this population, and earlier studies did find support that there is a desire for a larger size, programs to address overweight may be more effective if they focus on alternative benefits of having a healthy weight and adopting a healthy lifestyle.

Misperception may also be related to shifting weight norms in urban Vietnam due to increases in the prevalence of overweight, as parents often compare their child's weight with their peers. Cultural norms regarding the ideal weight for young children could also affect measures of misperception, although in this sample the majority (90.72% for girls and 94.20% for boys) of the parents chose ideal figures within the range corresponding to a healthy weight. Although the parents' had to self-report their child's height and weight and their own, the data only provides an estimate of their actual height and weight. However, research shows that adults are able to closely approximate their height and weight, even though they are poor at identifying their weight status classification (Truesdale & Stevens, 2006.)

## **5.2 Limitations and Strengths**

The study has several strengths, including the unique set of variables measured, perception towards children body weight and food choices, which has not been investigated much before. Next, based on the data of the treatment and control group, it can be ruled out that there are systematic differences between the different conditions. Another strength of this study was the inclusion of a control condition, in which participants were not exposed to a message. This allowed making a direct comparison between the intervention groups and the non-intervention group. This sample should be representative of the population, within a certain sampling error. However, it should be noted that this study solely included parents from one district and one grade, and therefore findings may not be generalizable to other (peri)urban Vietnamese districts or children from other grades. Similarly, as the research took place in only one district the study included a lot of participants with similar socio-economic

status. These limitations are important to consider. Moreover, a relatively small sample of parents participated in the sample ( $n = 345$ ).

Because the study design relied on self-reporting of the participants' I cannot rule out that social desirability influenced the responses. However, the experimental set-up of study 1, a vignette, was chosen precisely because it is a more indirect way to assess attitudes. In study 2, a message was shared directly; however, the poster was added in between the end of the questionnaire of study 1 and the instructions of study 2. Exposure to the messages on the posters, of course, is key in attaining desired effects, and it may have been the case that a share of respondents was not affected by the manipulations because they did not really take notice of the messages. I believe that this study may rather underestimate the real extent of attitudes towards overweight children among the population. Lastly, the design of the study does not fully mirror the circumstances of the external environment.

As mentioned earlier, due to extreme weather conditions in the weekend of the research not many parents showed up at the schools' parents meeting on the first day, therefore the anticipated number of participants in this study was low as well. It could be the case that the parents who did show up to the parents meeting are more involved with their child.

It may be useful for future research to refine the measurement of participants' attitudes, to improve upon the internal consistency and external validity of some of the scales used in this study. Moreover, to assess participants' attitudes and knowledge about a range of contributors and causes of obesity as they were not included in the present study.

## 6. Conclusion

Few studies on the perception of a child's weight have been conducted on parents of young children, particularly concerning food and nutrition issues. More studies are clearly needed while Vietnam rapidly changes economically, demographically, and socially.

Previous studies conducted identified that in some countries parents hold different attitudes towards chubbier children. To my knowledge, data from Vietnam, however, is sparse, maybe even lacking. Attitudes differ between different countries and findings from the other countries could not be generalized to Vietnam. The objective of this research was, therefore, to begin to fill the knowledge gap and to investigate the attitudes of parents' towards children's weight in an urban sample. Parents' perceptions about their children's body weight may contribute to overweight and obesity in children and need to be addressed in nutrition education; however, I don't find evidence, in this preliminary exploration, for the hypotheses that parents perceive chubbier children different from their peers. The reliability of the scales and this study could be greatly improved by additional items, and the validity of the scales should be examined in other samples.

The second study is an exploration of how norms are related to food choices and can be conceptualized and measured. Much work remains to better understand and measure the dimensions norms related to food choice. This research found that the message only weakly associated with parents' food choices. More research is needed to uncover the conditions under which descriptive norms most strongly influence food choice. Furthermore, the conditions that determine whether or not parents conform to the social norms are merit of more attention, as this could deepen the understanding of its impact on children weight, as well as the development of more effective campaigns. Clearly, the assessment of factors that affect food choices is difficult and, it is not surprising this study finds no effects.

Other important findings of this study that are worth mentioning is that I find that (chubby) girls and boys are perceived differently by the parents, general food knowledge was

not related to food choices, and that parents in this study were not aware of their primary school children's weight status; however the majority did chose a healthy weight figure was the most ideal. Future research should confirm these findings, to adjust intervention materials, as knowledge is often the focus of these programs. Moreover, studies are needed to determine the reasons for these findings because it will be challenging to intervene without knowing the reasons. As overweight and obesity reach epidemic proportions in urban Vietnam, these questions are now more relevant than ever in a country where stunting and chronic malnutrition also remain a key concern.

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## Appendices

### Appendix A: Parents Questionnaire

#### Appendix A.1 Perception on having a skinny child.

<i>Statement: Having a “skinny” child is considered to be a sign of bad parenting and poor health.</i>		
	Freq. (N= 345)	Percent
Strongly Disagree	33	9.57
Disagree	217	62.90
Neither agree nor disagree	25	7.25
Agree	60	17.39
Strongly Agree	10	2.90



#### Appendix A.2 Differences in demographic variables of participants in the four conditions (One-way ANOVA).

	Prob > F
Age	0.770
BMI parent	0.998
Sex respondent	0.354
Sex child	0.672
Household size	0.639
Nr. Of children in household	0.449
Overweight participant	0.731
Weigh perception parent	0.623
BMI Child	0.866
Overweight child	0.312
Weigh perception of child	0.623

**Appendix B: Vignette****Appendix B.1 Vignette.**

*“Tôi muốn kể cho anh/chị nghe một câu chuyện về một cậu bé tên là Tùng và cuộc sống hàng ngày của cậu bé. Tôi chỉ kể cho anh/chị nghe một phần câu chuyện, sau đó tôi muốn nhờ anh/chị trả lời một số câu hỏi để tìm hiểu thêm về Tùng. Không có câu trả lời nào là đúng hay sai, tôi chỉ muốn biết anh/chị nghĩ gì. Xin hãy xem hình ảnh của Tùng khi trả lời các câu hỏi”*

<b>PHIÊN BẢN A</b>	<b>PHIÊN BẢN B</b>
	

PHIÊN BẢN D	PHIÊN BẢN C
	

Tùng 7 tuổi, sống ở Đông Anh. Tùng sống cùng với ông bà, cha mẹ và em gái tên Hằng. Hằng ngày mẹ đánh thức Tùng lúc 6h30 sáng, và sau khi thay đồ đến trường Tùng sẽ ăn phở, món ăn yêu thích của em. Sau đó Tùng tới trường cùng em. Tùng thích đến trường gặp gỡ bạn bè và học những điều mới. Vào giờ ăn trưa, Tùng sẽ ngồi ăn cùng với các bạn thân. Sau khi tan học, Tùng ra ngoài chơi hoặc chơi bài với các bạn. Đến giờ ăn tối, Tùng sẽ về nhà và bà của Tùng sẽ nấu cơm. Khoảng 9 rưỡi, 10 giờ, Tùng đi ngủ.

*“Xin anh/chị hãy nghĩ Tùng là bạn học cùng lớp với con trai/con gái của anh/chị - Anh/chị nghĩ là phần đông các phụ huynh trong lớp (chứ không phải suy nghĩ của anh/chị) sẽ nghĩ gì về Tùng. 5 phụ huynh đoán gần đúng nhất xem phần đông các phụ huynh nghĩ gì sẽ nhận được một phần quà là 100.000 đồng.”*

**English translation text.**

*"I'd now like to tell you a story about a little girl/boy called Hoa/Tung\* and her/his\*\* daily life. I only tell you part of the story, then I would like you to ask you to help me get to know Hoa/Tung better by answering some statements. There are no right/wrong answers. Please take a good look at the photo when answering the questions."*

*(Picture drawing of vignette A, B, C, or D)*

Hoa/Tung lives in Dong Anh and is 7 years old. She/He lives together with her grandparents, parents, and her/his little sister Hang. Hoa's/Tung's mom wakes Hoa/Tung every day at 6:30 am, and after Hoa/Tung gets dressed she/he will eat Pho; her favourite dish. At 7:15 am Hoa/Tung bikes to school together with her/his sister. Hoa/Tung likes to go to school to play with her friends and to learn new things. At lunchtime, Hoa/Tung will go to the cafeteria and sits with her/his two best friends. After school Hoa/Tung will play outside with her/his friends or play a card game. When it's dinner time Hoa/Tung goes home, where her/his grandma cooked a meal for Hoa/Tung and Hang. Around 21:30/22:00 Hoa/Tung needs to go to bed.

*"Please think of Hoa/Tung as a classmate of your son/daughter, what do you think most parents in your son/daughters class think of Hoa/Tung. The top 5 respondents' whose guess most closely matches what other parents guessed will receive 100,000 Vietnamese Dong. "*

*\*Hoa is used for the girl vignette and Tung for the boy vignette.*

*\*\* Gender neutral pronouns were used in Vietnamese.*

**Appendix B.2 Cronbach Alpha.****All statements**

Item	Obs	Sign	Item test correlation	Item rest correlation	Average interitem correlation	alpha
looks healthy	342	+	0.5527	0.4100	0.1816	0.689
looks wealthy	342	+	0.2775	0.1030	0.2159	0.7336
is probably not very active	342	+	0.2133	0.0361	0.2239	0.7426
is very active	342	+	0.6157	0.4855	0.1737	0.6776
seems happy	342	-	0.2812	0.1069	0.2154	0.7331
eats whatever he likes	342	+	0.6274	0.4999	0.1722	0.6754
gets good grades	342	+	0.6132	0.4825	0.1740	0.6781
has proud parents	342	+	0.7277	0.6253	0.1597	0.6553
has proud grandparents	342	+	0.7707	0.6811	0.1543	0.6460
is cute	342	+	0.7354	0.6352	0.1588	0.6536
weight is a sign of bad parenting and poor health	342	-	0.2020	0.0245	0.2253	0.7442
Test scale					0.1868	0.7165

*Seven subscales*

Item	Obs	Sign	Item test correlation	Item rest correlation	Average interitem correlation	alpha
looks healthy	342	+	0.5774	0.4154	0.4422	0.8263
is very active	342	+	0.6409	0.4943	0.4215	0.8139
eats whatever he likes	342	+	0.6663	0.5266	0.4132	0.8086
gets good grades	342	+	0.6264	0.4760	0.4263	0.8168
has proud parents	342	+	0.7784	0.6747	0.3767	0.7838
has proud grandparents	342	+	0.8230	0.7366	0.3621	0.7731
is cute	342	+	0.7778	0.6739	0.3769	0.7840
Test scale					0.4027	0.8252

## Appendix C: Food Choice Questionnaire

### Appendix C.1 Posters with messages.



*“Did you know that 33.7%\* of the primary schoolchildren are overweight which can profoundly affect children's physical health.” \*Based on a study in 2018*

*“Did you know that some Vietnamese mothers prefer chubbier kids?” \*Based on a study in 2016*

### Appendix C.2 List of higher and lower calorie snack.

Higher-Calorie Snacks	Lower-Calorie Snacks
<ol style="list-style-type: none"> <li>1. Chocolate cake</li> <li>2. Nuts</li> <li>3. Bubble tea</li> <li>4. Ice cream</li> <li>5. French Fries</li> <li>6. Instant noodles</li> <li>7. Chips</li> </ol>	<ol style="list-style-type: none"> <li>1. Fish</li> <li>2. Low fat milk</li> <li>3. Watermelon</li> <li>4. Plain yoghurt</li> <li>5. Lean meat</li> <li>6. Morning glory*</li> </ol>

*\*Morning glory is a vegetable, which, after rice, is the most commonly eaten food in Vietnam. It's a leafy green similar to spinach.*

**Appendix C.3 Complete regression.**

Source	SS	df	MS	Number of obs	330
Model	0.328332394	3	0.109444131	F( 3, 326)	1.99
Residual	17.935952	326	0.055018258	Prob > F	0.1154
				R-squared	0.018
Total	18.2642844	329	0.055514542	Adj R-squared	0.0089
				Root MSE	0.23456
C46	Coef	Std. Err.	P>t	[95% Conf.	Interval]
Health Condition	-0.0391715	0.0367004	-1.07	0.287	-0.1113709 0.0330279
Social Norm Condition	-0.0246022	0.0373331	-0.66	0.51	-0.0980464 0.048842
Health and Social Norm Condition	0.0427415	0.0369025	1.16	0.248	-0.0298556 0.1153386
_cons	0.3376578	0.0267306	12.63	0	0.2850716 0.3902439

Source	SS	df	MS	Number of obs = 195
Model	2.30441638	24	.096017349	F( 24, 170) = 1.88
Residual	8.68851363	170	.051108904	Prob > F = 0.0113
				R-squared = 0.2096
Total	10.99293	194	.056664588	Adj R-squared = 0.0980
				Root MSE = 22607

**Appendix C.4 Fruit selection.**

Nr. of fruits selected	Frequency	Percent
0	54	15.65
1	67	19.42
2	86	24.93
3	86	24.93
4	52	15.07
Total	345	100.00

**Appendix C.5 Snacks considered to be healthy by the participants.**

Snack	(%)
Cream egg cookie	14.20
Bubble tea	4.64
A nut with a crispy layer around it	4.93
Salted popcorn	4.35
Knock off oreo	6.09
Peanuts	4.64
Cereal	53.33
Chips	2.61
Chocolate cake	15.36
Plain yoghurt	77.97
Apple	44.64
Low fat milk	53.04
Cake filled with cream	19.71
Ice cream	18.26
Soy milk	33.91
Banana	62.90
Grilled pork sausage	6.09
Instant noodles	1.74
Grapefruit	64.35
Flavored milk	47.83
Mandarin	32.46
Oat Bar	7.54