



Turkish Parents' Attitudes Towards Strength and Aerobic Exercises in their Children: A Replication of Ten Hoor et al. (2015)

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ABSTRACT

In this study, parental attitudes towards aerobic and strength exercises from Turkish parents were examined. In a first study, interviews were conducted with 10 Turkish parents (4 mothers, 6 fathers). In a second study, a Dutch study by ten Hoor et al. (2015) was replicated in Turkey after which data was cautiously compared to examine if there are any cultural differences. A total of 321 Turkish parents filled out an online survey regarding their own and their children's physical activity, and more specifically, their attitudes towards aerobic and strength exercises. Overall, study 1 showed that Turkish parents were positive about their children's strength exercises. Similar to the study by Ten Hoor et al. (2015), study 2 demonstrated that Turkish parents had more positive attitudes for aerobic exercises compared to strength exercises. Cautious comparisons between Dutch and Turkish parents generally showed no differences. Turkish parents with negative attitudes towards strength exercises of their child provided similar reasons compared to the Dutch sample. In conclusion, Turkish and Dutch parents have similar opinions regarding physical activity and its types. For Turkish parents, negative attitudes about strength exercises are based on misperceptions – similar to what was found in Dutch parents. Future interventions are needed to deal with those misperceptions.

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Childhood obesity is one of the most common health problems in the world and shows its effects on physiological and psychological wellbeing (Güngör, 2014; Hills et al., 2011). As obese children tend to become obese adults, the negative effects of obesity in children might be carried through childhood to adulthood (Alberga et al., 2012; Hills et al., 2011). Moreover, the prevalence rates of childhood obesity rise over the years (Sahoo et al., 2015).

One way to improve health is by being physically active (defined as any bodily movement to increase energy expenditure). However, the current physical activity programs are viewed to be less appropriate for children who are overweight or obese. Those programs mostly focus on aerobic exercises (defined as exercises where breathing and heart rate increase) in which these children perform worse compared to children who have a normal weight (Ten Hoor et al., 2016a). Although obese or overweight children experience difficulties to engage in aerobic exercises due to their excessive weight and the nature of these exercises (they have a lower aerobic capacity, and they have a higher risk of getting injured – McHugh, 2010), strength exercises (as defined as exercises whereby an individual is working against a wide range of resistive loads to enhance health) were found to be easier to participate in for these children (Alberga et al., 2012; Ten Hoor et al., 2016b).

Strength exercises have many long-term benefits on youth in general for health, fitness and sports performance (see e.g. the position statement by Lloyd et al. 2014). However, despite those positive effects, parents have more negative attitudes towards strength exercises than aerobic exercises. As children's physical activity and exercise choices are affected by their parent's (including parental attitudes, physical activity level, support and encouragement), the negative attitudes of parents towards strength exercises become a barrier to their children's engagement in these exercises (Zecevic et al., 2010; Ten Hoor et al., 2016). These negative attitudes might be due to the misconceptions regarding strength exercises (Ten Hoor et al., 2016a). For instance, it is wrongly believed that strength exercises 1) have an adverse effect on children's physiological development, 2) should not be conducted while a child is still growing, and 3) are not fun or appropriate (Ten Hoor et al., 2015). However, current studies demonstrate that rather than having negative effects, strength exercises are even beneficial for children's development (Radovanović & Ignjatović, 2015). Moreover, as strength exercises help to improve children's muscular strength and motor skills, they were shown to have no negative effect on the growth of children (Landry & Driscoll, 2012; Pekünlü, 2019). Another misconception regarding strength exercises among parents and sports coaches is about the possible injuries that might be caused by strength exercises (Landry & Driscoll, 2012). Nevertheless, the

risk of being injured by strength exercises is the same as any other type of exercise (Radovanović & Ignjatović, 2015). Also, studies revealed no evidence for permanent injuries that originate from strength exercises when they are applied with the supervision of a professional (Landry & Driscoll, 2012). These findings point out that parents have some common misperceptions about strength exercises, and these misperceptions might influence parents' evaluations of their children's physical activity and exercise choices.

This study follows on the study by Ten Hoor et al. (2015) where it was shown that Dutch parents have a positive attitude towards aerobic exercises, but a less positive attitude regarding strength exercises. We aim to add new findings to this research line by investigating the potential effects of culture on parents' attitudes towards their, and their child's exercise choices. In order to do that, we first conducted interviews with Turkish parents to gain more (potentially culture specific) information about their own (and child's) physical activity and exercise choices. Subsequently we replicated the original Dutch questionnaire in Turkish parents, examining the attitudes of parents from Turkey towards their children's sports, and more specifically towards their aerobic and strength exercises, but added relevant questions based on the interviews. Lastly, data of the original Dutch study was cautiously compared with the newly collected Turkish data to examine if there are any cultural differences. As Turkey has a historical background on oil wrestling (Başaran & Guárcám, 2011), there is a possibility that Turkish parents are more familiar with strength exercises. Moreover, although the previous study by Ten Hoor et al. (2015) did not find any gender difference in the attitudes of parents from the Netherlands towards strength exercises, we predict that this might be different for Turkish parents as the gender stereotypes are quite salient in Turkish culture (Koca & Hacısoftaoğlu, 2010; Erkal et al., 2007; Kaya, 2015). Therefore, the gender of parents might affect their attitudes towards their children's exercise type. Also, parents might have different attitudes towards their children's exercise type based on their children's gender.

STUDY 1

In study 1, we conducted interviews with Turkish parents to gain more information about their own and child's physical activity and exercise preferences.

METHODS PARTICIPANTS

After receiving ethics approval from the Ethics Review Committee from the Faculty of Psychology and Neuroscience, Maastricht University, the Netherlands,

interviews were conducted with parents from Turkey. The participants were Turkish parents of 12 to 15 years of children. They were recruited through a purposive sampling method by making announcements either individually or in the workplace. There were 10 participants included, of which 4 mothers and 6 fathers. After the 8th interview, we reached theoretical saturation and no new information was found. The gender of children was equally divided. The education level of parents included high school, bachelors, and master's degrees. In case they had more than one child in the age range 12–15 years, the questions were concerning the youngest child in this age range.

PROCEDURES

The face-to-face, semi-structured interviews were conducted at either participants' houses or their workplaces. Before starting the interviews, the consent form and information letter were given to participants with a brief explanation about the interview. The duration of each interview was approximately 30 minutes.

The interviews started with collecting brief demographic information (i.e., gender, age, and education level of the parent; gender and age of the child) about the participants and their children. Then, the semi-structured protocol, which includes open-ended questions, was followed. In preparation of the second study, the open-ended questions followed the structure of the questionnaire from Ten Hoor et al. (2015) and included (1) parents' physical activity level and exercise types; (2) their children's physical activity level and exercise types; (3) parents' views about both aerobic and strength exercises in terms of their benefits or harms for their children; (4) parents' preferences for aerobic or strength exercises for their children and the reasons behind these preferences. The interviews were recorded with a voice recorder with the participants' consent (For the exact questionnaires, see Appendix 1 on <https://osf.io/9scx6>).

The interview questions, the informed consent, and the information letter were first prepared in English and then translated from English to Turkish. A back-translation from Turkish to English was made by another person to make sure that the questions are measuring the same variables and accurate.

DATA ANALYSIS

In this qualitative study, in addition to gathering more information about the above-mentioned topics, we also aimed to inform the formulation and organization of the survey questions in the second study. Therefore, the data was analyzed under the same, predefined themes: parents' physical activity and exercise (sub-themes: physical activity, exercise type, duration, the importance of doing exercise, strength, and aerobic exercises); their

children's physical activity (sub-themes: physical activity, exercise type, duration and importance of engaging in sports) and parents' attitudes towards sports and exercise types, specifically aerobic and strength, of their children (sub-themes: preference, allowance, and benefits/harms). Interviews were summarized in English and coded by one person. The interviews were held in Turkish, the quotes used in this paper were translated into English and checked by two independent translators to make sure that the English version of the quotes is reflecting the original.

RESULTS

In general, it was shown that Turkish parents are positive towards aerobic exercises of their children. Most Turkish parents had positive attitudes for their children's engagement in strength exercises.

PARENT'S PHYSICAL ACTIVITY

When parents were asked about their physical activity, 6 out of 10 parents mentioned that they do not exercise regularly and that the weather and lack of time have a huge influence on their level of exercise. As in contrast to winter, they were more physically active during the summer. One parent conveyed that:

"I am not physically active now. Sometimes I go for a walk but in the winter, I totally neglect this. During the summer, I am trying to walk 20 to 30 minutes per day."

On the other hand, a few parents tried to do sports regularly, and they mostly preferred going for a walk, going to the gym, or doing some strength exercises. Although mothers mostly went for a walk during their exercise routines, some of the fathers preferred to add some strength exercises into their physical activity routines. For instance, one father mentioned that:

"Since I moved to Ankara, it decreased recently but I always exercise 1 hour every noon. I am doing cardio exercises and mostly weightlifting."

Nine parents viewed exercise as a crucial factor for themselves, especially for their health. They also mentioned that doing sports helps to stay fit. One parent who has problems with his knees stated that:

"I understand the significance of doing exercise better now. I mean, the body stays vigorous and you do not gain weight. It is a really good thing. I mean, you do not catch some illnesses. It is very good from that point of view."

CHILDREN'S PHYSICAL ACTIVITY

According to the parents' report, children were more active in terms of doing sports, in contrast to themselves. Although some children only attended the sport classes that are provided by their schools, others engaged in some extra exercises such as going for a private sport class or doing sports in their free time. Besides, the types of sports that children engaged in include basketball, dancing, swimming, fencing, volleyball, football, and handball.

Some parents pointed out that their children had been more physically active before they have started high school. As one parent stated that:

"My daughter was physically active two years ago. She was on the volleyball team. Last year, because of the high school entrance exams, she stopped doing sport. Because of her studies, she has also no time left for it. She, unfortunately, does not do any physical activity currently [...]. She attends only these sport classes."

When parents were asked about the importance of their children's physical activity, all parents thought that physical activity is important for their children's health. Some parents argued that it is important for their children in terms of reducing their weight. Other parents mentioned several psychosocial benefits:

"For both mental and physical development [...]. For instance, she was better while doing sports for both physically and academically."

"I know that people who exercise are more organised. They become more positive in every sense. Social media.... internet, Instagram. They avoid these kinds of things. I also want them to refrain from these things."

Although one parent thought that physical exercise is important for his child, he thought that since his son is fit and tall, he does not care about his physical activity level that much. However, if his son were overweight, he would push him to do sports.

PARENTS' VIEWS ON POSSIBLE HARMS OR BENEFITS OF AEROBIC AND STRENGTH EXERCISES

Most parents thought that both aerobic and strength exercises are beneficial and not harmful for their children. When we asked about the potential benefits or harms of aerobic exercises on children, one parent argued that:

"It has benefits for both physical and psychological development. I think like that [...] it contributes not only to physical but also to psychological

development. I think that children must engage in these kinds of exercises."

For the possible benefits or harms of strength exercises, 6 parents out of 10 thought that they are beneficial for their children's health, but they also highlighted the significance of professional guidance while doing these exercises. As one parent told that:

"I think that if he engages in strength exercises by following the rules, it is beneficial. Anything is harmful if you do not follow the rules. If he does the warm-up exercises or he uses the weights that are suitable for him while engaging in strength exercises, they are so beneficial. However, if they are done by exceeding the person's limit, injuries can occur."

However, four parents were more sceptical about strength exercises in terms of their benefits on their children's health. One parent thought that strength exercises might be harmful to children if they engage in too much to this type of exercise. Another parent stated his thoughts on possible harms of strength exercises as:

"I do not think that strength exercises are so healthy because when you stop doing these types of exercises, I think the body will suffer. ... When you stop engaging in muscle building exercises or weightlifting, I think it might be more problematic for muscles."

PARENTS' PREFERENCES FOR AEROBIC OR STRENGTH EXERCISES

All the parents agreed to allow their children to engage in aerobic exercises. For strength exercises, 7 out of 10 parents were positive to allow their children to engage in strength exercises and encourage them if their child want to attend these exercises. When we asked parents about their preferences for aerobic or strength exercises for their children's physical activity, one parent stated:

"I do not want my son to solely do strength exercises and to become muscular. [...] I think both aerobic and strength exercises can be engaged in, but it is important to balance them. I think focusing only on one is harmful to his body shape and health."

Another parent argued that he allows his daughter to attend strength exercises and he thinks that his daughter is more prone to strength exercises. Therefore, he would prefer strength exercises than aerobic exercises for his daughter and encourage her for that.

When parents were asked about reasons why their children are not allowed to attend strength exercises,

one parent argued that strength exercises are not appropriate for his son's age. Also, he does not want his son to become a bodybuilder. He stated his opinion as:

"I do not find strength exercises so appropriate for children until a certain age [...] I think it is not necessary until the age of 15. [...] After these ages, it can be engaged in, and my son can also do strength exercises."

CONCLUSION STUDY 1

The results of study 1 showed that although Turkish parents thought that exercise is crucial for the health and wellbeing of themselves and their children. Only about half of the parents engaged in sufficient physical activity, and they were less physically active as compared to their child. In terms of exercise type, even though Turkish parents preferred aerobic exercises more than strength exercises for their children, this did not interfere with their preferences for strength exercises. More than half of the parents were positive towards their children's strength exercises, and they believe that strength exercises are not harmful to their child. Therefore, they mentioned that they would allow and encourage their children to engage in these types of exercises. Moreover, Turkish parents have some misperceptions which affect their attitudes regarding strength exercises.

STUDY 2

Although the interviews provided insights into Turkish parents' attitudes towards both aerobic and strength exercises, quantitative research was required to confirm our findings. Therefore, in order to investigate the effect of culture on parent's attitudes towards sports and exercise types, we conducted a survey with Turkish parents of 12–15 years old children. Additionally, we cautiously compared the Turkish sample with the Dutch sample from the study by ten Hoor et al. (2015).

METHODS

PARTICIPANTS

A total of 576 participants started the survey. After removing incomplete responses (i.e., progress < 100%; n = 241) and the participants who did not give consent to participate in the survey (n = 9), there were 326 participants left. Five parents were excluded because 2 of the parents either were not living in Turkey for a long time or they were born and raised in a country other than Turkey. Also, 2 other parents were excluded because they mentioned they do not have a child aged 12 to 15 years. One duplicate response was removed from the analysis

(the most recent/complete response of the parent was used in the analysis). In the end, the study included 321 parents from Turkey with a child aged 12 to 15 years. As demographics of participants were asked at the end of the survey, comparisons between completers and non-completers were not possible. Parents were recruited to survey through social media or their children's school administration. Although the aim was to recruit the participants through schools, most of the parents were recruited through social media (as a consequence of the COVID-19 pandemic).

PROCEDURES AND MEASURES

The same materials and procedure as ten Hoor et al., (2015) were used. The original materials were translated to Turkish by one translator and it was back-translated by a second translator. Potential differences were compared and discussed to finalise the Turkish version of the survey.

For the survey, some sports that were included in the original Dutch survey (such as korfbal) were removed from the survey, and basketball and wrestling were added into the survey questions to make the survey culturally more relevant. The interviews that were conducted with Turkish parents in study 1 showed no need for adding new questions to the original survey or changing the previous questions.

After informed consent, in addition to the questions about demographics (i.e. age, gender, education level, and child's age), the survey had four parts which include questions regarding (a) parents' sports (i.e. "How often do you weekly participate in [sports]?" and "How many hours do you on average participate in these sports per session?", (b) their attitudes towards sports in general, strength exercises and aerobic exercises, (c) their children's sports (see also (a) but then for their child), and (d) parents' attitudes towards their children's sports in general, strength exercises and aerobic exercises. The participants were asked to rate the general attitudinal items (for both themselves and for their child) by using the 7-point Likert scale; i.e., "I think my engagement in sports/strength exercises/aerobic exercises is very good – very bad; very important – very unimportant; absolutely not necessary – absolutely necessary; not enjoyable at all – very enjoyable, very damaging – not damaging at all. Those questions were formulated by following the guidelines provided by Fishbein and Ajzen (2010). Additionally, more specific parental beliefs were assessed regarding their child's perceived abilities in terms of participating in the different types of exercises, whether they would allow and encourage exercise in their children, and norms and expectations (we further refer to those as *specific beliefs*). The exact questions (also a 7 point Likert scale, from "completely disagree" to "completely agree") can be found in [Table 3](#). Scores for the general attitudes were averaged where a high score showed a more positive attitude (Cronbach's

alpha for all the scales ranged between .78 and .96). The full description of the exact questions can be found in ten Hoor et al (2015), and in Appendix 2 on <https://osf.io/9scx6>.

DATA ANALYSES

For data analyses, IBM SPSS statistic 26 was used. The data of 314 Dutch parents from the previous study by Ten Hoor et al. (2015), recruited in 2014 via an online panel representative of the Dutch population [<http://www.flycatcher.eu/>; ISO 26362 and ISO20252; Dutch quality label, certifying that the panel can be used for social-scientific research] were added to the newly collected data to aid comparative analysis between the Turkish and Dutch parents. Besides general descriptive analyses, paired-samples *t*-tests were conducted to compare Turkish parents' attitudes towards their and their child's physical activity, aerobic, and strength exercises. Also, independent sample *t*-tests were performed to analyse the effect of gender on parents' attitudes. For qualitative parts of the survey where parents specified the reasons regarding why their children were not allowed to engage in aerobic exercises or strength exercises, the reasons were coded and categorised by one coder based upon

the study by Ten Hoor et al. (2015). All data and Syntax can be found in Appendix 3 on <https://osf.io/9scx6>.

RESULTS

The overall characteristics of the Turkish sample can be found in **Table 1** (we added data for the Dutch sample as well for comparison purposes, but the results below are about the Turkish sample unless explicitly stated). A total of 321 Turkish parents completed the survey (61.1% mothers). Almost equal numbers of boys (45.5%) and girls (54.5%) were included in the study. The sample involved 102 (31.8%) 12-year old, 66 (20.6%) 13-year old, 59 (18.4%) 14-year old and 94 (29.3%) 15-year old children with the mean of 13.4 (*SD* = 1.2). The mean age of parents was 44.6 years (*SD* = 5.9 years). The majority of the parents (77.3%) had a college degree or higher educational level, followed by parents (20.2%) who have intermediate/high general secondary education or intermediate vocational education. Regarding the BMI values of the parents, most of the parents were either normal-weight (41.4%) or overweight (41.4%). 11.2% of the parents were obese. For children, 2.5% of the

	TURKISH PARENT M (sd)	TURKISH CHILDM (sd)	DUTCH PARENTM (sd)	DUTCH CHILDM (sd)
Gender (Female:Male)	196:125	175:146	137:177	152:162
Age in years (SD)	44.6 (5.9)	13.4 (1.2)	45.8 (4.7)	13.4 (1.0)
Education Level				
Low (%)	8 (2.5)	-	70 (22.3)	-
Medium (%)	65 (20.2)	-	142 (45.2)	-
High (%)	248 (77.3)	-	102 (32.5)	-
BMI (z) (SD)				
Underweight (%)	19 (5.9)	15 (4.7)	4 (1.3)	36 (12.0)
Normal weight (%)	133 (41.4)	296 (92.2)	119 (37.9)	199 (66.3)
Overweight (%)	133 (41.4)	8 (2.5)	128 (40.8)	36 (12.0)
Obese (%)	36 (11.2)	2 (0.6)	63 (20.1)	29 (9.7)
Sports & types				
Aerobic exercise (%)	45 (23.7)	37 (15.9)	74 (38.5)	56 (24.1)
Mostly aerobic (%)	55 (28.9)	50 (21.6)	70 (36.5)	102 (44.0)
Both aerobic and strength (%)	39 (20.5)	71 (30.6)	38 (19.8)	62 (26.7)
Mostly strength (%)	22 (11.6)	37 (15.9)	9 (4.7)	11 (4.7)
Strength exercises (%)	29 (15.3)	37 (15.9)	1 (0.5)	1 (0.4)
No sports (%)	131 (40.8)	89 (27.7)	122 (38.9)	82 (26.1)

Table 1 Background Characteristics of the Sample (*N* = 635; Turkish *N* = 321, Dutch *N* = 314).*

* Note: Seven Turkish parents had missing values for age. The percentages for exercise types were calculated by excluding the participants who were not engaging in sports; the percentage for "no sports" category was calculated by including all sample (i.e. both who indicated to engage in sports and not). For parents, BMI scores and for children, BMI z-scores were calculated. The Dutch data were derived from Ten Hoor et al., 2015.

sample were overweight, and 0.6% were obese. 92.2% of children were in normal weight.

SPORTS OF PARENTS AND CHILDREN

Although almost half of the Turkish parents (40.8%) were not engaging in sports, the percentage of children not engaging in sports was lower (27.7%). The parents, who reported that they participate in sports, mostly reported to engage in exercises that are completely aerobic (23.7%) or mostly aerobic (28.9%). However, a total of 26.9% of parents also preferred to engage in either strength exercises or exercises with the emphasis on strength exercises. From the children who participated in sports, 37.5% engaged in aerobic exercises, 30.6% engaged in both aerobic and strength exercises and 31.8% were doing strength exercises.

THE PARENTAL ALLOWANCE FOR THEIR CHILDREN'S EITHER AEROBIC OR STRENGTH EXERCISES AND THE REASONS FOR NON-ALLOWANCE

Parents were asked whether they allow their child to attend aerobic ($M = 5.90, SD = 1.53$, range: 1–7) and strength exercises ($M = 5.08, SD = 1.74$, range: 1–7). These findings showed that Turkish parents allow their children to attend both aerobic and strength exercises. Turkish parents were more positive to allow their children to attend aerobic exercises compared to strength exercises ($p < .001$).

When parents indicated that their children were not allowed to attend the aerobic and/or strength exercises, the reasons behind their preferences were asked (see Appendix 4 on <https://osf.io/9scx6> for all reasons). For aerobic exercises, 59 parents (18.4%) mentioned that

their children are not allowed to attend aerobic exercises and the most common reason behind parents' preference was their child decides (17 out of 59) (e.g., they were not like aerobic exercises and they did not want to engage in these kinds of exercises). The other reasons included the categories of "no time" ($n = 8$; e.g. they have exams, classes, etc.); "not necessary" ($n = 3$); "facilities" ($n = 5$) and "others" ($n = 14$; e.g. gender, sports coaches, my child is fragile, etc.) (see Appendix 5 on <https://osf.io/9scx6>).

For strength exercises, 114 parents (35.5%) rated their allowance for their children's strength exercises as lower than 5 from a 7-point Likert scale (1–7). Their most important reason for non-allowance was strength exercises are bad for children (44 out of 114) in terms of their health and growth. Also, 15 parents stated that their children do not prefer strength exercises, and 6 parents mentioned their worries about their children's appearance. Other reasons included the categories of "no time" ($n = 5$); "aerobic, team exercises and fun are more important" ($n = 4$); "facilities" ($n = 4$); "sports coaches" ($n = 3$).

PARENTAL ATTITUDES TOWARDS SPORTS AND ITS TYPES

When parents' attitudes towards their own and their child's sports (i.e., sport in general, aerobic, and strength) were compared, it was found that parents were more positive about their children's sport independent of the exercise type (all p 's $< .001$; see **Table 2**). The gender of the parent and the gender of the child did not influence parents' attitudes (data not shown - see Appendix 6 on <https://osf.io/9scx6>).

In addition to the general attitudes of parents towards their children's aerobic and strength exercises, more specific beliefs were also analysed and compared (see **Table 3** for

		PARENT M (sd)	CHILD M (sd)	t (df)	p	COHEN'S d
General attitude (1–7)	Sport	6.42 (.79)	6.63 (.69)	-4.70 (320)	<.001	.28
	Aerobic	5.88 (1.24)	6.35 (1.03)	-6.84 (320)	<.001	.41
	Strength	5.39 (1.37)	5.85 (1.32)	-5.93 (320)	<.001	.34

Table 2 Parents' Attitudes Towards Their Own and Their Child's sports (N = 321).

ABBREVIATION	SPECIFIC BELIEF QUESTIONS*
Possible	In my current situation, it's absolutely possible to let my child participate in aerobic/strength exercises
Facilities	There are enough facilities to let my child participate in aerobic/strength exercises
Fit/strong	My child is very fit/strong and healthy, and therefore my child does not have to participate in aerobic/strength exercises
Good	My child is good in aerobic/strength exercises
Allowed when wanted	When my child wants to, he/she is allowed to participate in aerobic/strength exercises
Encouraged when wanted	When my child wants to participate in aerobic/strength exercises, I will encourage him/her.
Expectation	I expect my child to start participating in aerobic/strength exercises

Table 3 Specific parental belief questions.

* Note: All questions were asked about aerobic and strength exercises separately.

the specific questions that were asked). Except for the “fit/strong” category where parents were negative towards both their child’s aerobic and strength exercises, Turkish parents were more positive for their children’s aerobic exercises compared to strength exercises (see *Table 4*).

However, although parents were more positive about their child’s aerobic exercises, Turkish parents were not negative about their child’s strength exercises ($M > 4$, all p 's $< .01$).

THE DIFFERENCE BETWEEN DUTCH AND TURKISH PARENTS

Since different classification systems were used to calculate child BMI z-scores (i.e. BMI corrected for population-data age and gender) for Dutch and Turkish samples, the child BMI z-scores were not comparable and just used for descriptive purposes. The results of independent samples t -tests indicated that the education level (Dutch $M = 2.10$, $SD = .73$; Turkish $M = 2.75$, $SD = .49$; $t(633) = 13.01$, $p < .001$; Cohen’s $d = 1.05$) and parental BMI scores (Dutch $M = 2.80$, $SD = .769$; Turkish $M = 2.58$, $SD = .767$; $t(633) = -3.56$, $p < .001$; Cohen’s $d = .28$) of Dutch and Turkish parents were dissimilar. Therefore only some cautious subgroup analyses were conducted to aid the comparison-analyses.

For the general attitudes of Dutch and Turkish parents, the results did not differ for the subgroup analyses of education level (i.e. medium and high). Also, the subgroup analyses for the parents’ BMI categories (i.e., normal-weight, overweight, and obese) revealed no contradictory results regarding the general attitudes of Dutch and Turkish parents. Some specific beliefs towards aerobic and strength exercises showed different results for parental BMI subgroups (i.e. regarding strength exercises, “facilities” for normal-weight, and “facilities”, “good” and “allowed when wanted” categories for obese; regarding aerobic exercises, “possible” and “encouraged when wanted” for both subgroups of overweight and obese), but the overall pattern remained similar as both Turkish and Dutch parents were positive towards their child’s aerobic exercises, and Turkish parents seemed to be more positive than Dutch parents towards strength exercises of their children (for all results, see appendix 7 on <https://osf.io/9scx6>).

CONCLUSION STUDY 2

The findings of study 2 demonstrated that Turkish parents are positive about sports in their children, but have more positive attitudes towards aerobic exercises than strength exercises of their child. Besides, the reasons that parents provided for their children’s non-allowance to attend strength exercises were similar for both Dutch and Turkish parents.

GENERAL DISCUSSION

Since the influence of parents on their child’s physical activity has been convincingly demonstrated (see e.g. Sallis et al., 2000; Dowda et al., 2007), the negative attitudes of parents towards a certain exercise type of their children might affect child’s engagement to this exercise type. In this study, we investigated the attitudes of Turkish parents towards sports and its exercise types (i.e., specifically aerobic and strength exercises) for themselves and their children.

A previous study that was conducted by Ten Hoor et al. (2015) demonstrated that Dutch parents were less positive concerning their child’s strength exercises as compared to aerobic exercises. In the current study, similar outcomes were found in Turkish parents, but Turkish parents seemed to be more positive towards strength exercises than Dutch parents.

Although previous studies demonstrated the influence of parents as being a role model to their children (Edwardson & Gorely, 2010), or the effect of parental support (Sterdt et al., 2014) on children’s sports and physical activity, as far as to our knowledge they did not focus on how the parental attitudes change depending on the specific types of exercise of their children. However, our study and the study by ten Hoor et al. (2015) showed that parental attitudes might differentiate based on the exercise type of children.

Although we hypothesized that gender might have an effect on Turkish parents’ attitudes toward their child’s exercise type, the findings did not confirm our hypothesis. Possible reasons for this might include the education level of parents as our sample mostly included Turkish parents

DETERMINANT (1–7)	AEROBIC M (sd)	STRENGTH M (sd)	t (df)	p	COHEN'S d
Possible	5.66 (1.79)	5.10 (1.88)	-4.96 (320)	<.001	.31
Facilities	4.65 (2.09)	4.37 (2.11)	-2.71 (320)	.007	.13
Fit/strong	2.46 (1.87)	2.50 (1.81)	.38 (320)	.71	.02
Good	4.54 (1.87)	4.03 (1.77)	-4.42 (320)	<.001	.28
Allowed when wanted	5.83 (1.60)	5.26 (1.85)	-5.25 (320)	<.001	.33
Encouraged when wanted	6.11 (1.45)	5.47 (1.82)	-5.96 (320)	<.001	.39
Expectation	4.88 (1.91)	4.33 (1.98)	-4.40 (320)	<.001	.28

Table 4 Turkish Parents’ Attitudes for Their Children’s Aerobic and Strength Exercises (N = 321).

of medium and high education level. Also, even though we did not ask the socioeconomic status of parents, our sample might include parents from medium to high socioeconomic background, so the gender differences might not be so salient for our sample. Secondly, we did not ask for the province of the participants, nor did we ask about weight status of the children in the interviews. Therefore, the findings might only represent some parts of Turkey and/or some weight categories. Due to the current COVID-19 pandemic, most recruitment was done via social media resulting in a convenience sample to assess the general profile of Turkish parents' attitudes towards their child's physical activity types, future studies might collect data from different parts of Turkey.

When parents indicated that their children are not allowed to attend either aerobic or strength exercises, we asked the reasons behind parents' decisions. Both Turkish and Dutch parents provided similar reasons regarding why they are not willing to allow their child to attend strength exercises. The most common reasons were concerning the negative influence of strength exercises on their child development and health. As Radovanović and Ignjatović (2015) mentioned, there are some misconceptions regarding strength exercises of children. Since we were able to classify the reasons of Dutch and Turkish parents within the same/similar categories, these findings imply that regardless of the influence of the culture, parents have similar misconceptions regarding strength exercises and their effects on their child. To increase parental allowance and encouragement for children's engagement in strength exercises, intervention programs require to address these misperceptions of parents and provide sufficient information about strength exercises (i.e., benefits, guidance, etc.). Also, to implement tailored interventions based on the needs of parents, since the culture might also impact the reasons for parental non-allowance for children's strength exercises, the culture-specific reasons might be determined.

An important limitation of our study was that a comparison of Dutch and Turkish parents revealed that our sample was not similar in terms of education level and parental BMI and so, was less comparable. We therefore conducted analyses among the subgroups of the same level. The subgroup analyses showed the same patterns; both Dutch and Turkish parents are more positive about their children's aerobic exercises as compared to strength exercises, and Turkish parents seem to be more positive regarding strength exercises of their child than Dutch parents are. Future studies might collect descriptive of parents prior to the survey to make the samples more comparable and representative.

GENERAL CONCLUSION

Both study 1 and study 2 demonstrated that Turkish parents are more positive regarding their children's

aerobic exercises compared to strength exercises. Moreover, the findings showed that regardless of culture, parents provided similar reasons for why their children are not allowed to attend strength exercises, and these reasons were based on some common misperceptions regarding strength exercises of children. Future intervention programs might consider targeting these misperceptions and parents' attitudes to increase the engagement of children in strength exercises. Intervention programs that are aiming to target parental attitudes to increase the physical activity of children, and to improve the gains that children will get from engaging in a specific type of sports (e.g., strength exercises are easier to engage in for overweight or obese children than aerobic exercises) require to consider the specific exercise type and the potential influence of culture to achieve the intended results.

ADDITIONAL FILES

The additional files for this article can be found as follows:

- **Appendix 1.** Interview Guide. DOI: <https://doi.org/10.5334/hpb.31.s1>
- **Appendix 2.** Survey Questions. DOI: <https://doi.org/10.5334/hpb.31.s2>
- **Appendix 3.** Data. DOI: <https://doi.org/10.5334/hpb.31.s3>
- **Appendix 4.** Parental Reasons for Non Allowance. DOI: <https://doi.org/10.5334/hpb.31.s4>
- **Appendix 5.** Reasons Aerobic. DOI: <https://doi.org/10.5334/hpb.31.s5>
- **Appendix 6.** Gender Effects. DOI: <https://doi.org/10.5334/hpb.31.s6>
- **Appendix 7.** Educational Level. DOI: <https://doi.org/10.5334/hpb.31.s7>

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COMPETING INTERESTS

The authors have no competing interests to declare.

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