

**Mastery Motivation of Children and Teens:
Parental Report versus Self-report**

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Abstract

Rationale: Mastery motivation is a factor underlying behavioural change in pediatric physiotherapy. Parents and children can inform about this concept by filling in the Dimensions of Mastery Questionnaire (DMQ). This study examined if children and their parents differ in perceptions on mastery motivation. This will inform pediatric physiotherapists about the type of goal setting needed.

Methods: A group of 29 families were included. A comparative survey design was used. Repeated-measures ANOVA or the Friedman test were used to compare the ratings of fathers, mothers and their children.

Results: No significant differences were found between parent- and self-report scores on the total mastery motivation scale of the DMQ. A few differences in perceptions did appear on various other DMQ-subscales. Specifically, children rated themselves lower on object oriented persistence and higher on gross motor persistence than fathers did. Fathers and mothers rated their children lower on social persistence with children than did children rated themselves. Regarding negative reactions to failure, mothers scored higher in their ratings than did their children. Finally, teens rated their general competence higher than mothers did.

Conclusion: Parents and their children did not differ in their view on the total mastery motivation of the child. This implicates that parents, children and pediatric physiotherapists can work in agreement in setting up treatment goals related to mastery motivation. However, professionals should also be aware of perceptions that could differ between parents and teens, and mothers and children on social aspects and expressive aspects of mastery motivation respectively.

Mastery motivation of children and teens: Parental versus self-report

In pediatric physiotherapy, multiple factors are related in determining the health condition of the child. The International Classification of Functioning, Disability and Health (ICF) model describes environmental, personal, and physical related factors that influence each other in determining the health condition of a person (Rosenbaum & Stewart, 2004). This ICF-model can classify the functioning of the child. Thereby it helps to structure and plan the physiotherapy treatment. In line with the ICF-model, various researchers call for interventions for children with motor disabilities that focus more on the learning of meaningful tasks and the facilitation of participation, instead of on the ICF-level of 'body functions and structures' (Franki et al., 2012; Horn, 1997; Palisano, Chiarello, King, Novak, Stoner, & Fiss, 2012; Papavasiliou, 2009; Rosenbaum, Paneth, Leviton, Goldstein, & Bax, 2007). The determination of the influence of the environment, personal factors and physical related factors on the health status of a person can help in directing pediatric physiotherapy at the learning of meaningful tasks and participation.

In order to learn the child meaningful tasks, a focus on factors (as part of the ICF-model) that underlie behavioral change in the child is needed (Horn, 1997; Palisano et al., 2012). Bartlett and Palisano (2000) describe a model of factors attributing to change in motor abilities of children. One of the components leading to motor change is aspects of the child unrelated to the disability (temperament and motivation, in particular mastery motivation). In a subsequent survey, Bartlett and Palisano (2002) found that physiotherapists found one factor in the domain of 'child personality characteristics' to be the most important: motivation. Bartlett and Palisano (2002) pointed out that this model helps to identify changeable factors, like motivation, that can be used to improve the effectiveness of physiotherapy.

A special form of motivation is mastery motivation. Morgan, Busch-Rossnagel, Barrett, and Wang (2009) define mastery motivation as follows: "a multi-faceted, intrinsic psychological force that stimulates an individual to attempt to master a skill or task that is at least moderately challenging for him or her" (p. 25). Mastery motivation can be divided into two major concepts. First, the instrumental aspect of mastery motivation is described by a tendency to show persistence in a somewhat difficult task, to wanting control over environmental events, and the preference for challenges. Second, expressive mastery motivation is seen in facial, postural, vocal, and behavioural expressions. Examples are the expression of pleasure or sadness. Mastery motivation is about aiming to achieve a particular task. Therefore, it is not the same as competence. However, it is expected that a child who is

highly motivated to master tasks, will eventually learn more successful strategies and thus becomes more competent (Barrett & Morgan, 1995). The theory underlying mastery motivation can show its importance in pediatric physiotherapy.

As goals in physiotherapy are increasingly focusing on promoting meaningful abilities of the child, the process of how a child approaches a task becomes more in focus (Palisano et al., 2012). Mastery motivation gives information about how the child approaches a challenging situation, indicates the learning process of the child, and gives a prognosis for successful engagement (Hauser-Cram & Shonkoff, 1995). The way in which mastery motivation leads to the learning of new skills is described by the motivation theory of White (1959). In this theory it is proposed that a child has the motivation to explore the environment, for example by walking, language, and the manipulation of novel objects. These behaviours help the child in learning to interact effectively with the environment. This learning process leads to a feeling of competency. As a result of such “effectance motivation” (similar to mastery motivation) the child wants to continue exploring and in this way it reinforces the learning processes of the child. Thus, mastery motivation can help in clarifying how a child learns meaningful tasks. To use this concept in physiotherapy, one must be able to assess it.

The Dimensions of Mastery Questionnaire (DMQ) can be used to measure mastery motivation (Morgan et al., 2009). The DMQ distinguishes instrumental mastery motivation and expressive mastery motivation. Instrumental mastery motivation is subsequently divided in various concepts because it turned out that the persistence of the child was dependent on the type of the task (Yarrow, McQuiston, MacTurk, McCarthy, Klein, & Vietze; Yarrow, Morgan, Jennings, Harmon, & Gaiter, as cited in Morgan et al., 2009). In the DMQ, the expressive aspect of mastery motivation is also segmented into two concepts. Finally, the DMQ informs about the general competence of the child. The DMQ can be filled in by parents, teachers and children themselves to obtain their view on the mastery motivation of the child. Therefore, the DMQ can be of value in the upcoming family-centered approach in the field of physiotherapy (Dunn, Shields, Taylor, & Dodd, 2009). In this approach, the view of parents is often included in determining treatment plans. However, children and parents may differ in their views on the mastery motivation of the child. For example, in their research, Morgan and colleges (2009) found that typically developing children (6-12 years old) perceived expressive and social aspects of instrumental mastery motivation and general competence lower than did parents and teachers. In contrast, views on cognitive and gross motor aspects of instrumental mastery motivation were higher for children than for parents and teachers.

Above results show the importance of measuring both the view of parents and children to get a complete picture of the mastery motivation of the child. Furthermore, relying only on the view of parents can result in setting up treatment goals that are not viewed important by the child (Dunn et al., 2009). To make use of the concept of mastery motivation in pediatric physiotherapy, more research into views on this concept is needed.

Therefore, this survey examines the following question: Do Dutch parents perceive the mastery motivation of their child differently than the children or teens perceive their mastery motivation themselves? Based on previous research with typically developing children [in USA, UK, Australia and Israel] (Morgan et al., 2009), it is expected that parents and their children differ in their views on total mastery motivation. In addition, it is predicted that the child perceives the following aspects of mastery motivation lower than parents: general competence, social persistence with adults (related to instrumental mastery motivation), and negative reactions to failure (related to expressive mastery motivation). On the other hand, it is hypothesized that children report themselves higher than parents on object oriented and gross motor persistence (aspects of instrumental mastery motivation). Finally, it is predicted that parents and their children will not differ in views on social persistence with children (component of instrumental mastery motivation) and pleasure expressed in the mastering of skills. A secondary aim of this research is to gain information about the feasibility of the DMQ in the Netherlands.

Method

Design

The research concerned a comparative survey design. Parental reports versus self-reports of the mastery motivation of the child or teen were compared.

Participants

In April and May 2013, a convenience sample of families living in Utrecht and Nijmegen was invited to participate in this research. Both parents and their child were asked to fill in the questionnaire. Families were included when parents could speak and read Dutch fluently, and when their children or teens followed a normal development, could fill in the questionnaire independently, and were between 6 to 18 years old (children: 6-12 years old; teens: 13-18 years old). An information letter informed the families about the procedure of the research. Participants could decide themselves if they wanted to be involved in this research. Therefore, the research group was recruited on a voluntary basis.

Instruments

DMQ. The perceptions on mastery motivation of the child or teen were operationalized as the scores on subscales of the DMQ (Morgan et al., 2009). This questionnaire has several versions, which have been translated in Dutch for this research (see appendix). In this Dutch version, the answering scale deviated somewhat from the original versions. Instead of rating the items from 1 being ‘not at all typical for my child’ to 5 being ‘very typical for my child’, participants were asked to rate the items on a 5-point scale comparing the child to his or her peers (1 being ‘not at all’ to 5 ‘very typical’ for the child in comparison with peers). The DMQ consists of 45 items. A high score indicates that the child or teen has a high mastery motivation. Parents filled in the Parent’s Rating of School-aged Children (children from 6-12 years) or the Parent’s Rating of Teens (teens from 13-18 years). Children or teens completed the School Aged Rating of Self (6-12 years) or the Teen Aged Rating of Self (13-18 years).

The DMQ contains various subscales mapping onto the instrumental and expressive components of mastery motivation. The instrumental aspect is divided in four subscales: object oriented persistence (OOP), gross motor persistence (GMP), social persistence with adults (SPA), and social persistence with children (SPC). An example item of this scale is: ‘Works for a long time trying to do something hard’. The expressive aspect of mastery motivation consists of the scales mastery pleasure (MP) and negative reactions to failure (NRF). An example item is: ‘Smiles when he or she makes something happen’.

The subscale general competence (GC) is, amongst others, measured by the following item: ‘Does things that are hard for children his or her age’. Last, the scale total mastery motivation (MM) consists of all items of the DMQ, with the exception of items belonging to the subscale of GC. The mean score on the scale MM can be seen as the total mastery motivation score (Morgan et al., 2009).

The validity of the [original] DMQ is supported on a medium level. There is good factorial evidence for validity and construct validity (Morgan et al., 2009). Reliability of the DMQ is good (Morgan et al., 2009; Niccols, Atkinson, & Pepler, 2003). Some of the self-ratings of school-aged children and teens are less reliable (e.g. SPC and NRF). The test-retest reliability of the DMQ subscales and total score are good (Igoe et al., 2011).

Feasibility scale. To gain information about the ease of use of the DMQ in the Netherlands, participants were asked to rate the feasibility of the DMQ on a scale from 1 to 10 (1 being awful, 10 being excellent). In addition, parents and their children could write comments down concerning their experience in filling in the DMQ.

Procedure

Participants were recruited by approaching families living in the cities of Utrecht and Nijmegen, in the Netherlands. The recruitment was done between April 20th and May 6th. Parents were asked if they and their child wanted to fill in a questionnaire taking approximately ten minutes.

If a family was willing to participate, they received an information-form about the research project and questionnaires for mothers, fathers and children or teens. If the child was under the age of 8 years, the research student filled in the questionnaire together with the child. When this was not possible, because the family wanted to complete the survey in their own time, parents were asked to help their child by explaining possible difficult words. Before filling in the DMQ, participants signed an agreement to participate. Parents and their children could withdraw from the study at any time without further explanation. It was stressed that the answers would be treated confidentially and anonymously. After a couple of days, the research student came back to the families to collect the questionnaires.

Statistical analyses

Data analyses were performed with SPSS (IBM SPSS Statistics version 20, 2011). Statistical analyses were performed on these data. All statistical tests with an alpha below 5% were judged to indicate a significant difference between the groups.

Descriptive analyses were executed for primary analysis. The research groups of parents and their children were described according to their mean age, number of participants, number of teens and children, and distribution of gender. The subscales of mastery motivation were created by taking, from each individual, the mean score of the item-scores belonging to this subscale. This led to the formation of eight subscales. The homogeneity of the scales was tested to assure that assumptions of the statistical tests described below, were met. This was done by comparing the scores given by the respondents for children and teens on the scales.

First, repeated measures ANOVA were performed to compare father-, mother-, and self-report ratings (aged 6-18) of the various DMQ-subscales (Field, 2009). Subsequently, analyses were conducted separately for fathers, mothers, and children (aged 6-12) and for fathers, mothers, and teens (aged 13-18). In case of a significant result, post hoc analyses were performed to investigate which groups differed in their ratings. If assumptions of ANOVA were not met (i.e. normal distribution of scores on the subscales, indicated by a skewness that was not above 1 or -1), the Friedman test was conducted instead. In addition, the Wilcoxon signed rank test was performed to analyse the view of mothers versus children and/or teens,

and fathers versus children and/or teens separately. In case of significant differences, effect sizes were reported to indicate the strength of the result. An effect size of $r > .37$ indicates a large effect, an r between .37 and .20 displays a medium effect, and, lastly, an r below .20 demonstrates a small effect (Baarda, de Goede, & van Dijkum, 2007). Parents and children belonging to one family were matched in the analyses.

Second, results were given about the feasibility of the Dutch DMQ according to parents and children or teens. Quantitative results were presented by calculating the mean scores on the 10-point rating scale about the feasibility of the DMQ according to fathers, mothers and children or teens. In addition, qualitative results about the user friendliness of the DMQ were given by extracting subthemes from comments written down by parents and their children.

Results

Descriptive

A group of 29 families was included in this research. Of these families, the DMQ was completed by both parents ($N = 13$), only the mother ($N = 10$), or only the father ($N = 6$). Thus, a total of 23 mothers (mean age 47.1 years, $SD = 5.4$) and 19 fathers (mean age 51.2 years, $SD = 5.8$ years) filled in the questionnaire. Next to their parent(s), 15 children (mean age 9.5 years, $SD = 1.9$ years) and 14 teens (mean age 15.2 years, $SD = 1.9$ years) filled in the questionnaire. The exact distribution of parents, children and teens is shown in figure 1.

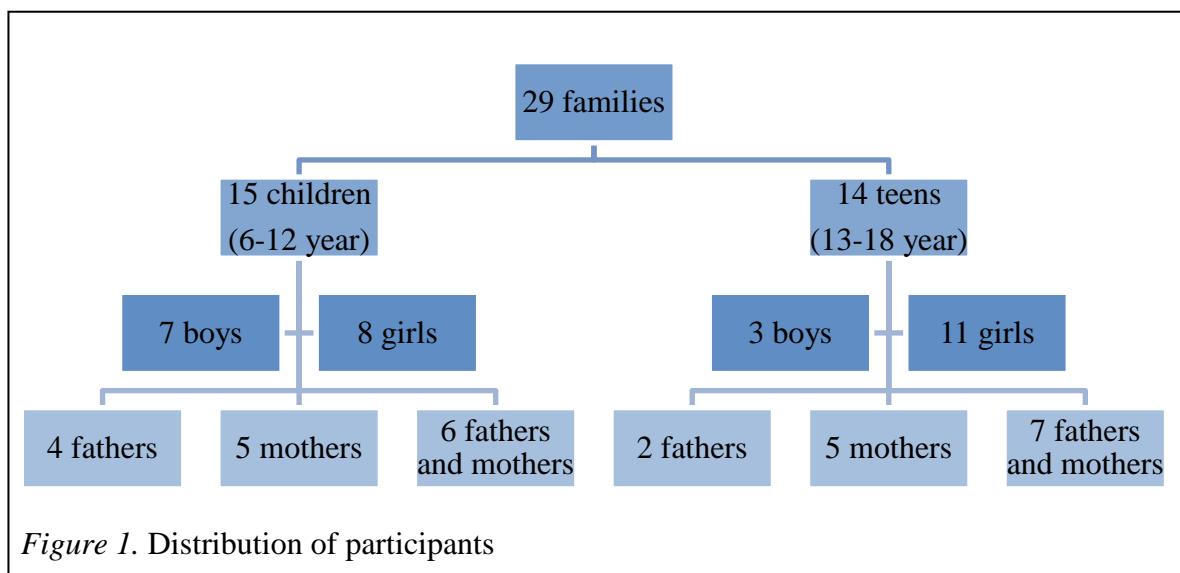


Table 1 shows the mean scores on the DMQ scales. The scores on the scales all centered on a mean of 3. For father-report, scores were on average highest on SPC ($M = 3.41$, $SD = 0.62$). For mother-report and self-report, scores were highest on GC ($M = 3.39$; $SD =$

0.67, and $M = 3.46$; $SD = 0.58$, respectively). With mean scores of 2.80 ($SD = 0.52$), 3.00 ($SD = 0.61$), and 2.66 ($SD = 0.58$) for father-, mother-, and self-report measures respectively, scores on NRF were lowest for all respondents. For the MM scale (i.e. the total Mastery Motivation scale), the mean score by fathers was 3.17 ($SD = 0.17$), by mothers 3.13 ($SD = 0.31$), and by self-report 3.21 ($SD = 0.28$).

Table 1

Mean scores, standard deviation and range for DMQ scales

DMQ-scale	Father-report <i>M (SD)</i> <i>Range</i>	Mother-report <i>M (SD)</i> <i>Range</i>	Self-report <i>M (SD)</i> <i>Range</i>
OOP	3.13 (0.46) 2.22 – 3.78	3.00 (0.45) 2.22 – 3.89	3.22 (0.47) 2.44 – 4.22
GMP	3.09 (0.77) 1.13 – 4.25	3.32 (0.66) 2.13 – 4.38	3.41 (0.82) 1.88 – 4.88
SPA	3.26 (0.39) 2.33 – 4.0	3.16 (0.58) 2.33 – 5.0	3.31 (0.60) 2.33 – 5.0
SPC	3.41 (0.62) 1.83 – 4.83	3.14 (0.35) 2.33 – 3.83	3.35 (0.41) 2.50 – 4.17
MP	3.32 (0.27) 2.83 – 3.83	3.14 (0.22) 2.67 – 3.67	3.30 (0.53) 1.67 – 4.67
NRF	2.80 (0.52) 2.0 – 4.0	3.00 (0.61) 1.80 – 4.0	2.66 (0.58) 1.40 – 3.60
GC	3.39 (0.37) 2.80 – 4.20	3.39 (0.67) 2.40 – 4.80	3.46 (0.58) 2.0 – 4.60
MM	3.17 (0.22) 2.73 – 3.63	3.13 (0.20) 2.71 – 3.52	3.21 (0.28) 2.50 – 3.71

Note. OOP = object oriented persistence; GMP = gross motor persistence; SPA = social persistence with adults; SPC = social persistence with children; MP = mastery pleasure; NRF = negative reactions to failure; GC = general competence; MM = total mastery motivation.

Differences in report on the MM scale

When comparing the scores of fathers, mothers and self-report measures on MM, it was found that these scores did not differ significantly between the three groups; $F (2, 24) = 1.17$; $p = .33$. Separate analyses were also conducted for the group of children (age 6-12 years) and of teens (age 13-18 years). Fathers, mothers, and children did not differ significantly in their score on MM ($\chi^2 (2) = 2.33$, $p = .31$). Also, reports of fathers, mothers and

teens did not differ significantly on MM ($F(2, 12) = 1.54, p = .25$).

In above analyses three groups (mothers, fathers and their children belonging to the same family) were compared. Ten questionnaires of mothers and six of fathers were not included in these analyses, because of non-response from the other parent. To avoid missing questionnaires, separate analyses for mother versus self-report or father versus self-report were made. None of these tests yielded significant differences on the MM-scale (fathers and self-reports: $Z = -.08; p = .95$; mother- and self-reports: $Z = -.16; p = .11$).

Regarding the homogeneity of this scale, assumptions were met, except for mothers who scored children significantly higher than they scored teens ($U = 23.00; p < .01; r = .39$).

Differences in reports on the DMQ-subscales

Figure 2 shows scatter plots of the significant differences in reports on various subscales.

Differences in report on the OOP scale. When comparing the scores of fathers, mothers, and children on the OOP scale, a significant difference was found ($F(2, 10) = 7.24, p < .05$). Post hoc analyses indicated that fathers scored significantly higher than children ($Z = -2.21; p < .0167$). An effect size of $\eta^2 = .59$ means that 59% of the variability between the means on OOP can be explained by the status of the respondent (i.e. being a father or being a child). The differences between the OOP-ratings of other groups were not significant.

Differences in report on the GMP scale. Fathers had a significantly lower score than their children on the scale GMP ($Z = -2.15; p < .05; r = .48$). No other significant differences were found on GMP between the groups.

Differences in report on the SPA scale. On the SPA subscale, no significant differences were found between any of the compared groups.

Differences in report on the SPC scale. Comparison of father-, mother- and self-report yielded a significant difference ($\chi^2(2) = 6.82; p < .05; r = 0.44$). Post hoc analyses indicated that mothers scored significantly lower than self-reports (Wilcoxon, $Z = -2.24; p < .0167$). Additionally, separated analyses indicated that fathers had significantly lower ratings than did teens ($Z = -2.03; p < .05; r = .42$). Mother reports were significantly lower than self-reports ($Z = -2.72; p < .01; r = .40$) and teen-reports ($Z = -2.07; p < .05; r = .42$).

Differences in report on the MP scale. Three-group comparisons indicated that mothers, fathers and self-reports significantly differed in their scores ($\chi^2(2) = 8.04; p < .05; r = 0.54$). Post hoc analyses indicated that fathers scored significantly higher than mothers (Wilcoxon, $Z = -2.74; p < .0167$) on the MP scale.

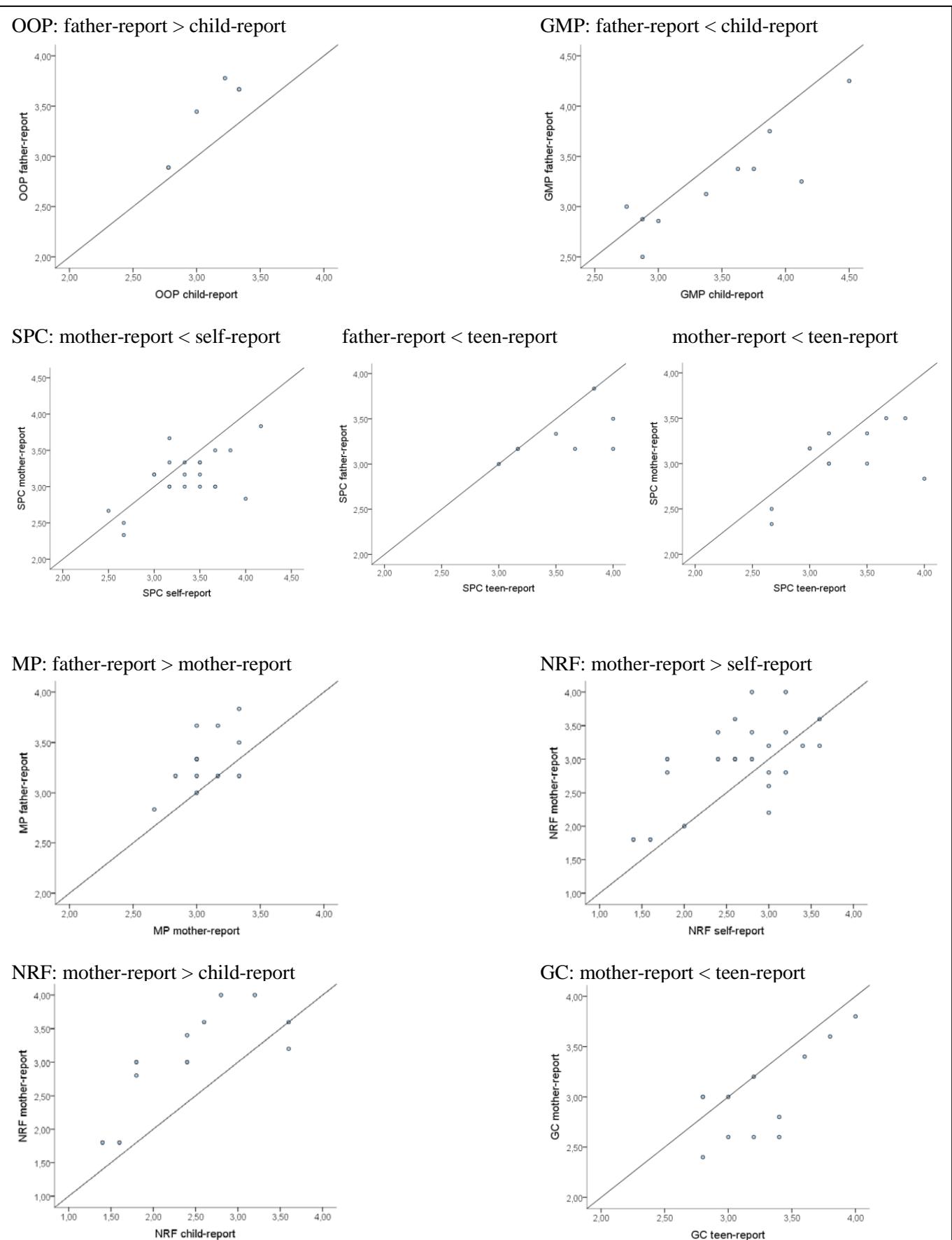


Figure 2. Scatter plots of significant differences between groups on the DMQ-scales. The diagonal line shows when scores of parent-report and self-report of a family were equal. When a score is beneath the line, this indicates that, in that family, the self-report score (or child/teen-report score) was higher than the parent-report score (i.e. father or mother). When a score is above the line, this indicates that the parent-report score was higher than the self-report score. The more scores are beneath the line, the more likely it is that, in general, self-report scores (or children/teen scores) are higher than parent-report scores on this DMQ-subscale (and vice versa).

Differences in report on the NRF scale. Mothers scored significantly higher than self-reports on the NRF subscale ($Z = -2.26; p < .05; r = .33$). In addition, when comparing mothers to children on NRF, mothers again scored their child significantly higher than their children did themselves ($Z = -2.56; p < .05; r = .55$). No other groups differed significantly in their scores on NRF.

Differences in report on the GC scale. With respect to the scores on the GC subscale, the scores of mothers appeared to be significantly lower than those of teens ($Z = -2.22; p < .05; r = .45$). Scores of parents and self-report did not differ on GC in any other of the comparisons. The scale was homogeneous, except for mothers who scored their children significantly higher on GC than mothers who scored teens ($U = 18.50; p < .01; r = .43$).

Feasibility results

Fathers evaluated the DMQ with a mean of 6.16 ($SD = 1.34$). The mean rate mothers gave was 6.43 ($SD = 1.50$). Finally, the self-report mean score of the feasibility of the DMQ was 6.07 ($SD = 1.83$); children had a mean of 5.60 ($SD = 2.03$), and teens had a mean of 6.57 ($SD = 1.50$). As can be seen in table 3, parents and their children thought the DMQ was somewhat difficult to fill in by young children. It was pointed out that some words were too difficult, the questions should be more specific, and the questions were not very attractive for children. Furthermore, a portion of the participants indicated they had trouble with the answering scale. Namely, it was confusing to have to compare the child with other children. These respondents mentioned they rather would have given answers in terms of how applicable the proposition is for the child.

Table 3

Comments about the ease of use of the DMQ

Participant	Comment
Mother (child of 12 years old)	[meaning of the answering scale] ‘Lastig, mijn referentie kader is erg beperkt. Ik ken weinig jongens van deze leeftijd.’ <i>Difficult, my frame of reference is highly limited. I know few boys of this age.</i>
Child (girl), 7 years old	‘Een beetje ingewikkeld.’ <i>A bit complicated.</i>

Participant	Comment
Mother (child of 8 years old)	‘Ik vond deze vragen wel erg moeilijk voor een kind van 8. Moeilijke woorden, ook het begrijpen hoe je de score toekent (doe je dat meer/minder dan gemiddeld) was nog lastig te begrijpen.’ <i>I thought these questions were very difficult for an eight year old. Difficult words, furthermore, understanding how you ascribe the scores (is it more/less than average) was hard.</i>
Child (girl), 11 years old	‘Volgende keer niet zulke vreemde woorden gebruiken, we zijn kinderen!’ <i>Next time, do not use such strange words, we are children!</i>
Father (teenager of 18 years old)	‘Vraagstelling soms wat vreemd, bijvoorbeeld vraagstelling 6/13. Leeftijdsgenoten is een onduidelijke aanduiding. Onmiddellijke omgeving of breder gedefinieerd?’ <i>The turn of phrase was strange at times, for example question 6/13. Peers are an unclear indication. Immediate environment or more broadly defined?</i>
Child (boy), 12 years old	‘Beetje lastig, ik vond dat sommige vragen raar waren’. <i>A bit difficult, I thought some questions were strange.</i>

Conclusion and Discussion

This study is the first in comparing views of parents and children or teens on the mastery motivation of children using the DMQ in the Netherlands. No significant differences were found between the perceptions of mothers, fathers and children or teens on the total mastery motivation. However, some differences in ratings of certain DMQ-subscales were discovered. This indicates that, in general, parents and their children share a common view on the mastery motivation of the child, with only some differences in opinions about aspects of this concept.

The outcomes of this study partly confirm previous research. It appeared that fathers viewed the gross motor persistence of their children as being lower than children did themselves. Furthermore, mothers conceived more negative reactions to failure of their children than children did themselves. These findings are in line with Morgan and colleges (2009), who established that parents in general scored lower on gross motor persistence and higher on negative reactions to failure when comparing children and parents in their ratings of the DMQ-subscales. However, not all results of this study confirm previous results. In comparison with their children, fathers viewed the object oriented persistence higher, while teens scored their general competence higher than their mothers did. This contradicts the findings of Morgan and colleges (2009). Furthermore, Morgan and colleges (2009) did not find differences between parents and their children in perceptions on the subscales social persistence with children and mastery pleasure. This study did find that children and teens had higher scores than both parents on social persistence with children, and fathers rated their children higher on mastery pleasure than did mothers. These contradicting findings can be caused by the separate analyses performed for children and teens, and mothers and fathers in current research, which was not done by Morgan and colleges (2009).

By conducting analyses for children and teens apart, results of this research also extend previous studies. For example, this research indicates that children more frequently rated themselves lower in comparison with their parents on aspects of mastery motivation, while the opposite was true for teens and their parents. Furthermore, this research is new in separating the ratings of fathers and mothers, enabling more precise comparisons. It seems that mothers differ more from children or teens in their view on various aspects of mastery motivation than fathers do. Finally, the current study extends previous research by creating DMQ-subscales which Morgan and colleges (2009) recommended, but did not employ in their own research. These scales involve a total persistence subscale (PS), an expressive mastery motivation subscale (EMM) and a social mastery motivation subscale (SMM). By using these scales, this research found that children and teens viewed their total persistence and social mastery motivation higher than their mothers did. In addition, mothers scored the expressive mastery motivation of their child higher than children did themselves.

Taken together, this study shows mixed findings when comparing the results with previous research. Some of the contradictory results may be due to the methodology and procedure of this research. Several limitations occurred when executing the research. First, because of a shortage of time, the sample was not recruited randomly. This may have biased some results. For example, most families lived in middle-class neighborhoods in which

children generally have better academic skills compared to children living in lower-class neighborhoods (Sirin, 2005). This may have caused parents and children to rate items belonging to academic abilities as being higher than is representative for the whole population of normally developing children. Related to the non-random sampling, the number of invited families and the reasons for fall-out were not known in this research. This may have created selected groups influencing the results. Second, as a result of the convenience sampling, the distribution of participating boys and girls, and fathers and mothers was unequal. This variation in the sample may have contributed to the significant differences that were found. Third, a small sample was used, which increased the probability that effects are based on coincidence (and thus differences in views may not be caused by being a parent or a child/teen). Fourth, not all subscales of the DMQ were of sufficient reliability. Some subscales were unreliable, in particular the subscales of mother reports (i.e. the scales of MM, OOP, SPC, and MP). Testing the reliability of the DMQ used in the Netherlands was not the main goal of this research, therefore, no items were removed to increase the reliability. However, this may have resulted in biased difference-scores between parents and children or teens on the DMQ-subscales. Lastly, some parents indicated they helped their child filling in the questionnaire because otherwise it would be too difficult. Furthermore, children aged under eight ($N = 2$), were given help by the researcher to fill in the DMQ. The help of parents and the researcher may have influenced the answers children gave.

Although these limitations could have influenced the results, some strengths in this research were also apparent. The sampling was done in two cities, which increased the representativeness of the research group. Furthermore, children as well as teens cooperated in this research, which allowed for the comparison of diverse groups. In addition, the method of sampling allowed the researcher to recruit the questionnaires personally. In this way, it is thought that participants filled in the DMQ more genuinely. Lastly, this study was the first in gaining information about the feasibility of the DMQ in the Netherlands according to parents and their children. In general, participants judged the DMQ to be of average quality. Comments on the DMQ concerned words that were too difficult for young children and the answering scale that was confusing.

The lack of difference in parent- and self-report ratings of total mastery motivation could be partly due to the limitations mentioned. However, underlying mechanisms may also be involved. Mechanisms that could explain the results can be derived from theories on (changing) relationships between parents and children. First, the lack of differences in views on total mastery motivation can be accounted for by an association that has been found

between the parental and child's perception. It seemed that the perceptions of parents on the competence of their child, strongly predicted the perceptions children had on their competence. This predictive value of parental perceptions was even stronger than the actual past performance of the child (Pomerantz, Grodnick, & Price, 2005). Although competence is not the same as mastery motivation, these two concepts are thought to be correlated (Morgan, 2009). Therefore, this line of reasoning can be applicable for mastery motivation. Thus, the finding that parents and their children did not differ in views on mastery motivation may be explained by parental perceptions influencing the perceptions of their child.

Although no differences appeared on the total MM scale, on subscales of the DMQ (i.e. OOP, GMP, SPC, SPA, MP, NRF, MP, PS, EMM and SMM) differences in judgments did appear. These differences may be the result of the unique experiences and perceptions parents and children have regarding mastery motivation (Miller, Ziviani, & Boyd, 2013). One of these differences was that teens more frequently rated themselves higher on social aspects of mastery motivation, while children rated themselves lower on expressive aspects of mastery motivation than parents did. Therefore, the second mechanism in explaining the results may be related to changes belonging to the transition between childhood and early adolescence. Transferring to adolescence, friendships acquire a deeper meaning, become more stable, and occur more independent from parents (Poulin & Chan, 2010). Teens spend increasingly more time with friends; therefore they may think their mastery motivation on the social aspect is high. On the other hand, parents spend less time with the teen, possibly leading to the thought that the social mastery motivation of the teen is lower. In addition, this research found that children viewed themselves as expressing less of their emotions during the mastering of tasks than parents thought they did. Previous research established that children express their emotions more within the presence of their parents than their peers (Zeman & Garber, 1996). Parents experience their child only when their emotional expressiveness is high, while children engage in multiple contexts wherein their emotional expressiveness varies. This may cause that children view their expressive mastery motivation less high than their parents do. Moving to adolescence, the emotional stability increases (Klimstra, Hale, Raaijmakers, Branje, & Meeus, 2009). This may include that teens express their emotions more alike in multiple contexts. Therefore, parents and teens may experience the expressive mastery motivation more similarly.

These differences in perceptions on expressive mastery motivation and social mastery motivation mainly appeared when comparing views of mothers and their children. Fathers and their children seemed to differ less in their views on components of mastery motivation. This

distinction between fathers and mothers may relate to a third mechanism clarifying the results of this research. Previous research suggested that fathers are involved in teaching children how to approach new situations (Paquette, 2004). This role of the father may be particularly important in mastery motivation. Herein, children attempt to master moderately challenging tasks or skills (Morgan, 2009). The greater involvement of fathers in this aspect, may explain why fathers share a more common view with their children on the social and expressive aspects of mastery motivation of the child than mothers do.

The findings from this study can have consequences for the clinical practice. In the introduction, it was stressed that mastery motivation can be applied in the pediatric physiotherapy. From the findings of this research, it seems possible to set up treatment goals in agreement with parents and their children, as they share a common view on the total mastery motivation of the child. However, possible differences in views on aspects of mastery motivation can be present, depending on the status of the family member. Specifically, teens rated themselves more frequently higher than parents on social aspects of mastery motivation, while children viewed their expressive mastery motivation lower than parents. Moreover, fathers contrasted less frequently in perceptions from their child than mothers did. Therefore, pediatric therapists should be aware of the various components of mastery motivation and the unique perception each member of a family can have on these. The possible differences in views should be made discussable by physiotherapists in order to set up specific treatment goals that both parents and their child agree on.

Regarding future research, the DMQ should be made more appropriate for children before implementing it in clinical practice in the Netherlands. Additionally, the findings in this survey suggest that a developmental and multi-respondent perspective is important when surveying the judgments of mastery motivation. Therefore, the inclusion of larger, random research groups, examining the perceptions of both fathers and mothers, and children and teens, is needed in future research. Additionally, a longitudinal study would help to reveal developmental trajectories in perceptions on mastery motivation. Last, to apply the DMQ in pediatric physiotherapy, research needs to be done within clinical populations.

In conclusion, total mastery motivation is viewed similarly by parents and their children. This concept is promising in its use in physiotherapy. Hopefully in the future, mastery motivation can be used to improve the skills of the child by setting up goals and treatments that parents as well as children agree on.

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Appendix: DMQ-questionnaires, Dutch translations

To secure this instrument (which still is under development) the Dutch translation is not part of this version of the thesis. For more information, please contact Mirthe van Wietmarschen (m.v.vanwietmarschen@students.uu.nl) or Dirk-Wouter Smits (h.w.smits@uu.nl).