Relationships between direct and reflected self-concept and maternal communication during adolescence

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Abstract

Introduction One of the main tasks during adolescence is to develop a positive direct self-concept, how a person thinks about him- or herself. This study investigates how warmth, negativity and emotional support in maternal communication, and reflected self-concept, how a person thinks peers think about them, are related to the positivity of the direct self-concept of adolescents. Since the importance of peers during adolescence increases and the importance of parents decreases, the relationship between maternal communication and direct self-concept is expected to be weakened and the relationship between reflected and direct self-concept is expected to be strengthened with age. ***Methods*** 93 adolescents between 11 and 21 years old evaluated how they perceived themselves and how they think peers perceive them by indicating how well positive and negative traits fit them. Additionally, they participated in a conversation between mother and child, in which maternal communication was scored on warmth, negativity and emotional support. ***Results*** Maternal warmth, negativity and emotional support showed no significant relationships with direct self-concept. Age seemed not to have a moderating effect. However, the moderation was marginally significant in the relationship between warmth and direct self-concept, in which warmth was significantly related to direct self-concept in mid-adolescence but not in early or late adolescence. A positive relationship was found between direct and reflected self-concept. No moderating effect of age was found in this relationship. ***Discussion*** This study provides evidence that both peers and parents are important for the positivity of self-concept of adolescents. Maternal warmth seems to be of importance during mid-adolescence, suggesting that parents still seem to have influence on how adolescents evaluate themselves during this period. The perceived opinions of others seem to be important during entire adolescence. Limitations and implications of the findings are discussed.

Relationships between direct and reflected self-concept and maternal communication during adolescence

Adolescence is the period between childhood and adulthood. It starts at approximately 10 years of age and goes on until around 24 years of age (Sawyer et al., 2018). It is characterised by a lot of changes in different areas of a child's life in order to become an adult. One of the main tasks for adolescents during this period is to find out who they are and to develop a positive and coherent self-concept (Harter, 2012). The self-concept, how a person thinks about and evaluates him- or herself (Paulus et al., 2018), becomes less black-and-white and concrete and more complex and abstract during adolescence. Additionally, older children compare themselves more with others which results in a more realistic but also more negative self-concept (Harter, 2012; Damon & Hart, 1988). Therefore, the self-concept is often described as a social construct, meaning that it is influenced by the people who surround the person in all different social contexts (Coleman & Fults, 1982). To encounter these different environments, adolescents need to gain more independence from their parents. Consequently, the main social support of parents is slowly shifting towards the social support of peers as adolescents get older (Furman & Buhrmester, 1992). The question that arises here is whether the influence that parents have on the self-concept of the adolescent is also decreasing and the influence of peers on the self-concept is increasing with age. Therefore, the aims of this study are to investigate whether parents have a bigger influence on the self-concepts of younger adolescents than of older adolescents and whether peers have a bigger influence on the self-concepts of the older than of the younger adolescents.

The development of a positive self-concept is important because it reduces the chance of developing internalizing disorders like depression and anxiety (Lau & Kwok, 2000; Van Dijk et al., 2014) and because self-concept and life satisfaction are positively related (Leung & Leung, 1992). Supporting the child in this development could therefore be important for their mental health. According to different studies this support comes, for a big part, from the parents of the adolescent. Positive relationships were found between family environment and self-concept (Lau & Kwok, 2000) and attachment to the same sex parent and self-concept clarity in adolescents (Fermani et al., 2016), while parent-related loneliness is negatively related to self-concept (Corsano et al., 2020). These results are supported by the study of Krstić (2016) showing a positive relationship between attachment and self-concept in 13- to 16-year olds. Interestingly, this relationship was stronger for the younger adolescents than for the older adolescents. So despite that a general relationship between parental factors and self-concept seems to exist, the influence of parents might be of bigger importance in younger than in older adolescents.

Besides the general relationship between parents and adolescents, the communication between parent and child has also been subject in research with adolescents. Interactions with parents during adolescence are different from interactions during childhood. They are less frequent, there is more conflict, more power shifts and less acceptance from parents (Collins & Russel, 1991). Previously published results of the current self-concept study, showed that the mother expresses more negativity in mother-child interactions in mid-adolescence, 15 to 17 years of age, than in pre- and late adolescence (Van der Cruijsen et al., 2019a). Open communication between parents and adolescents predicts a high self-concept clarity (Van Dijk et al., 2014) and perceived psychological autonomy was associated with a more positive self-concept in early adolescence (Putnick et al., 2008). The changes in parent-child communication could therefore interact with the important developmental changes in the self-concept of the adolescent that take place during this period. This study aims to gain further insight into which factors within communication between parent and adolescent are of importance for the formation of a positive self-concept.

Whereas relationships with parents decrease in importance, peer relationships become more essential during adolescence (Furman & Buhrmester, 1992). Due to the development of social-cognitive perspective taking skills, adolescents become more self-conscious, the opinions of others become more important and the fear for negative social evaluations is growing during this period (Blakemore, 2012; Westenberg et al., 2004). The growing significance of peers in general also applies to the development of self-concept. Peer attachment seems to have a positive effect on self-concept (Krstić, 2016), social comparisons with peers are found to be a predictor for academic self-concept (Wilson et al., 2014) and peer-related loneliness has a negative effect on self-concept as a whole (Corsano et al., 2020). Jackson & Bracken (1998) found differences in self-concepts of 11 to 14 year old adolescents with different social statuses, such that popular children score consistently higher on self-concept scales than rejected children. In semi-structured interviews with 17- to 22-year-olds, adolescents mentioned that the labels they felt they got from peers, were incorporated into their self-concept (Dudovitz et al., 2017). This is in line with theories proposing that the opinions of significant others can become internalized into the own concept of self (Harter, 2012). Within self-concept a division can be made between direct self-concept, how a person thinks about him- or herself, and reflected self-concept, how a person thinks other people (peers) think about him or her. In line with previous statements that peer relationships become increasingly important during adolescence (Furman & Buhrmester, 1992) and that these opinions of others may become internalized into the self-concept during this period (Harter, 2012), it is expected that the direct self-concept is stronger related to reflected self-concept in late than in young adolescents.

All in all, developing a positive and coherent self-concept seems to be important for a person's life satisfaction and mental health (Lau & Kwok, 2000; Van Dijk et al., 2014; Leung & Leung, 1992). The

development of self-concept during adolescence is influenced by the relationships with parents and peers (e.g. Corsano et al., 2020), but whether the parental communication is of importance in this developmental process is yet to be discovered. Additionally, the influence of age has not been subject in many self-concept studies, while adolescence is a period marked by a lot of changes. Knowledge about this might help in understanding mental health cases and providing new opportunities for intervention, which could possible differ for early, middle and late adolescents. The purpose of the current study is therefore to gain greater insight in the maternal and peer factors that influence the development of self-concept in different stages of adolescence. For our first aim, we look into the warmth, negativity and emotional support that mothers express towards their child and see whether this is related to how adolescents evaluate themselves. We expected to find positive relationships between maternal warmth and emotional support and adolescents' direct self-concept and a negative relationship between maternal negativity and direct self-concept. These relationships are expected to be moderated by age, such that the relationships are weaker in older than in younger adolescents. Regarding our second aim, we expected a positive relationship between reflected and direct self-concept. For this relationship, moderation by age was expected as well, to indicate a stronger relationship for the older than for the younger adolescents.

Methods

Participants

This study is part of the Leiden Self-Concept study, which has a longitudinal design. For the current study only measures of the first time-point are used. Participants were 160 adolescents, out of which 67 participants were excluded from the current research due to mothers not being able to attend the interaction task. This resulted in a test population of 93 healthy participants (52 females), aged between 11 and 21 years (M = 15.3 years, SD = 2.9). To control for intelligence, the participants completed two subtests, similarities and block-design, of the WISC-III or WAIS-III. The IQ-scores that were found fell between 80.0 and 137.5 (M = 110.30, SD = 11.06) and did not correlate with age (r(148) = 0.007, p = 0.934). The study was approved by the University Medical Ethical Committee. An informed consent was signed by all participants and both parents of minors.

Measures

Self-concept

Direct and reflected self-concept were measured with a fMRI-task of which only the behavioural data was used in this study. Participants were asked to evaluate their traits from their own perspective (direct self-condition) and from the perceived perspective of their peers (reflected self-condition). In both tasks the participants saw the same 60 trait sentences, that could be divided into three different domains: the academic domain (e.g. 'I am smart' / 'My peers think about me that I am

smart'), the physical domain (e.g. 'I am attractive' / 'My peers think about me that I am attractive') and the social domain (e.g. 'I help others' / 'My peers think about me that I help others'). In each domain 10 positive and 10 negative trait sentences were presented. Participants indicated on a scale from 1 (not at all) to 4 (completely) to what extent the trait fit them.

The two different conditions were completed in separate runs of approximately 6 minutes, which were performed consecutively and in counter-balanced order. In each condition the trials were shown in pseudorandomized order. Each trial started with a 400 ms fixation cross, followed by a trait sentence shown for 4600 ms. A response from the participants resulted in the answer they chose turning yellow for the remaining time of that trial. If the participant did not respond in time, the phrase 'too late' was presented for 1000 ms and the trial was excluded from further analyses.

Parent-child interactions

To measure the warmth, negativity and emotional support a mother expresses towards her child, a mother-adolescent conflict interaction task, based on the family interaction task (Allen et al., 2003) was used. First, a list of topics was shown to the mother and the adolescent, on which they both selected the subjects they had most conflicts about at home. Then, two topics, both high-rated on conflict by mother and child, were selected by the researcher. The mother and adolescent were then asked to discuss the topics for ten minutes and to try to reach a consensus, starting with the first topic and only continuing with the second if there was time left. The participants were aware that they were videotaped during their conversation.

The videos were coded according to the Supportive Behavior Task Coding Manual Version 1.1 (Buisman et al., 2019) on maternal behaviours of warmth, negativity and emotional support. The behaviours were scored on a scale from 1 (no sign of the behaviour) to 9 (a lot of signs of the behaviour). Warmth is defined as the extent to which the participants show that they care about, value and like each other, for example by showing empathy in verbal or facial expressions or body postures that indicate the intention to strengthen the relationship. Negativity is rated based on expressions of tension, hostility, dissension or antagonism towards the other, for example by interrupting the other or eye rolling. Emotional support is defined by the extent to which a person shows that he understands or supports the feelings of the other, for example by naming the emotion or sympathizing the feelings of the other (Buisman et al., 2019). Two researchers followed a training to code the interaction videos. After the training the inter-rater reliability was calculated over 27 videos coded by both the researchers. This reliability was adequate to good on all three constructs (warmth: $\alpha = 0.78$; negativity: $\alpha = 0.82$; emotional support: $\alpha = 0.86$). The remaining interaction videos were coded by one of the researchers and discussed during regular meetings.

Procedure

Participants were recruited via the database of www.juniorhersenen.nl. When the adolescents agreed to participate, they were asked to complete a demographic questionnaire via Qualtrics at home. For the self-concept MRI task and the mother-adolescent conflict interaction task, the participants and their mothers were invited to the Leiden University Medical Centre (LUMC). The tasks were performed in a random order.

Statistical analyses

To test the hypotheses that were formulated, data was analysed using SPSS (version 25). Three linear regression analyses were performed to test whether there were significant relationships between the independent variables: (1) the warmth from the mother towards the child; (2) negativity from the mother towards the child; (3) emotional support from the mother towards the child, and the dependent variable: the direct self-concept of the adolescent. For analyses (1) and (3) a positive relationship was expected and for analysis (2) a negative relationship was expected to be found. Next, moderation analyses were used to test whether age moderated these three relationships. To do this, centred variables were used to calculate interactions between age and maternal warmth, negativity and emotional support. Then, a hierarchical regression analysis was performed for each hypothesis. In these analyses direct self-concept was the dependent variable. The independent variables in step 1 were the centred communication variable (warmth, negativity or emotional support) and age. In step 2, the interaction variable was added to the model. Both regression analyses were compared by calculating the R squared change to determine whether the interaction effect significantly improved the models. If this was the case, post-hoc tests were performed, by looking into the relationship between direct self-concept and the communication variable (warmth, negativity, emotional support) for a group of early (11 to 13 years), middle (14 to 16 years) and late (17 years and older) adolescents (Harter, 2012). If the relationships were stronger for the early adolescents than for the middle and late adolescents, the hypotheses were confirmed.

To test our second aim, a linear regression analysis was performed to test whether there was a positive relationship between direct self-concept (dependent variable) and reflected self-concept (independent variable). Moderation analysis was used to test if age moderated this relationship. To do this, centred variables were used to calculate the interaction between age and reflected self-concept. Hierarchical regression analysis was performed, with direct self-concept as the dependent variable. The independent variables in step 1 were centred reflected self-concept and age. In step 2 the interaction variable was added to the model. Both regression analyses were compared by calculating the R squared change to determine whether age is a significant moderator in the relationship between direct and reflected self-concept. If this was the case, post-hoc tests were performed, by looking into

the relationship between direct and reflected self-concept for a group of early, middle and late adolescents (Harter, 2012). The hypothesis was confirmed if the relationship was stronger for the late adolescents than for the middle and early adolescents. Before the analyses were performed, the data was checked on outliers and on assumptions of normality, linearity, homoscedasticity, multicollinearity and independence of observations.

Results

Assumptions

The data was checked for outliers and violations of assumptions. The assumption of normality was checked by performing a Kolmogorov-Smirnov test and by investigating the skewness and kurtosis of the variables. Based on the K-S test, normality was violated for the variables of maternal warmth ($F(93)$=0,166; $p < .001$), maternal negativity ($F(93)$=.229; $p < .001$) and maternal emotional support ($F(93)$=.177; $p < .001$). However, the K-S test is very sensitive to non-normality in large sample sizes (Pallant, 2016), like in the current study, and additionally, large sample sizes are robust against minor violations of assumptions. Therefore, further investigation of the skewness and kurtosis of these variables was necessary, using the rule of thumb that the values of both measures should not be above 1 or below -1 (Bulmer, 1979). The variable of maternal negativity had values that did not meet this criterium (skewness = 1.170, *SD* = .250; kurtosis = 1.576, *SD* = .495). A log transformation was used, after which the values for skewness and kurtosis were within the range of -1 to 1 (skewness = -.105, *SD* = .250; kurtosis = -.514, *SD* = .495). There were no violations of linearity, multicollinearity and homoscedasticity. Evaluating the mean and 5% trimmed mean for every variable, the outliers appeared not to be problematic.

Descriptives

The self-concept task resulted in six scores for direct self-concept per participant (N = 93): positive direct self-concept on the academic, physical and prosocial domain, and negative direct self-concept on the academic, physical and prosocial domain. To construct the variable for total direct self-concept (M = 3.08; SD = .31), the negative scores were reversed and the mean of the reversed negative scores and the positive scores was calculated. For reflected self-concept (M = 3.02; SD = .33), the same procedure was used. For the parent-adolescent conflict interaction task, the variables that were used were maternal warmth (M = 5.45; SD = 1.27), maternal emotional support (M = 3.04; SD = 1.74) and maternal negativity after log transformation (M = .36; SD = .22).

Maternal communication and direct self-concept

The first aim of this study was to test whether there was a relationship between maternal warmth, negativity and emotional support and direct self-concept. Three linear regression analyses were performed with the maternal communication factors as the independent variable and direct self-

concept as the dependent variable. In contrast to our hypotheses, results showed non-significant relationships between direct self-concept and maternal warmth (F(1,91)= 2.90; p = .092), maternal negativity (F(1,91) = .28; p = .596) and maternal emotional support (F(1,91) = 2.25; p = .137). To test whether age has a moderating role in these relationships, we added age to the three models in step one of a hierarchical regression. In the second step, an interaction variable with the mean-centred scores of age and each of the communication variables was also added.

For maternal warmth, the model appeared to be non-significant in the first step (F(2,90) = 1.45; p = .241) as well as in the second step of the analysis (F(3,89) = 2.08; p = .109). The amount of variance that was explained by the model was 3.1% before the interaction variable was added and 6.5% after the interaction variable was added (R^2_{change} = .034; p_{change} = .074). Since the R squared change value is marginally significant, post-hoc tests were performed to further investigate the relationship. To do this, the numerical variable age was recoded into a categorical variable age with three categories based on the division of Harter (2012): 'early' (N = 33): age below 13.99 years; 'middle' (N = 35): age ranging between 14 and 16.99 years; 'late' (N = 25): age above 17 years. When the regression analyses were performed for the early, middle and late adolescents as separate groups, the relationship between maternal warmth and direct self-concept remained insignificant for early adolescents (F(1,31) = .92; p = .344) as well as for late adolescents (F(1,23) = .64; p = .431). For the mid-adolescents the relationship was significant (F(1,33)= 6.61; p = .015). The relationships for the three separate groups are visualized in Figure 1. This pattern in which the relationship between warmth and direct self-concept is stronger in mid-adolescence than in early and late adolescents was not what was hypothesized. When interpreting these results should be kept in mind that the model, as well as the interaction variable was not significant (p = .074), and therefore strong conclusions cannot be drawn based on this data.

For maternal negativity, the model was not significant before adding the interaction variable (F(2,90) = .150; p = .861) as well as after adding the interaction variable (F(3,89) = .101; p = .959). The percentage of explained variance was 0.3% in step 1. The interaction variable did not account for further variance (R^2_{change} = .000; p_{change} = .933). For maternal emotional support, the model was neither significant in the first step (F(2,90) = 1.20; p = .307) nor in the second step (F(3,89) = 1.15; p = .334). The amount of variance accounted for went from 2.6% to 3.7% (R^2_{change} = .011; p_{change} = .309). Since the hierarchical regression analyses for maternal negativity and emotional support show non-significant results, our hypotheses that age is a moderator in the relationship between direct self-concept and these maternal communication factors, were not confirmed by this data.

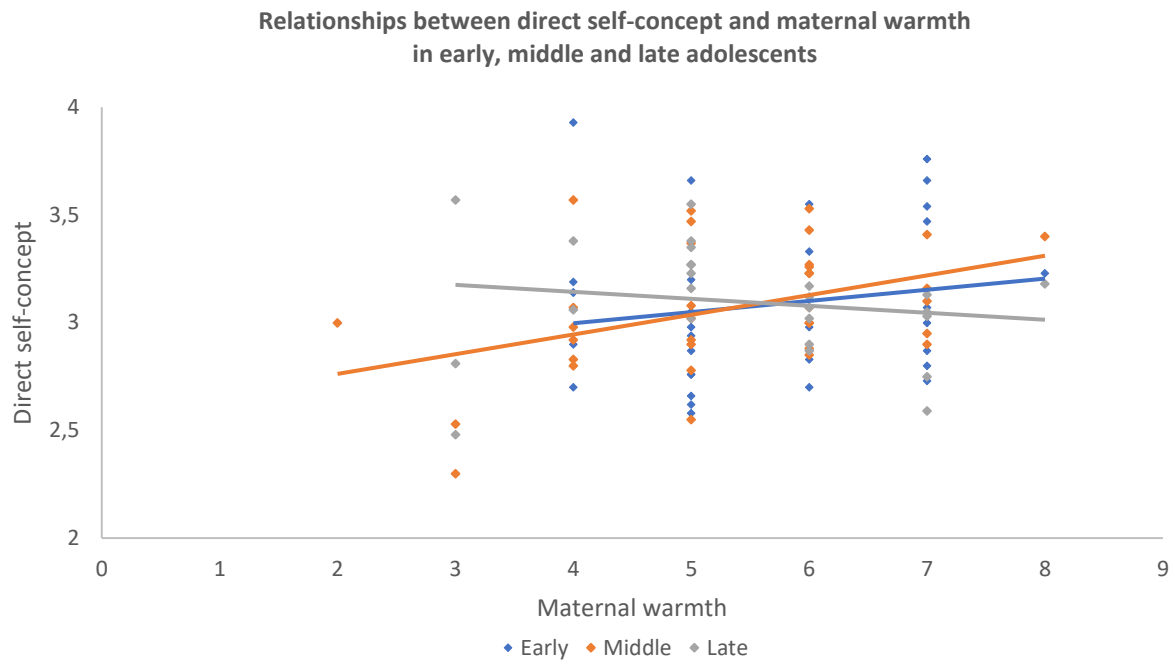

Figure 1. The graph shows an upward trend for early adolescents, although not significant, and middle adolescents, suggesting that more maternal warmth is associated with a more positive self-concept. For late adolescents the graph shows a horizontal line, with an insignificant downward trend, which indicates that maternal warmth is not related to the positivity of the direct self-concept in this group.

Reflected self-concept and direct self-concept

Our second aim was to investigate whether direct and reflected self-concept were positively related. A linear regression analysis was performed with reflected self-concept as the independent variable and direct self-concept as the dependent variable. The results showed a significant relationship between the variables ($F(1,91) = 327,08$; $p < .001$), as shown in Figure 2. Additionally, our hypothesis stated that this relationship would be moderated by age. To perform a moderation analysis, an interaction was calculated with the centred scores of age and reflected self-concept. Next, a hierarchical regression was performed to test whether the interaction variable was a significant predictor. In the first step, centred reflected self-concept and age were added as the independent variables and direct self-concept as the dependent variable. The model was shown to be significant ($F(2,90) = 167,05$; $p < .001$) explaining 78.8% of the variance. When, in the second step, the interaction variable was added as an independent variable, the model was still significant ($F(3,89) = 112,63$; $p < .001$). Comparing the two models, the interaction only predicted 0.4% additional variance and was therefore insignificant ($R^2_{change} = .004$; $p_{change} = .211$), indicating that the relationship between direct and reflected self-concept is not moderated by age.

Figure 2. The graph shows a positive relationship between reflected self-concept and direct self-concept, suggesting that the positivity of the direct self-concept of adolescents is associated with the positivity of the perceived opinions of peers. This relationship is not moderated by age, indicating that the relationship remains equally strong through adolescence.

Discussion

In this study, we investigated whether direct self-concept, maternal communication and reflected self-concept were related. No significant relationships between maternal warmth, negativity and emotional support and direct self-concept were found. An interaction between age and maternal warmth did explain a marginally significant amount of additional variance, suggesting that there could be an effect of age in the relationship between warmth and direct self-concept. After investigating this relationship further, warmth turned out to be significantly related to direct self-concept in mid-adolescents, but not in early or late adolescents. Between maternal negativity and emotional support and direct self-concept, no moderating effect of age has been found. This suggests that direct self-concept is not related to negativity and emotional support in early, middle and late adolescents. A positive relationship was found between direct and reflected self-concept. In this relationship, age was not a significant moderator indicating that the relationship between direct and reflected self-concept is equally strong for early, middle and late adolescents. The implications and limitations of these findings are further discussed below.

Maternal communication and direct self-concept

In contrast to our expectation, no relationships were found between maternal warmth, negativity and emotional support and direct self-concept in adolescents. This contradicts earlier studies that showed that the relationship between parent and adolescent, especially secure attachment and perceived psychological autonomy, positively influenced the self-concept of the child

(Fermani et al., 2016; Krstić, 2016; Putnick et al., 2008; Van Dijk et al., 2014). That the findings do not meet our expectations could be explained by the measured constructs in the study. With the interaction task that was used, we observed the communication between parent and adolescent. The benefit of this is that each conversation was scored in the same way, and is therefore more objective than self-report which is used in previously mentioned studies with attachment. However, a disadvantage of the measured variables is that the way of communicating might dependent on the situation and can change over time, suggesting that it is not as constant as attachment or psychological control. This could mean that constructs like attachment, that are broader and more constant, are more important for the positivity of self-concept. Alternatively, maternal communication is important, but due to its changing nature, it may take a longer period of time to impact self-concept, especially because communication changes with age (Collins & Russel, 1991). Longitudinal research could therefore provide insight in how self-concept might be influenced by maternal communication of a few years prior.

In the three above described relationships no moderating effects of age were found, which was in contrast with our expectations. However, in the relationship between warmth and direct self-concept the moderation was marginally significant and this effect was further investigated, by looking into the relationship between warmth and direct self-concept for early, middle and late adolescents as separated groups. It appeared that mid-adolescents whose mothers showed more warmth in communication had a more positive self-concept, but this relationship was not found in early and late adolescents. This suggests that maternal warmth may play a more important role in the positivity of the direct self-concept during mid-adolescence than in early and late adolescence. This is interesting considering our expectation that the effect of maternal warmth would decrease and therefore be strongest in early adolescence and weakest in late adolescence. Our expectation was based on the study of Krstić (2016) which showed a stronger relationship between attachment and direct self-concept in early than in mid-adolescents. This seems oppositional with the results of the current study. However, like mentioned earlier, attachment is a more constant construct than maternal warmth in communication, and while the constructs are positively related (Liu & Wang, 2021), the effect of warmth is likely to be different from the effect of attachment due to changes in maternal communication over time and situations. The finding that maternal warmth seems especially important for the positivity of self-concept in mid-adolescence could be explained by a greater focus on the self that occurs during this period (Harter, 2012). This may lead adolescents to take the amount of warmth in maternal communication very personal, which might increase the effect of warmth on self-concept. While the result was not what was expected, it is interesting that during this period in which adolescents are rebelling against their parents (Gardner & Steinberg, 2005; Albert et al., 2013) and in which parents show more negativity towards their child (Van der Cruijsen et al., 2019a) it is

especially important that parents show warmth in their communication. This could give directions for working with this group of mid-adolescents in clinical practice, by helping parents to show more warmth in the communication with their child.

Any conclusions based on the above mentioned results should however be drawn very carefully, because age as a moderator was only marginally significant. Considering the pattern that was found in which the relationship between warmth and direct self-concept strengthens between early and mid-adolescence, and weakens between mid- and late adolescence, the linear way of analysing the moderation might not have been fitting for this data. Future research could investigate whether moderation of age is present in a smaller age-range by including only early and middle adolescents or only middle and late adolescents.

For maternal negativity and emotional support, no moderating effects of age were found in the relationship with direct self-concept. This indicates that these communication variables are not related to the positivity of self-concept in any of the stages during adolescence, which suggests that negativity and emotional support in maternal communication might be less important than maternal warmth for the development of a positive self-concept. More research is needed to determine which parental factors could be influencing the self-concept during adolescence.

Reflected self-concept and direct self-concept

The results showed that reflected self-concept and direct self-concept are positively related, which suggests that adolescents internalize the presumed opinions of peers into the way they perceive themselves. This is in line with our expectations and the findings of previously discussed studies that state that the opinions of others are of big importance during adolescence (Blakemore, 2012; Westenberg et al, 2004) and that these opinions are internalized into the self-concept (Harter, 2012; Dudovitz et al., 2017; Furman & Buhrmester, 1992). However, the finding that direct and reflected self-concept are positively related can also be interpreted differently. Since we did a cross-sectional study, it is unknown whether reflected self-concept influences direct self-concept, like described above, or whether direct self-concept influences reflected self-concept. This could indicate that the way one thinks of himself is projected on what he thinks others think of him, which might be a biased perception (Portillo & Fernández-Baena, 2019; Stephens et al., 2015). Future research on which of the variables effects the other in this relationship might give insight in deciding whether one should intervene in the way peers perceive the adolescent or in the biased perception of others' opinions in order to improve the self-concept.

In contrast to our expectations, moderation by age in the relationship between reflected and direct self-concept was not found, as such that the relationship was equally strong for the early, middle and late adolescents. Based on literature that stated that the opinions of others become more

important during adolescence (Blakemore, 2012) we expected that the relationship would be stronger for older adolescents than for younger adolescents. That the results do not confirm the hypothesis, suggests that the process of internalizing the perceived opinions of others into the direct self-concept may already be completed in early adolescence, which is in contrast with the literature (Harter, 2012). In a previously published article of the Leiden Self-Concept Study (Van der Cruijsen et al., 2019b) the results showed that the difference between direct and reflected self-concept decreases with age, suggesting that the opinions of others do become more internalized throughout adolescence. All in all, peers seem to be important for the development of a positive self-concept. Based on the results of the current study the importance seems not to increase once adolescents get older. Considering that other studies indicate otherwise (Van der Cruijsen et al, 2019b; Harter, 2012), future research is necessary to provide more clarity whether opinions of peers become more important with age for the positivity of direct self-concept.

Conclusion

This study investigated the influences of parents and peers on the direct self-concept. No evidence was found for relationships between maternal communication and adolescents' self-concept. A small moderating effect of age suggested, however, that maternal warmth was important for the positivity of self-concept during mid-adolescence, which indicates the importance of mothers' communication during this period. Furthermore, the perceived opinions of peers appeared to be important for self-concept positivity during adolescence, but no effects of age were found in this relationship. This shows that the opinions of peers are important throughout the entire adolescence and this does not increase with age. Further research is necessary to gain more insight in the exact mechanisms in the parent and peer relationships that help adolescents develop a positive and coherent perception of their selves.

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