

# ■ Relationship between mothers' thoughts and behaviors and their daughters' development of the body image

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## Abstract

Behaviors related to body image are influenced by learning and sociocultural environment; the parents can contribute to their children's food problems through social values that they are supporting. Furthermore, it is known that during the development of the body image of girls it is fundamental the identification with the parent of the same sex. However, the extent of maternal influence is unknown, so our aim is to analyze the relationship between thoughts and behaviors of mothers and the development of their daughters' body image, specifically on the variables: perceived image and ideal image, satisfaction and concern about body image, and social network behaviors. The study involved 53 pairs of mothers and daughters, the latter being girls with a normal body mass index and aged between 9 and 13 years. The results show that there is a relationship between the behavior and thoughts of mothers and the development of body image of girls on a cognitive and behavioral level. We conclude that mothers play an important role in the development of body image as though all girls are within normal weight, differences were found in body image of girls in terms of the variables evaluated in mothers.

*Keywords: body image; intrusive thoughts; adolescence; maternal modeling; diet.*

## Resumen

*Relación entre los pensamientos y conductas de las madres y el desarrollo de la imagen corporal de sus hijas.* Los comportamientos relacionados con la imagen corporal están influenciados por el aprendizaje y el entorno sociocultural; los padres pueden contribuir a los problemas alimentarios de sus hijos apoyando dichos valores sociales. Sabemos que en el desarrollo de la imagen corporal de las niñas es fundamental la identificación con el progenitor del mismo sexo. Sin embargo, se desconoce el alcance de la influencia materna, por lo que nuestro objetivo ha sido analizar la relación entre los pensamientos y los comportamientos de las madres y el desarrollo de la imagen corporal de sus hijas, específicamente sobre las variables: imagen percibida e imagen ideal, satisfacción y preocupación por el cuerpo y comportamientos de la red social. En el estudio participaron 53 parejas de madres e hijas, siendo estas últimas niñas con un índice de masa corporal normal y con edades comprendidas entre los 9 y los 13 años. Los resultados muestran que existe una relación entre el comportamiento y los pensamientos de las madres y el desarrollo de la imagen corporal de las niñas tanto a nivel cognitivo como comportamental. Concluimos que las madres desempeñan un papel importante en el desarrollo de la imagen corporal de sus hijas, ya que aunque todas las niñas tuvieron un peso normal, se encontraron diferencias en su imagen corporal en función de las variables evaluadas en las madres.

*Palabras clave: imagen corporal; pensamientos intrusivos, adolescencia; modelado materno; dieta.*

Body image is a multidimensional and dynamic construct that is built over time. Raich (2011) defines body image as the way people perceive, imagine, feel and act about their own body including three interrelated aspects: perception, cognition and behavior. The perceptual component refers to the mental representation of the body, the cognitive one refers to thoughts and valuations that people make on their own body and the behavior one refers to the behaviors that are produced according to the first ones.

Preoccupation about body image begins in childhood (Gowers & Shore, 2001; Benedito, Perpiñá, Botella, & Baños, 2003; Perez, Kroon Van Diest, Smith, & Sladek, 2018). A negative body image in early adolescence is related to depression and eating disorder, and has its roots in childhood body image (Cash & Pruzinsky, 2002; Sharpe et al., 2018). In addition, Haynos, Watts, Loth, Pearson and Neumark-Stainer (2016) support the relevance of body dissatisfaction

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tion on eating disorders' symptoms reported by Davison, Markey, & Birch (2003). In this study, they found that girls who had corporal dissatisfaction and weight preoccupation between 5 and 7 years had greater food restriction, disturbed eating attitudes and a major tendency to make diets independently from weight, when aging 9. Stice and Van Ryzin (2018) support Benedito et al. (2003) who noted that the younger subjects are, the greater is the vulnerability and tendency to develop body image disturbances. Currently, the medias and other social agents magnify the importance of thinness and it is associated with physical attractiveness and social success.

During puberty physical changes may cause concern about appearance. During adolescence people tend to overestimate body size, feeling dissatisfaction with their body (Ballester & Guirado, 2003; Ekström, Kull, Nilsson, & Bergström, 2015; Nickelson, Bryant, McDermott, Buhi, & Debate, 2012). It is a period of vulnerability because teens are very malleable and receptive to external influences (Lancaster, 2019; Warschburger & Jahnke, 2008). One of the major sources of influence comes from the family because that is where the importance of physical appearance, eating habits are modeled, etc. is explicitly or implicitly taught (Balantekin, Birch, & Savage, 2017; Rodgers & Chabrol, 2009). Betancourt, Rodriguez, and Gempeler (2007) found that children make diets in response to their parents' weight loss and from an early age, they acquire food preferences from their parents and also their attitudes towards food.

Among family agents highlights the *parent of the same sex* (mothers in the case of girls). The transmission of the scale of values is performed primarily by the process of identifying where maternal values are internalized (Fachinni, 2006; Handford, Rapee, & Fardouly, 2018). Betancourt et al. (2007), referring to the theory of Bowlby, indicate that mothers wield a mirror function and that girls gradually modify their behavior to fit their mother's one. In addition, mothers through their attitudes, exercise as role models for their daughters and can influence these attitudes towards their body. Two studies on the transmission of the importance of weight, Perez et al. (2018) and Field et al. (2004), found that mothers who are very critical about their own bodies often have the same attitude to their daughters' ones, who in turn, tend to have a poor and devalued body image, and desire to be thinner. There is a relationship between poor sentiment toward body image and mothers' explicit comments on the weight of their daughters (Woodside et al., 2002) but mothers who are able to resist social pressures to be thin provide a positive reference for their daughters (Holland, Karin & Archer, 2018; Kichler & Crowther, 2001).

As preoccupation about body image starts in childhood, and because of its impact on development, our goal in this study was to analyze the role played by mothers in preteens girls' body image development, focusing on the relationship between explicit and implicit evaluations of mothers about their daughters' body image and their body image development. We hypothesize that the intrusive thoughts about the body image of mothers and daughters, and the degree of satisfaction with their body, will be similar in mothers and daughters regardless of the BMI they have. In addition, girls who perceive themselves as fat will start unnecessary diets despite having a normal BMI.

## Method

### Participants

The sample is composed by 53 pairs of girls with their mothers. The girls' ages were between 9 and 13 years old; most of them (90.6%) were between 9 and 11 years old and 9.4% of them were between 12

and 13 years old. The average age was 10.24 ( $SD = 1.06$ ). For this study we selected girls with normal BMI. The average age of mothers is 41.5 years ( $SD = 4.87$ ). The 81.4% of them are married being the 18.6% divorced, single or widowed. Regarding the BMI, 70% of mothers have a normal BMI, 24.3% have a BMI of overweight, 2.9% of underweight and other 2.9% are obese. In the calculation of BMI we followed the criteria established by the World Health Organization (WHO).

## Instruments

### Girls

A battery was made *ad hoc* to assess satisfaction and other variables related to body image for teenagers (self-report) that include 27 multiple-choice items. This battery includes:

*The Body Satisfaction Scale* was used to measure body satisfaction. The scale consists of 6 items that are all rated on a 6-point Likert-scale, with response options ranging from "always" to "never". Higher scores on the scale indicate a greater satisfaction with one's body. In the present study, the internal consistency was found to be acceptable (Cronbach's alpha 0.85).

*The Body Unhealthy Thoughts Scale* was used to measure intrusive thoughts about their body that worry teenagers like "I hate being so fat". The scale consists of 6 items that are all rated on a 6-point Likert-scale, with response options ranging from "always" to "never". Higher scores on the scale indicate a big disturbance caused by one's body dissatisfaction. In the present study, the internal consistency was found to be good (Cronbach's alpha 0.90).

*The Body Unhealthy Behaviors Scale* was used to measure behaviors that teenagers make to reduce their weight like reduce their intake. The scale consists of 5 items that are all rated on a 6-point Likert-scale, with response options ranging from "always" to "never". Higher scores on the scale indicate an unhealthy behavioral pattern. In the present study, the internal consistency was found to be acceptable (Cronbach's alpha 0.69).

*The Mother's Influence Perceived Scale* was used to measure the teenagers' perception about the interest of their mothers to reduce their weight through comments and behaviors like diets. The scale consists of 5 items that are all rated on a 6-point Likert-scale, with response options ranging from "always" to "never" like "my mother said to me I must reduce my weight". Higher scores on the scale indicate a great perceived mothers' influence. In the present study, the internal consistency was found to be good (Cronbach's alpha 0.72).

*The Friends' Influence Perceived Scale* was used to measure the teenagers' perception about the importance of being a good body between their friends. The scale consists of 5 items that are all rated on a 6-point Likert-scale, with response options ranging from "always" to "never" like "For my Friends is very important to be thin". Higher scores on the scale indicate a great perceived friends' influence. In the present study, the internal consistency was found to be good (Cronbach's alpha 0.69).

### Mothers

A battery for mothers was made *ad hoc* to assess satisfaction and other variables related to body image about themselves and their daughters that include 21 multiple-choice items. This battery includes:

*The Mothers' Satisfaction with their Daughter's Body Scale* was used to measure the satisfaction that mothers have with their daughters' body. The scale consists of 5 items that are all rated on a 6-point Likert-scale, with response options ranging from "always" to "never". Higher scores on the scale indicate a great satisfaction with their daughters' body image. In the present study, the internal consistency

was found to be good (Cronbach's alpha 0.85).

*The Mothers' Unhealthy Thoughts about their Daughter's Body Scale* was used to measure intrusive thoughts about their daughters' body that worry the mothers like "I'd like my daughter to be thinner". The scale consists of 6 items that are all rated on a 6-point Likert-scale, with response options ranging from "always" to "never". Higher scores on the scale indicate a big disturbance caused by daughters' body dissatisfaction. In the present study, the internal consistency was found to be good (Cronbach's alpha 0.77).

*The Mothers' Unhealthy Behaviors over their Daughters Scale* was used to measure the behaviors that mothers make in order to reduce their daughters' weight like diets and the comments that make about their daughters' body image. The scale consists of 5 items that are all rated on a 5-point Likert-scale, with response options ranging from "always" to "never" like "I sometimes say she should reduce her weight". Higher scores on the scale indicate a great perceived mothers' influence. In the present study, the internal consistency was found to be good (Cronbach's alpha 0.90).

*The Mothers' Unhealthy Behaviors over Themselves* was used to measure the modeling effect that the mothers' behaviors about themselves has over their daughters. The scale consists of 5 items that are all rated on a 6-point Likert-scale, with response options ranging from "always" to "never". Higher scores on the scale indicate an unhealthy behavioral pattern. In the present study, the internal consistency was found to be acceptable (Cronbach's alpha 0.60).

## Procedure

First, we established contacts with various educational centers to request their collaboration in the study. Once the objectives of the study were explained, two centers in the city of Valencia agreed to participate after submitting the compliance with the required standards to the ethics committee of the center and called a meeting of parents to inform them of the study. In that meeting they were informed of the confidentiality of the information they offered both of themselves and of their daughters, and they were asked for signed consent so their daughters could also participate in the study. Mothers interested in participating were summoned to another meeting in which the necessary measures were taken to obtain their BMI and they filled the battery for mothers. Girls were assessed in a classroom outside school hours.

Evaluation sessions of the mothers lasted approximately 20 minutes and girls' ones 25 minutes. For the two groups, an area of the classroom was prepared to measure the height and weight while they answered the questionnaire. The data were collected in a way that could link the questionnaire for each girl with her mother.

The collected data were analyzed using SPSS version 22.0. BMI was calculated according to the parameters of the WHO.

## Results

Although all the girls have a normal BMI, only 56.60% of them perceived that their weight was normal. Girls whose mothers perceive themselves in overweight, more often manifested some intrusive thoughts like "I care what people think of my figure" (70%) compared to girls whose mothers perceive themselves as normal (12.13%) or thin (17.87%) ( $Chi^2 = 23.09$ ;  $p = .003$ ). These girls also think their mothers are more concerned about daughters' body image (22.30%) than girls whose mothers perceive themselves in normal weight (6.07%) or than girls with mothers who perceive as thin (0%) ( $Chi^2 = 13.04$ ;  $p = .04$ ).

Another aspect analyzed was if there is a correlation between

the frequency of the intrusive thoughts "I care what people think of my figure" in the daughter and the perception that she has about the thoughts of her mother ("My mother is worried about my body figure"). Data show that there is a positive linear correlation between these two variables ( $r = 0.05$ ;  $p = .001$ ).

Analyzing the relation between mothers' satisfaction with their own bodies and the development of healthy body image for girls it has been found that girls whose mothers are dissatisfied with their body image have a greater extent (63.63%) intrusive thought "I care what people think of my figure" than girls whose mothers are satisfied with their image (14.63%) ( $Chi^2 = 12.82$ ;  $p = .01$ ). Daughters of mothers dissatisfied with their body image manifest talk more with their friends on topics such as weight loss (45.45%) than girls whose mothers are satisfied (10.91%) ( $Chi^2 = 10.41$ ;  $p = .03$ ). Apparently, when the mother is concerned about her image a climate of concern is generated in the family context and girls can perceive as self-referential even if it could not be real.

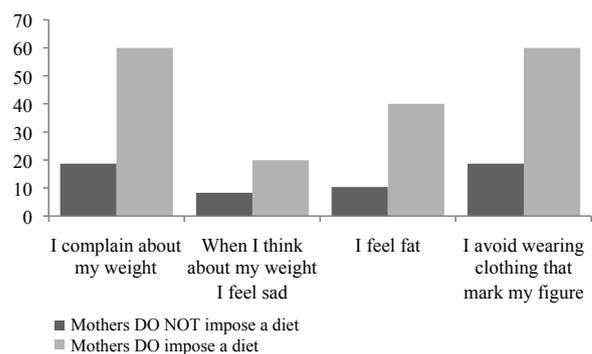
Another result founded was the relation between mothers' intrusive thoughts about their own body image and the development of a healthy body image in girls. 20% of girls who have mothers who have intrusive thoughts, often think "I feel fat", compared to 12.50% of girls with mothers who do not have intrusive thoughts ( $Chi^2 = 10.75$ ;  $p = .03$ ).

Mothers who perceive their daughters as thin have daughters who perceive themselves as thin (85.70%) and mothers who perceive their daughters with normal weight have daughters who perceive their weight as normal (73.60%) ( $Chi^2 = 20.77$ ;  $p < .001$ ).

There are also differences in what the girls believe their mothers think of their weight ("I think my mother thinks I am...") ( $Chi^2 = 8.21$ ;  $p = .04$ ). In 71.40% of cases girls who think their mothers perceive them as thin coincide with the assessment made by the mothers. And the 65.70% of girls who believe their mothers perceived them as in normal weight coincide with their mothers. This may mean that this kind of valuations are relatively explicit as it matches what girls think, what mothers think and what girls think their mothers think of them.

Thus, 36.80% of normal weight girls manifest having tried to lose weight, which does not occur in any of the cases of girls whose mothers perceive their daughters as thin ( $Chi^2 = 7.05$ ;  $p = .008$ ). Finally, some of the girls who are perceived as in normal weight (26.30%) did report having made diets ( $Chi^2 = 4.56$ ;  $p = .03$ ). This means that more than a quarter of normal weight girls have already made some kind of diet. Moreover, girls whose mothers did not put them on a diet perceive themselves as in normal weight (60.41%) more than girls whose mothers do have such behaviors (20%) ( $Chi^2 = 9.17$ ;  $p = .03$ ) and above all, show a greater degree of satisfaction with the body (93.70% versus 40%) ( $Chi^2 = 13.04$ ;  $p = .001$ ) and weight (75% versus 40%) ( $Chi^2 = 10.28$ ;  $p = .04$ ).

Figure 1. Frequency of intrusive thoughts in girls depending on if mothers impose a diet to them



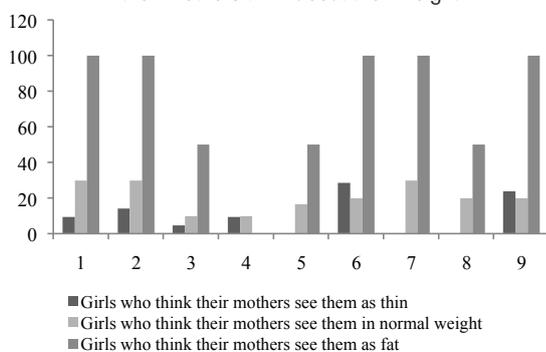
Regarding intrusive thoughts significant differences were found in: “I complain about my weight” ( $Chi^2 = 13.98$ ;  $p = .007$ ), “When I think about my weight I feel sad” ( $Chi^2 = 19.43$ ;  $p = .001$ ), “I feel fat” ( $Chi^2 = 14.60$ ;  $p = .006$ ) and “I avoid wearing clothing that mark my figure” ( $Chi^2 = 12.11$ ;  $p = .01$ ). Girls whose mothers manifest these behaviors have such intrusive thoughts more often than girls whose mothers did not exhibit these behaviors.

As shown in Figure 1 girls whose mothers have put them on a unnecessary diet most often have intrusive thought such as “I complain about my weight” (60% vs. 18.7%), “When I think about my weight I feel sad” (20% versus 8.4%), “I feel fat” (40% vs. 10.4%) and “I avoid wearing clothing that mark my figure” (60% vs. 18.7%). Girls whose mothers put them on a diet talk more about this topic with friends (40%) than girls with mothers who do not (20.8%) ( $Chi^2 = 10.48$ ;  $p = .03$ ).

Moreover, girls who think their mothers consider them as thin, are more satisfied with their weight in 76.1% of cases, 56.6% of girls who think their mothers believe they are normal weight are satisfied and in the case of girls who think their mothers consider them as overweight, are not satisfied in any case ( $Chi^2 = 17.85$ ;  $p = .007$ ).

Furthermore, relevant results concerning the thoughts were found: “I complain about my weight” ( $Chi^2 = 22.43$ ;  $p = .004$ ), “I think there are parts of my body thicker than should” ( $Chi^2 = 22.06$ ;  $p = .005$ ), “I am ashamed my figure” ( $Chi^2 = 15.65$ ;  $p = .04$ ), “When I think about my weight I feel sad” ( $Chi^2 = 18.25$ ;  $p = .01$ ), “I feel guilty after eating” ( $Chi^2 = 15.75$ ;  $p = .046$ ), “I weigh myself several times a week” ( $Chi^2 = 20.99$ ;  $p = .002$ ), “I compare my figure to my friends’ one” ( $Chi^2 = 33.8$ ;  $p = .000$ ), “I feel fat” ( $Chi^2 = 32.76$ ;  $p < .001$ ) and “I worry about what people think of my figure” ( $Chi^2 = 27.32$ ;  $p = 0.001$ ) (Figure 2).

Figure 2. Frequency of intrusive thoughts depending on what girls think their mothers think about their weight



1: “I complain about my weight”; 2: “I think there are parts of my body bigger than they should”; 3: “I feel shamed about my body”; 4: “When I think about my weight, I feel sad”; 5: “I feel guilty after eating”; 6: “I weigh myself often during the week”; 7: “I compare my body figure with my friends’ one”; 8: “I feel fat”; 9: “I care about what people think about my figure”

## Discussion

A clear indicator of the concern that body image raises in girls between 9 and 13 years is that despite all the girls she has made the study had a normal BMI almost half do not perceive themselves to normal weight. Fuchs et al. (2012) and Coelho, Fonseca, Pinto and Mourão-Carvalho (2016) agree with our results and underlie that perceived weight does not fit in with the real one. Moreover, this finding would be in line with the results found by Davison et al. (2003) and Perez et al. (2018) who claimed that even at younger ages (5 to 7 years) girls could present concern with body image.

Our results show that mothers play an important role in the devel-

opment of body image as though all girls are within normal weight, differences were found in body image of girls in terms of the variables evaluated in mothers. We agree with Betancourt et al. (2007) and Balantekin et al. (2017) who indicate that mothers to act as role models for their daughters are influencing girls’ attitudes towards their own body image. One of the results where it is possible to see very well the role of the mother’s model in the case of women who are perceived overweight or who are dissatisfied with their body image, where results indicated that they have daughters who present with most often thought such as “I care what people think of my figure”. Mothers who are satisfied do not seem to be worried about their body image and to that extent, neither the daughters show such concern. Girls who are exposed to a climate of concern about body learn to give importance to this issue and therefore tend to show it frequently in conversations with friends.

The daughters of women who were dissatisfied with their image perceive more concern to them in their mother. It is possible that these women are consciously or unconsciously transmitting not only the opinion they have of themselves, but also the importance they attach to the body image. In this sense, our results are consistent with those found by Betancourt et al. (2007) who found that overweight mothers developed a weight concern reflected in food restriction behaviors in their children. It means that children perceive the weight concern, and learn ways to avoid becoming overweight (Holland et al., 2018).

However, this message may be transmitted by mothers unconsciously as none of them referred dissatisfaction with their daughters’ image or have negative thoughts regarding the image of girls. However, many of their ratings are reflected in self-assessments of their daughters. This shows that there is a discrepancy between what mothers transmitted implicitly through their behaviors and what they are willing to accept or acknowledge openly.

Therefore, mothers can transmit through their attitudes but unconsciously the importance of weight and body image and that the message is assumed in the family environment as natural, making both parents and daughters consider the body image should be a matter for worry. Past studies indicated that there is a family atmosphere conducive to the development of eating disorders (Balantekin et al., 2017; Betancourt et al., 2007). According to these authors, these mothers may be favoring the creation of a family atmosphere in which overstates the importance of body image, explaining that girls perceive besides their mothers concern also perceive their parents. These results agree with those found in this study where girls who perceived more concern in his father had further thought such as “I care what people think of my figure”

Another important result is the high coincidence between the perception that mothers and daughters have about the image of girls. Mothers who perceive their daughters as thin have daughters who perceive themselves as thin, and so are the girls who are perceived as normal and overweight. Also, when the girls were asked how they thought their mothers saw them in a very high percentage upheld the view of mothers, so we can assume that there is an influence on the assessment of the weight of girls. And the degree of agreement between the perceptions is linked to concerns associated with excessive weight. Thus, girls perceived by their mothers as thin think less often “I worry to get fat”; the girls perceived as in normal weight by their mothers manifested trying to lose weight and have performed diet in 40% of cases, whereas this not occur in girls who were perceived as thin. This is worrying as it could be interpreted that mothers who perceive their daughters as thin were transmitting, certainly implicitly, a reassuring message to the girls, while girls with normal

weight remain in a unstable status and therefore have fear of gaining weight and trying to lose weight.

Beyond the unconscious behavior, in this study it was able to see how explicitly, by making comments or even putting girls on diet, many mothers exert more direct influence. These comments cause dissatisfaction and increased presence of negative thoughts, results consistent with those found by Woodside et al. (2002) and Handford et al. (2018) who indicated that mothers' explicit comments made on the image of the daughters generated in these poorer body image. Thus, the mother exercised not only as a model but also as a source of social pressure, since besides being a reference for the girl to be compared (Betancourt et al., 2007; Perez et al., 2018), would be directly influencing their behavior making make diet or exercise to control weight.

A negative body image is the precedent of eating disorders, but does not have to trigger them. In fact, it is more likely that a negative body image poses prolonged time dissatisfaction. Start worrying about aspects of body image between 9 and 13 is frequent during puberty but let this constitute a source of dissatisfaction is dangerous to the psychosocial development of girls. In this context, future studies should consider potential differences of body image development based on menarche age due to its relevance in the evolutionary process. In this study, participant's distribution has made difficult this type of analysis. Moreover, evaluating the existence of mother's eating disorders, as well as including daughters with different types of weight would be relevant to obtain a more comprehensive result.

Therefore, we should study more this field, in particular the role played by the family, as other studies highlighted (Handford et al., 2018; Rodgers & Chabrol, 2009). The belief of the perception of the mother is significantly associated with an intrusion of negative thoughts in girls, since these modulate the behavior; it should be a variable to consider in prevention programs, since a high rate of these thoughts can make more likely to develop a negative or distorted body image. Anyway, this type of relationship seems not to occur in all cases (Linville, Stice, Gau, & O'Neil, 2011).

## Ethical approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and / or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

## Conflict of interest

The authors of this paper state that there is no conflict of interest.

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