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Influencias sociales en un modelo de insatisfacción corporal, preocupación por el peso y malestar corporal en mujeres mexicanas

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Resumen

El objetivo del presente estudio fue analizar el grado explicativo de las variables “influencia de la publicidad”, “mensajes verbales”, “modelos sociales” y “situaciones sociales” frente a la insatisfacción corporal, la preocupación por el peso y el malestar corporal en una muestra seleccionada por conveniencia de 206 mujeres mexicanas con promedio de edad de 22.12 años ($DT = 4.21$). Específicamente, se utilizó un modelamiento de ecuaciones estructurales para identificar los efectos directos e indirectos de las variables independientes sobre las dependientes en tres modelos hipotéticos propuestos, y como resultados se encontró que el conjunto de variables tuvo un valor explicativo de 79 % para el modelo planteado para la insatisfacción corporal, con buenos indicadores de bondad de ajuste ($\chi^2/gl = .877$; $GFI = .982$; $CFI = .978$; $AGFI = .980$; $SRMR = .068$; $RMSEA = .079$); de 62 % para el modelo de preocupación por el peso, con una adecuada bondad de ajuste ($\chi^2/gl = 1.556$; $GFI = .981$; $CFI = .975$; $AGFI = .978$; $SRMR = .068$; $RMSEA = .080$); y de 72 % para el modelo de malestar corporal, con buenos valores de bondad de ajuste ($\chi^2/gl = .173$; $GFI = .976$; $CFI = .969$; $AGFI = .972$; $SRMR = .062$; $RMSEA = .072$). Se concluye que las influencias sociales tienen un impacto significativo en la imagen corporal y que los mensajes verbales presentan un mayor impacto en las variables estudiadas.

Palabras clave: imagen corporal, insatisfacción corporal, preocupación por el peso, malestar corporal, modelo explicativo.

Social influences in a model of body dissatisfaction, weight worry and bodily discomfort in Mexican women

Abstract

The aim of this study was to analyze the explanatory level of the variables *advertising influence*, *verbal messages*, *social models* and *social situations* as regards *body dissatisfaction*, *weight worry*, and *bodily discomfort*. The study was conducted in a convenience sample of 206 Mexican women with an average age of 22.12 years ($SD = 4.21$). Structural equation modeling was used to analyze the direct and indirect effects of the independent variables on the dependent ones in three hypothetical models proposed. In the case of the model proposed for *body dissatisfaction*, it was found that the set of variables had 79% of variance explained and showed adequate goodness-of-fit indices ($\chi^2/gl = .877$; $GFI = .982$; $CFI = .978$; $AGFI = .980$; $SRMR = .068$; $RMSEA = .079$). The model for *weight worry* had 62% of variance explained and an acceptable goodness of fit ($\chi^2/gl = 1.556$; $GFI = .981$; $CFI = .975$; $AGFI = .978$; $SRMR = .068$; $RMSEA = .080$). Finally, the model for *bodily discomfort* had 72% of variance explained and showed adequate goodness of fit ($\chi^2/gl = .173$; $GFI = .976$; $CFI = .969$; $AGFI = .972$; $SRMR = .062$; $RMSEA = .072$). It is concluded that social influences have a significant impact on body image. Verbal messages had the strongest impact on the variables studied.

Key words: Body image, body dissatisfaction, weight worry, bodily discomfort, explanatory model.

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Introduction

The concept of body image has changed constantly throughout history, because its description depends on factors such as time, culture, biological processes and globalization (Grogan, 2008; Gonçalves & Bedin, 2016). As a result of the evolution of the social context, it is currently necessary to have a flawless and extremely thin body, as this amounts to having a "*perfect body*" (Amaya, Álvarez, & Mancilla, 2010).

Women who want to achieve the ideal of beauty, generally modify their cognitive schemes, reinforced by social conception. Over time, these ideas are adopted and become behaviors that put their physical health at risk (Neziroglu, Khemlani-Patel, & Veale, 2008; Rodríguez & Cruz, 2008; Jones & Morgan, 2010; Ramírez et al., 2015), which increases the probability of suffering from an eating disorder (Gerbasi et al., 2014; Jauregui & Bolaños, 2011).

Current social influences determine the importance of achieving a socially acceptable body. Failure to do so can cause concern for weight. If this concern is constant it can cause body discomfort, and if such discomfort is not resolved in time, it is likely that it will lead to body dissatisfaction, which in turn could cause low self-esteem and low perception of social support (Vázquez et al., 2011; Vázquez, Álvarez, & Mancilla, 2000).

Social feedback creates a unilateral perception, since it postulates that a woman with a good body image is perceived as a pleasant, successful, beautiful and self-confident person. For this reason, having the ideal body becomes so important and women decide to make long days of exercise, extreme diets, take laxatives, among other harmful behaviors, despite knowing the negative implications that these practices have on their health (Herraiz-Serrano et al., 2015; Trejo-Ortiz, Mollinedo, Araujo, Valdez-Esparza, & Sánchez, 2016).

The relationship between body image and social influences is evidenced every time the physical appearance evolves because of various factors such as the media, social media, verbal messages and social relationships, among others (Cash, 1990). However, it has not been determined which variables have the greatest impact, how they are correlated or how they influence body image (Balantekin, Birch, & Savage, 2018).

Social influence is more relevant in economically developed environments, where the mass media and the social context play an important role in promoting the dissemination of idealized and extremely thin bodies (Bearman, Presnell, & Martínez, 2006; Frederick, Forbes, Grigorian, & Jarcho 2007; Vaquero-Cristóbal, Alacid, Muyor, & López-Miñarro,

2013; Ferguson, Muñoz, Garza, & Galindo, 2014; Moreno-Murcia, Marcos-Pardo, & Huéscar, 2016).

It is expected that in these social contexts the modeling of behavior and the verbal messages from peers or relatives influence the development of bodily discomfort (Balantekin et al., 2018). The opinion of the immediate social context reinforces the behaviors that were developed to achieve the desired body and in turn encourage comparison among peers, so that women develop a sense of achievement when their body is most praised by their friends and family (Wasylkiw & Williamson, 2013; Francisco, Narciso, & Alarcão, 2013; Saffon & Saldarriaga, 2014; Gerbasi et al., 2014; Cruwys, Leverington, & Sheldon, 2016). It is important to bear in mind that social recognition for having a perfect body is more valuable when the comparison is with a real and not an idealized model, such as those presented in the different media.

Advertising is also transcendental, since it shows increasingly unattainable bodies that can decisively influence the dissatisfaction with body image, in such a way that ideas and behavior that trigger symptoms or lead to a diagnosis of an eating disorder are developed or promoted (Mas-Manchón et al., 2015; Losada, Leonardelli, & Magliola, 2015).

It is known that it is important to analyze the influence of peers, advertising, and the media on body dissatisfaction. That is why previous investigations have found that there is greater influence of social media and peers. However, the results on the influence of advertising are inconclusive (Fardouly, Pinkus, & Vartanian, 2017; Ferguson et al., 2014; Rodgers, Paxton, & McLean, 2014). Other studies focus on explaining how the interaction of *body dissatisfaction* with social factors causes poor body perception, contingent self-esteem and high comparison rates with others (Bailey & Ricciardelli, 2010; Ferguson, Winegard & Winegard, 2011; Salazar-Mora, 2008).

On the other hand, the problem of body dissatisfaction is increasing, so that, in developing countries like Mexico, it is more common to find teenage girls with a tendency to develop excessive concern for body image. Traits that precede the development of an eating disorder are increasingly common in Mexican adolescents (Vaquero-Cristóbal et al., 2013). Particularly, women are being affected by stereotypes of extreme thinness, which can lead to low self-esteem and a greater desire to be slim (Botella, Ribas, & Ruiz, 2009; Vaquero-Cristóbal et al., 2013).

The variables included in structural equations models are: (a) *body dissatisfaction*, which occurs if the ideal body is internalized and when the person compares with it concludes that her body does not correspond to that ideal (Acosta & Gómez, 2003); (b) *weight worry* which refers to

the the individual's weight in relation to food intake and the concern developed by the unsightly aspects of obesity (Vázquez et al., 2011); (c) *body discomfort*, caused by anxiety when facing situations that question the beauty of the body (Vázquez et al., 2000).

In the structural equation models, these three variables will be interacting with other factors such as : (a) *advertising influence*, which refers to the interest aroused by the publicity of slimming products; (b) *verbal messages influence*, which refers to the interest in articles, reports, books and conversations about weight loss; (c) *social models influence*, which is the interest in the silhouette of actresses, advertising models and passers-by; and (d) *social situations influence*, which refers to the subjective social pressure experienced in food intake situations and the social acceptance attributed to thinness (Vázquez et al., 2000).

Figure 1 illustrates the theoretical models proposed for the present investigation.

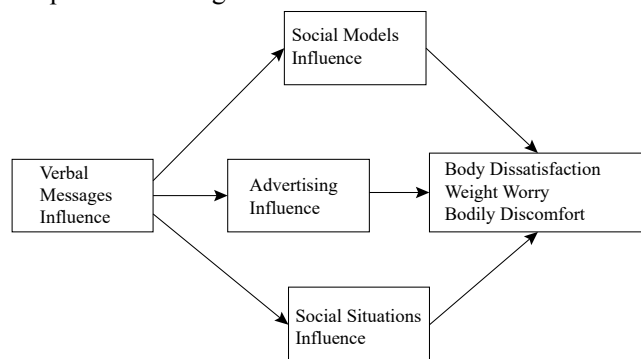


Figure 1. Structural models proposed

Method

Design

The present research used a non-experimental, correlational-explanatory and cross-sectional design, where information was gathered through a survey including two measurement *instruments* (Thompson, Diamond, McWilliam, Snyder & Snyder, 2005).

Participants

An incidental sampling was used. The sample consisted of 206 women with an average age of 22.12 years ($SD = 4.21$), all residents of the city of Monterrey, Mexico. Of the sample, 125 (60.7%) reported being students, 72 (35%) were employed, and nine (4.4%) were housewives. Regarding marital status, 113 (54.9%) reported being single without a

partner, 69 (33.5%) were single with a partner, 23 (11.2%) were married and one (.5%) was divorced. As inclusion criteria it was proposed that the participants were Mexican women between the ages of 14 to 30 years; and as exclusion criteria, not meeting the age range required or be male.

Instruments

Body Shape Questionnaire (BSQ; Cooper, Taylor, Cooper, & Fairbum, 1987). The Spanish version by Raich et al. (1996) and validated in Colombia by Castrillón, Luna, Avendaño and Pérez-Acosta (2007) was used. This questionnaire has 34 items, of which 20 assess body dissatisfaction and 14 are related to weight. The questionnaire is answered by means of a six points Likert-type scale (1 = never to 6 = always). In its original version, the BSQ has an internal consistency of $\alpha = .96$, whereas in the present study, these measurements were $\alpha = .96$ and $\omega = .95$.

Questionnaire on Influences of the Body Aesthetic Model (CIMEC-26, Toro, Salameo, & Martínez, 1994). An abbreviated version of 26 items was used, where eight of them assess bodily discomfort; eight, the influence of advertising; three, the influence of verbal messages; four, the influence of social situations, and three items, the influence of social models. The questionnaire is answered based on a three points Likert-type scale (0 = no, never to 2 = yes, always). The internal consistency of CIMEC-26 original version in patients with anorexia is $\alpha = .93$ and in population with absence of eating disorder is $\alpha = .91$. In the present study an internal consistency of $\alpha = .93$ and $\omega = .91$ was obtained.

Procedure

An open call was made through social networks to participate voluntarily in the study. The contact with the participants was face-to-face and the corresponding informed consent was obtained. Subsequently, they were told to open a league on the internet that gave them access to respond to the questionnaires previously described from a computer equipment provided by the research team. In the case of minor participants (29 in total), the informed consent of the parent or guardian was requested at the time of application of the instruments. All participants were guaranteed absolute confidentiality and were reassured that the results obtained would only be used for academic purposes. In addition, the option of psychological care was given in case any participant requested it. Finally, it is worth mentioning that no monetary or material remuneration was given in

exchange for participation in the present investigation. This study was approved in its technical and ethical aspects by the Doctoral Committee of the Faculty of Psychology of the Universidad Autónoma de Nuevo León [Autonomous University of Nuevo León].

Data Analysis

The IBM SPSS 24 software was used for the descriptive statistical analysis, (Pearson's r) correlations (Pearson's r) and Cronbach's alpha (α) for reliability. The AMOS 24 was used to calculate the multivariate normality coefficient (Mardia) and to perform the structural equations modeling.

In order to establish the omega (ω) reliability value, the mathematical expression found in McDonald (1999) was used. There were no lost cases in the sample. In each test, the typical scores were calculated to determine, by Z score, the existence of atypical cases that had a value of ± 3 and in the same way the Mahalanobis distance procedure (D^2) was performed to search for multivariate atypical cases that exceeded the limit of significance, $p < .001$ (Tabachnick & Fidell, 2013). After reviewing both statistics, the non-existence of outliers in the sample was established.

Likewise, the Mardia coefficient was calculated to confirm the multivariate normal distribution, which proved to be adequate since it was less than 70 for each model ($M_1 = 45.70$, $M_2 = 22.17$, $M_3 = 19.33$; Rodríguez & Ruiz, 2008). On the other hand, with the purpose of confirming the theoretical models proposed, the structural equation modeling technique was used. Statistical analyzes were performed by the maximum likelihood criterion and no items were eliminated from the scales used in the study.

Seven indices were considered to prove the goodness-of-fit of each model: the ratio between the chi-square and the degrees of freedom (χ^2/df), the goodness-of-fit index (GFI), the adjusted goodness-of-fit index ($AGFI$), the comparative fit index (CFI), the mean square error of approximation ($RMSEA$), the residual normalized square root mean ($SRMR$) and the parsimony ratio (PR). For the aforementioned coefficients the expected values were: $\chi^2/df \leq 2$, GFI and $CFI \geq .95$, $AGFI \geq .90$, $RMSEA$ and $SRMR \leq .08$ and $PR > .75$, which are indicators of a good adjustment to data (Byrne, 2016).

The models proposed in Figure 1, have as constant feature the same four independent variables: *advertising influence*, *verbal messages influence*, *social models influence*, and *social situations influence*. The only change from one model to another with respect to the theoretical scheme was the dependent variable, that is, *body dissatisfaction*, *weight worry*, and *bodily discomfort*. The study consisted solely of self-reported measures, no anthropometric data such as weight or height were obtained.

Results

In this section, correlations, measures of central tendency and reliability values of the instruments used are first shown. Subsequently, the goodness of global adjustment of the models proposed is shown. Finally, the direct and indirect effects, as well as the values of the variance explained are indicated.

Descriptive statistics, correlations between study variables and reliability

Previously to the structural equations modeling, a Pearson's correlation analysis was performed between all variables studied, in addition to estimating the means (M) and standard deviations (SD). On the other hand, reliability values were reported for each sub-scale (See Table 1). It is important to note that all the variables correlated positively and significantly at a level of $p < .01$. The highest correlations were between *body dissatisfaction* and *weight worry* ($r = .871$, $p < .01$), between *body dissatisfaction* and *bodily discomfort* ($r = .848$, $p < .01$), in addition to *concern about weight* and *bodily discomfort* ($r = .826$, $p < .01$), whereas the lowest correlation was between *verbal messages influence* and *social situations influence* ($r = .320$, $p < .01$).

The correlations between the dependent variables are high ($r \geq .80$), ergo, there is multicollinearity and with this there could be a direct affectation on the goodness of fit and explanatory level indicators of the models proposed (Kline, 2015). Therefore, the high statistical relationship between the constructs *body dissatisfaction*, *weight worry* and *bodily discomfort*, must be differentiated in a theoretical way, because by not doing so, errors of categorization and statistical inconsistency would occur, which could cause a misinterpretation of the results (Mancilla, Vázquez, Mancilla, Amaya, & Álvarez, 2012). Due to the above, it is justified to use separate models for each of the dependent variables and thus be able to know the influence that *advertising*, *verbal messages*, *social models* and *social situations* have on them.

Goodness of fit of the models proposed

The resulting parameters indicate that the three models proposed have good goodness of fit in the seven indicators reported (See Table 2). It is important to mention that no covariance error was correlated and no items were eliminated to improve the models.

As regards to the results, it is important to note that the value of χ^2/df for the M_1 and M_3 models was less than one, which could be an overestimation indicator (Escobedo, Hernández, Estebané, & Martínez, 2016). However, this

Table 1.
Correlations, means, standard deviations, α and ω of the variables studied

Variable	V1	V2	V3	V4	V5	V6	V7
V1	1	.871*	.848*	.728*	.360*	.485*	.632*
V2	-	1	.826*	.685*	.441*	.513*	.480*
V3	-	-	1	.712*	.414*	.522*	.569*
V4	-	-	-	1	.566*	.448*	.475*
V5	-	-	-	-	1	.392*	.320*
V6	-	-	-	-	-	1	.483*
V7	-	-	-	-	-	-	1
M	42.46	42.03	6.25	2.87	1.66	3.15	1.64
SD	17.093	15.226	4.253	3.606	1.621	1.724	1.464
α	.940	.760	.856	.908	.768	.549	.637
ω	.930	.740	.861	.911	.757	.529	.668

Note. * $p < .01$, V1 = body dissatisfaction, V2 = weight worry, V3 = bodily discomfort, V4 = advertising influence, V5 = verbal messages influence, V6 = social models influence, V7 = social situations influence, M = mean, SD = standard deviation, α = Cronbach's alpha, ω = McDonald's omega

hypothesis is rejected, since the three models studied obtained a PR greater than .75 (Byrne, 2016; James, Mulaik & Brett, 1982; Mulaik et al., 1989). Therefore, because the acceptance of any model is given by multiple indicators (Byrne, 2016), it is possible to affirm that the models proposed are adjusted in an adequate way to the empirical data.

Direct and indirect effects between the variables studied

Figures 2, 3 and 4 show the direct effects and Table 3 presents the indirect effects of the three models proposed.

Body dissatisfaction model (M_1). In the case of the body dissatisfaction model (see Figure 2), the proposed parameters mostly obtained a level of significance of $p < .01$. There are direct effects of the *advertising influence* ($\beta = .39, p < .01$) and *social situations influence* ($\beta = .53, p < .01$) on *body dissatisfaction*. However, the regression coefficient for the *social model's influence* was not significant ($\beta = .11, p > .05$). Other direct effects in this model were the *verbal messages influence* on *advertising influence* ($\beta = .62, p < .01$) and the *verbal messages influence* on *social situations* ($\beta = .60, p < .01$) and on *social models* ($\beta = .66, p < .01$).

Regarding indirect effects, the *verbal messages influence* had an indirect effect on *body dissatisfaction*, mediated by the advertising influence ($\beta = .31, p < .01$). In addition, if the route of the *social situations influence* is added, a double mediating effect of *verbal messages* on *body dissatisfaction* is obtained ($\beta = .64, p < .01$), but by using the path of *social models influence* the result is a non-significant effect on *body dissatisfaction* ($\beta = .12, p > .05$). On the other hand, the *advertising influence* had an indirect effect on *body*

dissatisfaction mediated by the *social situations influence* ($\beta = .39, p < .01$). However, in the case of *social models influence* it was not significant ($\beta = .077, p > .05$). Other indirect effects found were the *verbal messages influence* on the *social situations influence* ($\beta = .29, p < .01$) and the *social models influence* ($\beta = .36, p < .01$) using the *advertising influence* as a mediator variable.

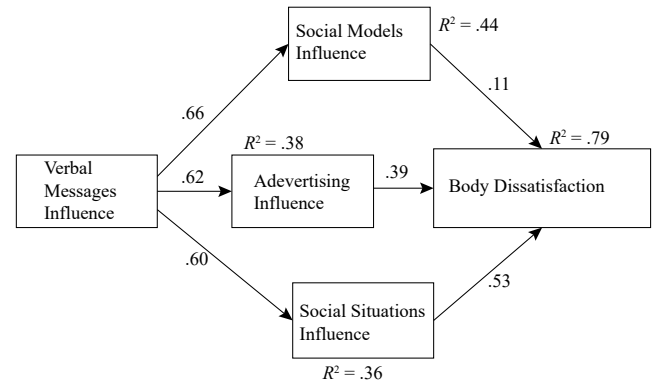


Figure 2. Body dissatisfaction model (M_1).

Lastly, it was found that the influence of *verbal messages* explained 38% of the common variance of the *advertising influence*, while *verbal messages influence* and the *advertising influence* explained 44% of the *social models influence* variable and 36% of the *social situations influence*.

In short, the *verbal messages influence* in mediation with the *advertising influence* ($\beta = .31, p < .01$) and the *verbal messages* in mediation with the *advertising influence* and the *social situations influence* ($\beta = .64, p < .01$) explained 79% of the common variance of *body dissatisfaction*.

Table 2.

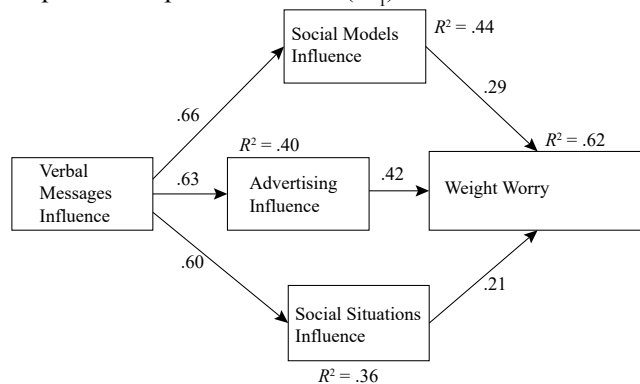
Goodness of fit indices for the models proposed

Modelo	χ^2/df	GFI	CFI	AGFI	SRMR	RMSEA	PR
M ₁	.877	.982	.978	.980	.068	.079	.937
M ₂	1.556	.981	.975	.978	.068	.080	.923
M ₃	.173	.976	.969	.972	.062	.072	.902

Note. M₁ = body dissatisfaction model, M₂ = weight worry model, M₃ = bodily discomfort model. Values that indicate a good fit to the data: $\chi^2/df \leq 3$, GFI and CFI $\geq .95$, AGFI $\geq .90$, RMSEA and SRMR $\leq .08$, PR $> .75$.

Weight worry model (M₂). With respect to the *weight worry model* (see Figure 3), the paths proposed mostly obtained a significance level of $p < .01$, with the exception of the path *social situations* $\rightarrow$ *weight worry*, in addition to *publicity* $\rightarrow$ *social models* $\rightarrow$ *weight worry* and *verbal messages* $\rightarrow$ *advertising* $\rightarrow$ *social situations* $\rightarrow$ *weight worry* that were significant at the level $p < .05$.

On the other hand, direct effects of the *advertising influence* ($\beta = .42, p < .01$), *social situations* ($\beta = .21, p < .05$) and *social models* ($\beta = .29, p < .01$) on *weight worry* were found. Other direct effects on this model were the *verbal messages influence* regarding the *advertising influence* ($\beta = .63, p < .01$), the *verbal messages influence* on *social situations* ($\beta = .60, p < .01$) and on *social models* ($\beta = .66, p < .01$). These last effects had little or no variability with respect to the previous model (M₁).

Figure 3. Weight worry model (M₂).

As regards to indirect effects, the *verbal messages influence* had an indirect effect on *weight worry*, mediated by the *advertising influence* ($\beta = .52, p < .01$). In addition, if the path of the *social situations influence* is added, a double mediating effect of *verbal messages* on *weight worry* is obtained ($\beta = .37, p < .05$), and when using the path of the *social models influence* also results in a double mediating effect on *weight worry* ($\beta = .46, p < .01$). On the other hand, the *advertising influence* had an indirect effect on *weight worry*, mediated by the *social situations influence*

($\beta = .39, p < .01$) and, in turn, by the *social models influence* ($\beta = .31, p < .05$). Other indirect effects found were the *verbal messages influence* on the *social situations influence* ($\beta = .37, p < .01$) and the *social models influence* ($\beta = .38, p < .01$) using the *advertising influence* as a mediator variable.

Finally, it was found that the *verbal messages influence* explained 40% of the common variance of the *advertising influence*. In addition, the *verbal messages influence* explained 44% of the *social models influence* variable and 36% of the *social situations influence*. Together, the *verbal messages influence* in mediation with the *advertising influence* and the *social situations influence* ($\beta = .37, p < .01$) and *verbal messages* in mediation with the *advertising influence* and the *social models influence* ($\beta = .37, p < .01$) explained 62% of the common variance of *weight worry*.

Bodily discomfort model (M₃). With respect to the *bodily discomfort model* (see Figure 3), the proposed paths indicated a level of significance of $p < .01$, with the exception of the path *social models* $\rightarrow$ *bodily discomfort*, $p < .05$. Regarding direct effects, it was found that the *advertising influence* ($\beta = .38, p < .01$), *social situations* ($\beta = .36, p < .01$) and *social models* ($\beta = .26, p < .05$) have a significant effect on *bodily discomfort*.

Other direct effects in this model were the *verbal messages influence* regarding the *advertising influence* ($\beta = .63, p < .01$), *social situations* ($\beta = .60, p < .01$) and *social models* ($\beta = .66, p < .01$). These last values have little or no variability with respect to the previous models (M₁ and M₂).

Concerning indirect effects, the *verbal messages influence* had an indirect effect on *bodily discomfort*, mediated by the *advertising influence* ($\beta = .26, p < .01$). Likewise, if the path of the *social situations influence* is added, a double mediating effect of *verbal messages* on *bodily discomfort* is obtained ($\beta = .39, p < .01$). However, when using the path of *social models influence*, a significant effect on the *bodily discomfort* was not obtained ($\beta = .23, p > .05$).

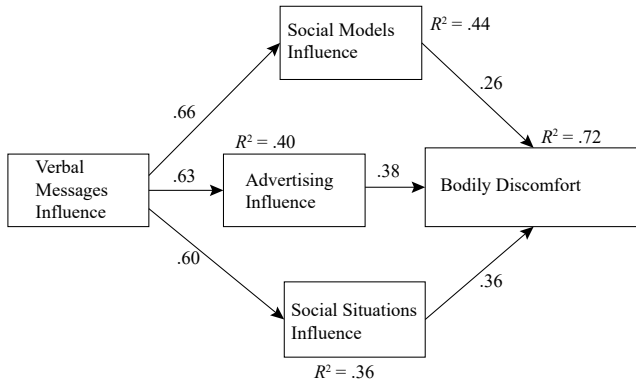


Figure 4. Bodily discomfort model (M_3).

For its part, the *advertising influence* had an indirect effect on *bodily discomfort*, mediated by the *social situations influence* ($\beta = .20, p < .01$), but not significant through the *social models influence* ($\beta = .16, p > .05$). Other indirect effects found were the *verbal messages influence* on the *social situations influence* ($\beta = .29, p < .01$) and the *social*

models influence ($\beta = .38, p < .01$) using the *advertising influence* as a mediator variable.

Finally, it was found that as in the M_2 model, the *verbal messages influence* explained 40% of the common variance of *advertising influence*, 44% of the variable *influence of social models* and 36% of the *influence of social situations*. Collectively, the *influence of verbal messages* in mediation with the *advertising influence* ($\beta = .26, p < .01$) and *verbal messages* in mediation with the *advertising influence* and the *social situations influence* ($\beta = .39, p < .01$), explained 72% of the common variance of *bodily discomfort*.

Discussion

Generally, each of the models proposed are an evidence that sociocultural variables have a significant influence on the creation of a negative body image, and in particular, when the effect of the *verbal messages influence* over the *advertising influence* was evaluated, the parameters got

Table 3.

Indirect standardized effects between the study variables

M ₁ . Body dissatisfaction		Standardized Betas (β)
Verbal messages → Advertising → Body dissatisfaction		.31***
Verbal messages → Advertising → Social situations		.29***
Verbal messages → Advertising → Social models		.36***
Advertising → Social situations → Body dissatisfaction		.34***
Advertising → Social models → Body dissatisfaction		.077*
Verbal messages → Advertising → Social situations → Body dissatisfaction		.64***
Verbal Messages → Advertising → Social models → Body dissatisfaction		.12*
$R^2(\text{Social situations}) = .36; R^2(\text{Advertising}) = .38; R^2(\text{Social models}) = .44; R^2(\text{Body dissatisfaction}) = .79$		
M ₂ . Weight worry		
Verbal messages → Advertising → Weight worry		.52***
Verbal messages → Advertising → Social situations		.37***
Verbal messages → Advertising → Social models		.38***
Advertising → Social situations → Weight worry		.21***
Advertising → Social models → Weight worry		.31**
Verbal messages → Advertising → Social situations → Weight worry		.37**
Verbal messages → Advertising → Social models → Weight worry		.46***
$R^2(\text{Social situations}) = .36; R^2(\text{Advertising}) = .40; R^2(\text{Social models}) = .44; R^2(\text{Weight worry}) = .62$		
M ₃ . Bodily discomfort		
Verbal messages → Advertising → Bodily discomfort		.26***
Verbal messages → Advertising → Social situations		.29***
Verbal messages → Advertising → Social models		.38***
Advertising → Social situations → Bodily discomfort		.20***
Advertising → Social models → Bodily discomfort		.16*
Verbal messages → Advertising → Social situations → Bodily discomfort		.39***
Verbal messages → Advertising → Social models → Bodily discomfort		.23*
$R^2(\text{Social situations}) = .36; R^2(\text{Advertising}) = .40; R^2(\text{Social models}) = .44; R^2(\text{Bodily discomfort}) = .72$		

Note. * $p > .05$; ** $p < .05$; *** $p < .01$.

meaningful outcomes in the three models proposed. From this specific outcome is inferred that it is important for women to get feedback from their social context, since from this depends the importance and the approach given to the messages received from the different media (Fardouly et al., 2017; Ferguson et al., 2014; Rodgers et al., 2014).

In addition to this, in the models of *body dissatisfaction*, *bodily discomfort* and *weight worry*, a significant influence of advertising was found, mainly due to its direct effect on *social models*, *social situations* and *verbal messages*, which coincides with previous findings where the direct influence of communication media and advertising on the body image of women is described (Fardouly et al., 2017; Ferguson et al., 2014; Rodgers et al., 2014).

On the other hand, the *social situations* showed that they are directly related to *body dissatisfaction*, *weight worry*, and *bodily discomfort*. This result supports the theory indicating that in contexts where beauty canons are unlikely for women to attain these have an influence in developing a wrong perception about their body image, whatever pathological or normative this might be (Ferguson et al., 2014).

In the particular case of the *social models* variable, this showed a significant relationship with the perception of weight, which supports the theory that women only take into consideration the advertising aesthetic models when they want to compare their weight, but when they want to make a general corporal comparison they prefer their peers instead of unreal models (Brudzynski & Ebben, 2010).

Taking into account that for the three models the effects were studied considering mediating variables - this in order to know how they interact with each other with respect to the formation of body image -, the results obtained support the theoretical proposal.

In the case of the first model, regarding *body dissatisfaction*, a significant relationship between *verbal messages*, *advertising*, *social models*, and *body dissatisfaction* was obtained. This shows that the messages that are given within the social context (parents, peers, mates, friends, etc.) influence the kind of publicity that is chosen to see, and this also impacts the reproduction of social situations which favor body dissatisfaction (Fardouly et al., 2017).

Regarding the weight worry model, a relationship was found between *verbal messages*, *advertising*, *social situations*, and *weight worry*. This shows that the interaction between the comments about weight, the advertising fostering weight loss, and the situations that promote a thin body must result in *weight worry* (Caccavale, Farhat, & Iannotti, 2012). Weight worry is also related to *verbal messages*, *publicity*, and *social models*. This is consistent with other previous investigations (Bailey & Ricciardelli, 2010; Fardouly et al., 2017; Ferguson et al., 2011; Ferguson et

al., 2014; Rodgers et al., 2014; Salazar-Mora, 2008). Thus, listening to comments about weight, seeing advertisements that promote thinness, and looking at people who represent extremely thin social models results in restlessness because of the amount of weight to lose, since it is necessary to be in accordance with the socially accepted beauty canon (Rodgers et al., 2014).

Finally, in the third model, referring to *bodily discomfort* there is a relationship between verbal messages, advertising, and social situations. This explains that messages coming from the social environment influence the kind of publicity that is seen, since this promotes paying more attention or participating in social situations related to an ideal body image. The combination of these factors results in a corporal uneasiness which through time can lead to *bodily dissatisfaction* (Saffon & Saldarriaga, 2014). It is worth mentioning that this does not occur when *bodily discomfort* is related to *verbal messages*, *advertising* and *social models*, and also when trying to relate *body dissatisfaction* with *verbal messages*, *advertising* and *social models*.

This may happen because women do not believe that their body image can be comparable to a model that appears in some type of advertising, since they are aware of the various modifications that a model has to undergo in order to look good (Bailey & Ricciardelli, 2010).

Based on the above, it is concluded that *social situations* have a great impact in women's perceptions about their own body image. This means that it could be evidenced that *social influences* are a cause of *weight worry* as well as of *body discomfort* and *body dissatisfaction*. Therefore, it is necessary to carry out preventive interventions in which the objective is to increase resilience, change cognitive schemes and develop healthy behaviors that allow reducing the impact of socially accepted standards of beauty (Espósito, 2015).

Finally, the limitations of the study include the sample size and the scarce participation of adolescent girls. Additionally, it is suggested for future research to consider anthropometric measures.

Conflict of Interests

The authors declare that there is no conflict of interest.

References

- Acosta, M., & Gómez, G. (2003). Insatisfacción corporal y seguimiento de dieta. Una comparación transcultural entre adolescentes de España y México. *International Journal of Clinical and Health Psychology*, 3(1), 9-21.

- Amaya, A., Álvarez, G., & Mancilla, J. (2010). Insatisfacción corporal en interacción con autoestima, influencia de pares y dieta restrictiva: Una revisión. *Revista Mexicana de Trastornos Alimentarios*, 1, 76-89.
- Bailey, S., & Ricciardelli, L. (2010). Social comparisons, appearance related comments, contingent self-esteem and their relationships with body dissatisfaction and eating disturbance among women. *Eating Behaviors*, 11(2), 107-112. doi: <https://dx.doi.org/10.1016/j.eatbeh.2009.12.001>
- Balantekin, K., Birch, L., & Savage, J. (2018). Family, friend, and media factors are associated with patterns of weight-control behavior among adolescent girls. *Eating and Weight Disorders-Studies on Anorexia, Bulimia and Obesity*, 23(2), 215-223. Doi: <https://doi.org/10.1007/s40519-016-0359-4>
- Bearman, S. K., Presnell, K., & Martínez, E. (2006). The skinny on body dissatisfaction: A longitudinal study of adolescent girls and boys. *Journal of Adolescence*, 35(2), 217-229. doi: <https://dx.doi.org/10.1007/s10964-005-9010-9>
- Botella, L., Ribas, E., & Ruiz, J. (2009). Evaluación psicométrica de la imagen corporal: validación de la versión española del Multidimensional Body Self-Relations Questionnaire (MBSRQ). *Revista Argentina de Clínica Psicológica*, 18(3), 253-264.
- Brudzynski, L. R., & Ebben, W. (2010). Body image as a motivator and barrier to exercise participation. *International Journal of Exercise Science*, 3(1), 14-24.
- Byrne, B. M. (2016). *Structural Equation Modeling with AMOS Basic Concepts, Applications, and Programming* (3rd Ed.). Nueva York: Routledge. doi: <http://doi.org/10.4324/9781315757421>
- Caccavale, L. J., Farhat, T., & Iannotti, R. J. (2012). Social engagement in adolescence moderates the association between weight status and body image. *Body Image*, 9(2), 221-226. doi <http://doi.org/10.1016/j.bodyim.2012.01.001>
- Cash, T. F. (1990). The psychology of physical appearance: Aesthetics, attributes, and images. In T. F. Cash & T. Pruzinsky (eds.), *Body Images: Development, Deviance, and Change* (pp. 51-79). Nueva York: Guilford Press.
- Castrillón, D., Luna, I., Avendaño, G., & Perez-Acosta, A. M. (2007). Validación del Body Shape Questionnaire (Cuestionario de la Figura Corporal) BSQ para la población colombiana. *Acta Colombiana de Psicología*, 10(1), 15-23.
- Cooper, P. J., Taylor, M. J., Cooper, Z., & Fairbum, C. G. (1987). The development and validation of the Body Shape Questionnaire. *International Journal of Eating Disorders*, 6(4), 485-494. doi: [https://doi.org/10.1002/1098-108X\(198707\)6:4<485::AID-EAT2260060405>3.0.CO;2-O](https://doi.org/10.1002/1098-108X(198707)6:4<485::AID-EAT2260060405>3.0.CO;2-O)
- Cruwys, T., Leverington, C., & Sheldon, A. (2016). An experimental investigation of the consequences and social functions of fat talk in friendship groups. *International Journal of Eating Disorders*, 49(1), 84-91. doi: <https://doi.org/10.1002/eat.22446>
- Escobedo, M., Hernández, J., Estebané, V., & Martínez, G. (2016). Modelos de ecuaciones estructurales: Características, fases, construcción, aplicación y resultados. *Ciencia y Trabajo*, 18(55), 16-22.
- Espósito, D. H. (2015). Influencia del modelo estético corporal prevalente e insatisfacción con la imagen corporal en estudiantes de escuela secundaria básica. *Revista Mexicana de Trastornos Alimentarios*, 6(2), 91-96. doi: <https://doi.org/10.1016/j.rmta.2015.08.001>
- Fardouly, J., Pinkus, R., & Vartanian, L. (2017). The impact of appearance comparisons made through social media, traditional media, and in person in women's everyday lives. *Body Image*, 20, 31-39. doi: <https://doi.org/10.1016/j.bodyim.2016.11.002>
- Ferguson, C. J., Winegard, B. M., & Winegard, B. (2011). Who is the fairest one of all? How evolution guides peer and media influences on female body dissatisfaction. *Review of General Psychology*, 15(1), 11-28. doi: <https://doi.org/10.1037/a0022607>
- Ferguson, C., Muñoz, M., Garza, A., & Galindo, M. (2014). Concurrent and prospective analyses of peer, television and social media influences on body dissatisfaction, eating disorder symptoms and life satisfaction in adolescent girls. *Journal of Youth and Adolescence*, 43(1), 1-14. <https://doi.org/10.1007/s10964-012-9898-9>
- Francisco, R., Narciso, I., & Alarcão, M. (2013). Parental influences on elite aesthetic athletes' body image dissatisfaction and disordered eating. *Journal of Child and Family Studies*, 22(8), 1082-1091. doi: <https://doi.org/10.1007/s10826-012-9670-5>
- Frederick, D. A., Forbes, G. B., Grigorian, K., & Jarcho, J. M. (2007). The UCLA body project I: Gender and ethnic differences in self-objectification and body satisfaction among 2,206 undergraduates. *Sex Roles*, 57(5-6), 317-327. doi: <https://doi.org/10.1007/s11199-007-9251-z>
- Gerbasi, M., Richards, L., Thomas, J., Agnew-Blais, J., Thompson-Brenner, H., Gilman, S., & Becker, A. (2014). Globalization and eating disorder risk: Peer influence, perceived social norms, and adolescent disordered eating in Fiji. *International Journal of Eating Disorders*, 47(7), 727-737. doi: <https://doi.org/10.1002/eat.22349>
- Gonçalves, S., & Bedin, L. (2016). Bienestar, salud e imagen corporal de adolescentes brasileiros: la importancia de los contextos familiares, de amistad y escolar. *Universitas Psychologica*, 14(4), 1399-1410. doi: <https://doi.org/10.11144/Javeriana.up14-4.bsica>
- Grogan, S. (2008). *Body Image: Understanding Body Dissatisfaction in Men, Women and Children* (2nd ed.). Nueva York: Routledge.
- Herraz-Serrano, C., Rodríguez-Cano, T., Beato-Fernández, L., Latorre-Prostigo, J. M., Rojo-Moreno, L., & Vaz-Leal, F. J. (2015). Parental rearing and eating psychopathology. *Actas Españolas de Psiquiatría*, 43(3), 91-98.

- James, L. R., Mulaik, S. A., & Brett, J. M. (1982). *Causal Analysis: Assumptions, Models and Data*. Beverly Hills: Sage.
- Jauregui, I., & Bolaños, P. (2011). Body Image and quality of life in a Spanish population. *International Journal of General Medicine*, 4, 63-72. doi: <https://doi.org/10.1016/j.semerng.2011.07.019>
- Jones, W. R., & Morgan, J. F. (2010). Eating disorders in men: A review of the literature. *Journal of Public Mental Health*, 9(2), 23-31. doi: <http://dx.doi.org/10.5042/jpmh.2010.0326>
- Kline, R. B. (2015). *Principles and Practice of Structural Equation Modeling* (4th Ed.). Nueva York: Guilford Press.
- Losada, A. V., Leonardelli, E., & Magliola, M. (2015). Influencia sociocultural y los trastornos de la conducta alimentaria en adolescentes. *Revista Electrónica de Psicología Iztacala*, 18(1), 380-416.
- Mancilla, A., Vázquez, R., Mancilla, J., Amaya, A., & Álvarez, G. (2012). Insatisfacción corporal en niños y preadolescentes: Una revisión sistemática. *Revista Mexicana de Trastornos Alimentarios*, 3(1), 62-79.
- Mas-Manchón, L., Rodríguez-Bravo, A., Montoya-Vilar, N., Morales-Morante, F., Lopes, E., Añaños, E., Peres, R., Martínez, M., & Grau, A. (2015). Valores percibidos en la publicidad de alimentos por jóvenes con y sin trastornos de la conducta alimentaria. *Salud Colectiva*, 11(3), 423-444. doi: <https://doi.org/10.18294/sc.2015.729>
- McDonald, R. P. (1999). *Test Theory: A Unified Treatment*. Mahwah: Lawrence Erlbaum Associates Publishers.
- Moreno-Murcia, J., Marcos-Pardo, P., & Huéscar, E. (2016). Motivos de práctica físico-deportiva en mujeres: diferencias entre practicantes y no practicantes. *Revista de Psicología del Deporte*, 25(1), 35-41.
- Mulaik, S. A., James, L. R., Van Alstine, J., Bennett, N., Lind, S., & Stilwell, C. D. (1989). Evaluation of goodness-of-fit indices for structural equation models. *Psychological Bulletin*, 105(3), 430-445. doi: <https://doi.org/10.1037/0033-2909.105.3.430>
- Neziroglu, F., Khemlani-Patel, S., & Veale, D. (2008). Social learning theory and cognitive behavioral models of body dysmorphic disorder. *Body Image*, 5(1), 28-38. doi: <https://doi.org/10.1016/j.bodyim.2008.01.002>
- Ramírez, M., Godoy, D., Vázquez, M., Lara, R., Navarrón, E., Vélez, M., Padial, A., & Jiménez, M. (2015). Imagen corporal y satisfacción corporal en adultos: Diferencias por sexo y edad. *Revista Iberoamericana de Psicología del Ejercicio y el Deporte*, 10(1), 63-68.
- Raich, R. M., Mora, M., Soler, A., Ávila, C., Clos, I., & Zapater, L. (1996). Adaptación de un instrumento de evaluación de la insatisfacción corporal. *Clínica y Salud*, 7(1), 51-66.
- Rodríguez, S., & Cruz, S. (2008). Insatisfacción corporal en adolescentes latinoamericanas y españolas. *Psicothema*, 20(1), 131-137.
- Rodríguez, M. N., & Ruiz, M. A. (2008). Atenuación de la asimetría y de la curtosis de las puntuaciones observadas mediante transformaciones de variables: Incidencia sobre la estructura factorial. *Psicológica*, 29(2), 205-227.
- Rodgers, R., Paxton, S., & McLean, S. A. (2014). A biopsychosocial model of body image concerns and disordered eating in early adolescent girls. *Journal of Youth and Adolescence*, 43(5), 814-823. doi: <https://doi.org/10.1007/s10964-013-0013-7>
- Saffon, S., & Saldarriaga, L. M. (2014). La internalización del ideal de delgadez: Factor de riesgo de alteraciones de la imagen corporal y los hábitos de alimentación, generado por la influencia de pares. *Revista de Psicología Universidad de Antioquia*, 6(1), 75-90.
- Salazar-Mora, Z. (2008). Adolescencia e imagen corporal en la época de la delgadez. *Revista Reflexiones*, 87(2), 67-80.
- Tabachnick, B., & Fidell, L. S. (2013). *Using Multivariate Statistics* (6th Ed.). Londres: Pearson Education.
- Thompson, B., Diamond, K. E., McWilliam, R., Snyder, P., & Snyder, S. W. (2005). Evaluating the quality of evidence from correlational research for evidence-based practice. *Exceptional Children*, 71(2), 181-194. doi: <https://doi.org/10.1177/001440290507100204>
- Toro, J., Salamero, M., & Martínez, E. (1994). Assessment of sociocultural influences on the aesthetic body shape model in anorexia nervosa. *Acta Psychiatrica Scandinavica*, 89(3), 147-151. doi: <https://doi.org/10.1111/j.1600-0447.1994.tb08084.x>
- Trejo-Ortiz, P., Mollinedo, F., Araujo, R., Valdez-Esparza, G., & Sánchez, M. (2016). Hábitos de actividad física y cánones de imagen corporal en estudiantes universitarios. *Revista Cubana de Medicina General Integral*, 32(1).
- Vaquero-Cristóbal, R., Alacid, F., Muyor, J. M., & López-Miñarro, P. A. (2013). Imagen corporal: Revisión bibliográfica. *Nutrición Hospitalaria*, 28(1), 27-35. doi: <https://dx.doi.org/10.3305/nh.2013.28.1.6016>
- Vázquez, R., Álvarez, G., & Mancilla, J. (2000). Consistencia interna y estructura factorial del Cuestionario de Influencia de los Modelos Estéticos Corporales (CIMEC), en población mexicana. *Salud Mental*, 23(6), 18-24.
- Vázquez, R., Galán, J., López, X., Álvarez, G., Mancilla, J., Caballero, A., & Unikel, C. (2011). Validez del Body Shape Questionnaire (BSQ) en mujeres mexicanas. *Revista Mexicana de Trastornos Alimentarios*, 2(1), 42-52.
- Wasylikiw, L., & Williamson, M. E. (2013). Actual reports and perceptions of body image concerns of young women and their friends. *Sex Roles*, 68(3-4), 239-251. doi: <https://doi.org/10.1007/s11199-012-0227-2>