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### **Body Dissatisfaction and Anxiety: Gender Asymmetries**

**Luciana Cantera, Daniel Miles y Maximo Rossi**

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# Body dissatisfaction and anxiety: Gender asymmetries

Luciana Cantera, Daniel Miles y Maximo Rossi

## Abstract:

In this paper we discuss the association between body dissatisfaction, measured as the difference between actual and ideal body image, and anxiety, a mental health condition that affects an individual's quality of life. We focus on two issues. First, whether there are gender asymmetries in this association. Our results suggest that women's anxiety events are significantly more correlated with body dissatisfaction than for men. Second, we analyze two measures of anxiety: a subjective perceived episode of anxiety and a diagnosis of anxiety by a physician. Our findings suggest that the subjective measure overestimates the association between body dissatisfaction and anxiety.

Keywords: body image; dissatisfaction; gender; anxiety; Uruguay

JEL: I10, I12, D91, I30

## Resumen:

En este artículo discutimos la asociación entre la insatisfacción corporal, medida como la diferencia entre la imagen corporal real e ideal, y la ansiedad, una condición de salud mental que afecta la calidad de vida de un individuo. Nos centramos en dos aspectos. Primero, si existen asimetrías de género en esta asociación. Nuestros resultados sugieren que los eventos de ansiedad de las mujeres presentan una mayor correlación significativa con la insatisfacción corporal que los de los hombres. En segundo lugar, analizamos dos medidas de ansiedad: un episodio de ansiedad subjetiva percibida por el individuo y un diagnóstico de ansiedad por parte de un médico. Nuestros hallazgos sugieren que la medida subjetiva sobreestima la asociación entre la insatisfacción corporal y la ansiedad.

Palabras clave: imagen corporal; insatisfacción; género; ansiedad; Uruguay

## **Introduction**

Good-looking people - thin women or fit men- are often viewed as smarter, more commendable and/or reliable persons than otherwise similar but unattractive individuals. Furthermore, in Western societies, physical appearance has even become a means to an end, since being hired or promoted in a job, or social life socializing, may depend on it; physical appearance may even constitute a positional good (Frank, 2005; Akerlof and Kranton, 2001; Etilé, 2007).

In this paper we follow a growing strand of the empirical research literature that studies how body image is associated with health disorders (e.g., McElroy et al, 2004; Needham and Crosnoe, 2005; Stutzer and Meier, 2016, etc.). In particular, we discuss the relationship between anxiety and the discrepancy between an individual's actual and ideal body image. We base our analysis on a specific cross-sectional survey that combines information on people's actual and ideal figure, actual weight and height, eating behavior or food attitudes, and measures of subjective wellbeing, in addition to socio demographic characteristics.

There is evidence that divergence between an individual's actual body image and the socially accepted body image affect subjective wellbeing. On the one side, it has been shown that obesity seriously affects an individual's quality of life, for example through health side effects, such as diabetes, heart disease etc. In this sense, policies or social norms promoting figures in a manner intended to counter obesity –i.e., a thinner body image– may induce a positive externality at the individual level (e.g., commitment to stay fit, identity issues, Akerlof and Kranton, 2001) as well as at the aggregate level, e.g., reduced public health expenditure. However, on the other side, the imposition of a physical appearance paradigm may affect an individual's self-perception, e.g., arising from the perceived discrepancy between one's actual body and some ideal body image. A woman facing budget or time constraints may get stressed as healthier food is more expensive or physical activity requires time, etc. (Collins, 2003; Cash et al., 2004; Cash and Fleming, 2002; Vartanian and Dey, 2013; Grogan, 2008; Stice and Shaw, 2002; Cash, 1990).

Unfortunately, in the literature there are multiple definitions of body image, as it can be determined by different standards. Some researchers refer to body image simply as weight satisfaction (Thompson et al., 1999); others choose to define body image as attitudes an individual has regarding self-perceptions and behaviors with respect to our own physical body (Cash, 1998; Muth and Cash, 1997) or simply the perception of body size, shape and weight (Kashubeck-West and Saunders, 2001).

Despite the variety of definitions of body image in the literature, there is an agreement that most individuals are able to assess their own physical appearance, their ideal figure or even the socially accepted reference type. In order to assess an individual's actual and ideal body image most studies use the Figure Rating Scale approximation (FRS; Stunkard et al., 1983), in which individuals are asked to indicate the body figure that represents their current figure, their most desired figure as well as the figure they perceive to be most attractive to the opposite gender (Cohn and Adler, 1992).

In general, the FRS is used to construct a discrepancy measure between one's actual and ideal body image, which is sometimes called a body dissatisfaction index. As has been observed in this literature, body dissatisfaction is associated with depression (Noles et al., 1985), low self-esteem (Mendelson et al., 2001), feelings of shame (McKinley and Hyde, 1996), diminished quality of life (Cash and Fleming, 2002), eating disorders (Anton et al., 2000; Kearney-Cooke and Striegel-Moore, 1997) and even sexual activity problems (Cash et al., 2004). In sum, it has been recurrently shown that body dissatisfaction is positively associated with different health disorders.

These studies also suggest the existence of significant gender asymmetries in the health consequences of body dissatisfaction. Females whose figure falls short of the perceived ideal experience greater recognize greater health disorders than otherwise similar men. This fact is mainly explained as a consequence of not achieving the physical attractiveness standards, which are more harshly imposed on females (Crawford and Eklund, 1994; Eklund and Crawford, 1994).

Furthermore, previous research which uses figure rating scales suggests that men's concern with body image stems from a perceived lack of fitness or muscle whereas women's stems primarily from perceived excess weight. These findings are consistent with media messages that emphasize a thin ideal for women (Morrison et al., 2003), while promoting a

V-shaped figure for men (Furnham et al., 2002). Several studies corroborate perceived lack of muscle as being a more pivotal factor in male body image dissatisfaction than an excess of fat (Cafri and Thompson, 2004; Olivardia et al., 2004; Pope et al., 1999). In this sense, although men are clearly affected by body image dissatisfaction, the literature continues to demonstrate that women suffer from higher rates of discontentment with their bodies than men and that this negatively impacts their lives to a greater extent than it affects men (Johnstone et al., 2008; Mendelson et al., 2001; Feingold and Mazzella, 1998; Lawler and Nixon, 2011; Meland et al., 2007).

In this paper we contribute to this literature in two ways, by studying a sample of Uruguayan men and women. First, we do not use the raw difference between ranks of the FRS to measure body dissatisfaction. Instead, we associate a body mass index with each body image figure rank in order to introduce some nonlinearity between rank differences, specifically, a raw difference between ranks 4 and 3 is the same as 5 and 4, but the difference in body mass index is not of the same proportion. Second, we compare the results using two measures of anxiety: a self-reported measure of anxiety and a physician-diagnosed measure of anxiety. We observe that the self-perceived measure of anxiety is significantly more affected by body dissatisfaction than the diagnosed measure, i.e., it possibly overestimates the impact. Moreover, the results suggest gender asymmetries in the association between body dissatisfaction and a diagnosis of anxiety: for women, but not for men, this association is statistically significant.

Before proceeding, it is worth pointing out that the analysis we present is based on an association between an individual's anxiety and body image perceptions. In this sense, we cannot claim do not assure causality of the relationship between figures measures (or other individual characteristics) and observed anxiety. This is because an anxious person might resort to eating, resulting in obesity which, in turn, can affect anxiety. Unfortunately, we were not able to find any exogenous variable affecting body mass index but not the unobservables co-moving with the anxiety measures. Despite this, we show that these correlations are sufficiently robust to the inclusion of different variables, which appears to suggest that the non-confounders may not be sufficiently large to place significant doubt on the qualitative interpretation of these associations (Rosembaun, 1985).

The paper is organized in four sections after the introduction. In the next section we describe the data. In section three we analyze the discrepancies between actual and ideal body image. In the fourth section we study the impact of these discrepancies on anxiety. Finally, in section five we conclude.

## **Data and descriptive analysis**

The data used for this analysis comes from a representative survey of the inhabitants over the age of 18 in Montevideo and its metropolitan area,<sup>1</sup> collected between April and September 2014. The aim of this survey was, on the one side, to understand the eating habits and body image perception of this population. On the other side, it wanted to analyze the eating vulnerabilities of this population, i.e., whether the respondent was unable to eat because of socio-demographic conditions.

The survey was designed as a stratified three-stage sampling scheme: the first stage consisted of randomly choosing 305 census areas, each stratified according to its geographic position and socio-demographic characteristics; in the second stage, 1220 household units were randomly chosen. Finally, in the third stage, a member of the household older than 18 years of age was randomly chosen to answer the questionnaire. The response rate was 60.8 percent, i.e., 742 individuals, achieving a precision of  $\pm 3.5$  percent.

The questionnaire contained a total of 219 questions related to eating habits, socio-demographic characteristics, health and wellbeing questions, height and weight as well participant rating of which figure they actually looked like, wanted to look like and wanted the opposite sex to look like. Finally, participants were asked whether they were satisfied with their current weight.

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<sup>1</sup> Montevideo is the capital of Uruguay. Together with its metropolitan area it represents nearly half of the Uruguayan population, i.e., 53 percent of 3.25 million people (2011, INE, Uruguay).

**Table 1: Descriptive analysis by gender**

	Men		Women	
	Mean	Std. dev.	Mean	Std. dev.
Happiness	3.919	0.922	3.850	0.977
Years educ	9.955	4.404	10.763	4.789
Age	49.545	18.048	48.412	18.445
BMI	26.960	4.705	26.614	5.581
Lose weight	0.377	0.485	0.500	0.501
Exercise	0.490	0.501	0.350	0.478

Source: Developed by authors based on the “Encuesta de Alimentación y Bienestar del año 2014 (dECON-FCS-UdelaR)” survey.

As can be observed in Table 1, men and women are basically similar in the mean of some baseline characteristics, such as happiness, school achievement or age. However, there seem to be differences concerning aspects related to the body image: body mass index, desire to lose weight or exercising at least once a week.

In Table 2 we present the distribution of body mass index by gender, as derived from the survey’s weight and height questions, in terms of the weight class definitions. The numbers in parentheses present the 95% confidence interval.

**Table 2:** Body mass index distribution by gender

	Men	Women
Underweight ( $< 18.5$ )	2.0% (0.9 - 4.4)	1.7% (0.8 - 3.5)
Normal (18.5-24.99)	35.8% (30.5 - 41.4)	45.4% (40.6 - 50.2)
Overweight (25-29.99)	39.1% (33.7 - 44.8)	28.8% (24.6 - 33.4)
Obese ( $\geq 30$ )	23.1% (18.6 - 28.2)	24.1% (20.2 - 28.5)

Source: Developed by authors based on the “Encuesta de Alimentación y Bienestar del año 2014 (dECON-FCS-UdelaR)” survey.

In Montevideo and its metropolitan area, nearly 2 in 3 men are overweight or obese and around 1 in 2 women can be similarly characterized. These numbers are very similar to those reported by the OECD for USA or England, countries where obesity and overweightness has been declared a health problem. It seems relevant to point out that the proportions of obese and overweight men and women are lower than can be observed for other South American countries, such as Mexico, Argentina or Chile.

Obesity is generally associated with health risk factors, such as heart disease, high blood pressure and diabetes. In Table 3 we present the OLS regression coefficients of health indicators on respondents’ actual BMI and also the difference between an individual’s actual BMI and his/her ideal BMI based on some ideal figure. We additionally condition on respondent’s characteristics, such schooling, cohabitating, etc. but omit these coefficients. Overall, we would like to assess whether the associations between these health indicators and the respondent’s BMI are in line with what is suggested in the literature.



**Table 3: BMI association with health risk factors**

	Women		Men	
	BMI	Diff. Actual-ideal	BMI	Diff. Actual-ideal
Perceived good health Status	-0.053 (0.011)	0.023 (0.016)	-0.009 (0.016)	-0.013 (0.025)
Hypertension-Cholesterol-Heart Disease	0.022 (0.007)	0.004 (0.009)	0.022 (0.007)	0.011 (0.010)
Regular exercise	0.040 (0.020)	0.018 (0.032)	-0.011 (0.007)	0.000 (0.011)
Preference for losing weight	0.019 (0.006)	0.059 (0.008)	0.050 (0.006)	0.030 (0.009)
Preference for maintaining weight	-0.010 (0.003)	-0.024 (0.006)	-0.025 (0.006)	-0.000 (0.010)

Source: Developed by authors based on the “Encuesta de Alimentación y Bienestar del año 2014 (dECON-FCS-UdelaR)” survey.

Overall, Table 3 suggests that BMI is an indicator of health status while body dissatisfaction is linked with body perception. More precisely, a higher BMI is significantly associated with higher health risks but not with body perception, e.g., desire to lose weight. On the other hand, higher body dissatisfaction is linked to body perception but not to health risks. Moreover, these associations are gender asymmetric. Notice, first, that women’s BMI is negatively and significantly correlated with an individual’s perceived good health, but this is not the case for men. The distance between actual and ideal BMI is not relevant to explain perceived health status. Second, a higher BMI is positively associated, for both men and women, with hypertension, cholesterol and/or heart problems. Finally, BMI is negatively and significantly associated with doing exercise for women but not for men.

### Measuring the difference between ideal and actual figure

Body dissatisfaction usually arises from comparison between one’s physical body perception and a reference body type (Stice and Shaw, 2002). The most commonly used approach to assess these discrepancies is by means of figure rating scales of figures

(Gardner et al., 2009; Stunkard et al., 1983). In this section we quantify these discrepancies and assess female and male asymmetries for the Uruguayan survey.

Following what is standard in this literature, in our survey we have presented a body figure scale to the survey participants as a picture or drawing of figures, ranging from extremely thin to an obese portrait. The figures were ordered from left to right, from an underweight male or female up to an overweight male or female image. These shapes were numbered from 1 to 9 and respondents were asked to choose one of the figures that they consider best fits their perceived actual figure as well the one that represents their same sex ideal figure. Finally, we additionally asked respondents to choose what they consider to be the ideal figure of an individual of the opposite sex, in order to capture the influence of stereotypes on body dissatisfaction. Here, male respondents were asked to choose an ideal figure for a woman, and vice versa women were to choose the ideal figure for a male.

In Table 4 and Table 5 we present the joint distribution of actual and ideal body image rankings for men and women. The diagonal is shaded, as most respondents rankings are within plus or minus one rank of the diagonal.

**Table 4:** Distribution of actual and ideal body image - Women

Actual body image	Ideal body image							Total
	1	2	3	4	5	6	7	
1	0%	0%	0%	0%	0%	0%	0%	1%
2	0%	2%	3%	1%	0%	0%	0%	6%
3	0%	4%	6%	4%	0%	0%	0%	14%
4	0%	1%	11%	10%	2%	1%	0%	26%
5	0%	0%	7%	16%	2%	0%	0%	26%
6	0%	1%	2%	10%	3%	0%	0%	17%
7	0%	0%	0%	3%	5%	0%	0%	8%
8	0%	0%	0%	0%	1%	1%	0%	2%
9	0%	0%	0%	0%	0%	0%	0%	0%
Total	0%	8%	30%	45%	14%	3%	0%	100%

Source: Developed by authors based on the “Encuesta de Alimentación y Bienestar del año 2014 (dECON-FCS-UdelaR)” survey.

**Table 5:** Distribution of actual and ideal body image - Men

Actual body image	Ideal body image							Total
	1	2	3	4	5	6	7	
1	0%	0%	0%	1%	0%	0%	0%	2%
2	0%	4%	2%	5%	0%	0%	0%	11%
3	1%	3%	3%	5%	1%	0%	0%	13%
4	0%	2%	10%	16%	5%	0%	0%	33%
5	0%	1%	4%	13%	2%	0%	0%	20%
6	0%	0%	2%	5%	5%	1%	0%	13%
7	0%	0%	0%	2%	3%	0%	0%	5%
8	0%	0%	0%	0%	1%	0%	0%	1%
Total	2%	11%	22%	48%	16%	1%	0%	100%

Source: Developed by authors based on the “Encuesta de Alimentación y Bienestar del año 2014 (dECON-FCS-UdelaR)” survey.

Notice, first, that the mode is within one rank of the diagonal, suggesting that the respondent’s actual body image is not far from the ideal body image. Second, the women’s actual body image stochastically dominates that of men. That is, there is a higher probability of finding a woman perceiving herself as more obese than the corresponding probability among man. For example, 59 percent of the female respondents rank her actual body image at or below 4, compared to 47 percent of males. Third, the ideal body image shifts downward in line with the actual body image, for both men and women. Eighty-three percent of the answers are at a rank of 4 or less among women and this is similar for men. Finally, the cumulative distribution of ideal body image is strikingly similar for men and women.

Furthermore, concerning the comparison between actual and ideal body image, for 26 percent of the males, their actual body image coincides with what they consider as their ideal body image. This percentage is 20 percent for women, nearly 30 percentage points less than men (these numbers are significantly below that of Etilé, 2007). Moreover, 69 percent of the females consider that her actual body image is above her ideal body image (i.e., the percentage of respondents below the diagonal), while only 52 percent of males are in this situation. More precisely, near 3 in 4 women perceive themselves as overweight when comparing their actual and ideal body images, in contrast to 2 in 4 men. The magnitude and direction of the discrepancy between the female’s (or male’s) current figure

and the shape she reportedly desired is similar to other empirical research in the area (i.e., Cohn and Adler, 1992; Lavine et al., 1999; Silberstein et al., 1988). Consistently, females report an ideal figure that is smaller than their current figure. It has been observed that this difference is often discussed as normative discontent among female adolescents and adults (Markey et al., 2002; Thompson et al., 1999).

In general, body image discrepancies in this literature are measured as the absolute rank differences between the respondent's actual appearance and the chosen ideal figure. Hence, a woman that chooses figure number 6 as representing her actual figure and figure number 3 for her ideal figure would have a measure of discrepancy of 3, the same as a woman who chooses 4 and 1. Note that impact of the discrepancy between actual and ideal body image may not be linear, i.e., a discrepancy of 3 starting at 6 may have a different effect than a discrepancy of 3 starting at 1 (e.g., Mutale et al. 2014).

In this paper, instead of defining the raw difference between actual and ideal figure, we link the image chosen by an individual to his reported body mass index. That is, we have estimated the median BMI of both the female and male scales using the median BMI of those individuals who chose a particular scale number.<sup>2</sup>

From the previous discussion, we may venture to say that men are more in accordance with their ideal body image while women are much more demanding in terms of figure. In other words, women seem to be much more unsatisfied with their figure relative to their desired ideal than men. We do not, however, enter into discussion of the reasons for these perceptions, e.g. social norms imposed on women's image but not on men.

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<sup>2</sup> For example, the median BMI for the female figure number 3 was estimated by the median of the BMI of those female respondents that chose number 3 as their actual figure. Note that we could have estimated any summary measure that relates the scale to the body mass index, e.g., the mean, but we chose the median because of its robustness. Moreover, we could have conditioned by characteristics, but the small sample size made this approach less robust.

## **Anxiety and figure discrepancies**

Anxiety is a mental health condition that affects the quality of life and it is considered the most common mental health disorder in most countries. For example, in the United States nearly 18% of the population has suffered an anxiety episode (NIMH, 2018).

Individuals who report a current figure that falls short of what they perceive as an ideal figure may express body-related anxiety. Partial links between perceptions of figure and social physique anxiety have been reported (Crawford and Eklund, 1994; Eklund and Crawford, 1994; Bane and McAuley, 1998). Therefore, it may be relevant to understand the relationships among discrepancies in perceptions of figures and an individuals' health status.

In what follows we discuss this issue, first by describing the anxiety and, second, presenting the results of different regression specifications focused on gender asymmetries.

The survey asks two questions related to anxiety. A first question involves an individual's subjective perception of anxiety, where the respondent must answer whether they recall suffering any anxiety episode during the last six months. Of course, the subjective identification of anxiety disorders or episodes can be subject to over or under estimation. In the survey, nearly 2 in 5 respondents recalled suffering anxiety. The second question is more objective since it is based on a diagnosis of anxiety by a physician: in the survey, 1 in 10 respondents had been diagnosed with an anxiety episode during the last six months.

In Table 6 we present the relationship between both anxiety and a diagnosis of anxiety with different individual characteristics that can be associated with anxiety: subjective wellbeing, health, gender and difference between actual and ideal figure measures.

**Table 6:** Anxiety events: average values

	Perceived Anxiety	Diagnosed Anxiety
Unhappy	0.467	0.148
Happy	0.323	0.068
Diff	0.143***	0.080***
Bad health	0.410	0.116
Good health	0.282	0.045
Diff	0.128***	0.070***
Male	0.269	0.045
Female	0.431	0.122
Diff	-0.162***	-0.077***
Lose weight	0.448	0.135
Otherwise	0.295	0.053
Diff	0.153***	0.082***

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1 Value 1 if anxiety; 0 otherwise

Source: Developed by authors based on the “Encuesta de Alimentación y Bienestar del año 2014 (dECON-FCS-UdelaR)” survey.

The results in Table 6 suggest, as can be expected, a negative correlation between anxiety events and good outcomes. In the first place, those respondents recalling or diagnosed with anxiety episodes report significantly lower happiness or health status than those individuals not suffering these episodes. Second, women reports significantly more anxiety episodes than men, both recalled and diagnosed. Finally, those respondents that want to lose weight present more anxiety episodes than otherwise similar, on average, individuals. In sum, it is more probable to find a woman affected by an anxiety event, while these individuals are unhappier, with worse health or hoping to lose weight.

In Table 7 we present the estimated coefficients from regressing perceived anxiety and a diagnosis of anxiety on a set of variables of interest: BMI, the difference between actual and ideal figure and the interaction of this last variable with a female dummy, in addition to other variables: gender, age, living with a partner, educational level, being unemployed and a variable capturing economic status.

**Table 7:** Estimates of the models on perceived anxiety and a diagnosis of anxiety

	Perceived Anxiety	Diagnosed Anxiety	Perceived Anxiety	Diagnosed Anxiety	Perceived Anxiety	Diagnosed Anxiety
Female	0.152 (0.041)***	0.051 (0.024)**	0.147 (0.041)***	0.048 (0.023)**	0.147 (0.040)***	0.046 (0.023)**
BMI	0.006 (0.005)	0.004 (0.003)	0.003 (0.005)	0.002 (0.003)	0.002 (0.005)	0.002 (0.003)
Diff	0.011 (0.009)	-0.008 (0.004)**	0.006 (0.009)	-0.010 (0.004)***	0.011 (0.010)	-0.009 (0.003)**
Femxdif	-0.004 (0.010)	0.014 (0.006)***	-0.005 (0.010)	0.014 (0.005)***	-0.005 (0.0103)	0.014 (0.006)**
Age	-0.003 (0.001)***	0.000 (0.001)	-0.003 (0.001)***	0.000 (0.001)	-0.003 (0.001)***	0.000 (0.001)
Lose weight			0.111 (0.045)**	0.069 (0.028)**	0.106 (0.044)**	0.073 (0.025)***
Happiness					-0.170 (0.042)***	-0.083 (0.027)***
Constant	0.189 (0.129)	-0.099 (0.082)	0.251 (0.127)**	-0.061 (0.084)	0.362 (0.132)***	0.025 (0.043)
Observations	725	725	725	725	725	725
R-squared	0.056	0.040	0.064	0.049	0.088	0.064

Robust in brackets

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Source: Developed by authors based on the “Encuesta de Alimentación y Bienestar del año 2014 (dECON-FCS-UdelaR)” survey.

Overall, we should stress two relevant issues with respect to the impact of the difference between actual and ideal figure on subjective perceived anxiety and a diagnosis of anxiety. In the first place, the difference between actual and ideal figure is not statistically associated with a diagnosis of anxiety but it is significantly associated with a diagnosis of anxiety episode. Stated differently, those respondents that were diagnosed with an anxiety episode in the previous six months are affected by the difference between actual and ideal figure, i.e., a significant correlation. In the second place, there are significant differences

between males and females: while for males, the difference between actual and ideal figure is negatively associated with a diagnosis of anxiety episode, for women it is positively and significantly associated. That is, the difference in the perception with respect to an ideal figure increases anxiety in women but not for men.

In reference to the gender asymmetric association between anxiety and body dissatisfaction, observe that the coefficient on the Diff variable –which captures the association between body dissatisfaction and anxiety– is negative and statistically significant. In other words, for men observe that the variable capturing the association between body dissatisfaction and anxiety is negative is negative associated with an anxiety event. For women, however, the impact is positive and significant, controlling for other variables that could also affect anxiety events, e.g., happiness. In other words, this evidence appears to show that women are more sensitive to body dissatisfaction than men.

## **Conclusions**

In this paper we analyze the association between body dissatisfaction and anxiety events based on a Uruguayan survey targeted to analyzing eating disorders, focusing on gender asymmetries. Body dissatisfaction is measured through the difference between the actual and the ideal body image based on a Figure Rating Scale. The ranking is converted to a BMI scale in order to capture possible nonlinearities between the discrete FRS increments and the actual increased in BMI of the respondent.

Overall, we observe that women are more sensitive to an increase in body dissatisfaction than men. In particular, women's anxiety events are significantly associated with body dissatisfaction but this is not the case for men. That is, while men do care about their image, it does not seem that this is relevant for explaining anxiety events although it is for women.



## References

- Akerlof, G. and Kranton, R. E. (2000). "Economics and identity". *Quarterly Journal of Economics*, Volume 115, Issue 3.
- Anton, S. D., Perri, M. G. and Riley, J.R. (2000). "Discrepancy between actual and ideal body images; Impact on eating and exercise behaviors". *Eating Behaviors*., Volume 1, Issue 2.
- Bane, S. and McAuley, E. (1998). "Body image and exercise". In J. L. Duda (Ed.), *Advances in sport and exercise psychology measurement* (pp. 311-322). Morgantown, WV: Fitness Information Technology.
- Cafri, G. and Thompson, J. K. (2004). "Evaluating the convergence of muscle appearance attitude measures". *Assessment*, Volume 11, Issue 3.
- Cash, T. F. (1990). "The psychology of physical appearance: Aesthetics, attributes, and images". In T. F. Cash and T. Pruzinsky (Eds.), *Body images: Development, deviance, and change* (pp. 51-79). New York, NY, US: Guilford Press.
- Cash, T. F., Morrow, J. A., Hrabosky, J. I. and Perry, A. A. (2004). "How has body image changed? A cross-sectional investigation of college women and men from 1983 to 2001". *Journal of Consulting and Clinical Psychology*, Volume 72, Issue 6.
- Cash, T. and Fleming, E. (2002). "The impact of body image experiences: Development of the body image quality of life inventory". *Eating Disorders*, Volume 31, Issue 4.
- Cash, T., Maikkula, C. L. and Yamamiya, Y. (2004). "Baring the body in the bedroom: Body image, sexual self-schemas, and sexual functioning among college women and men". *Electronic Journal of Human Sexuality*, Volume 7 ([www.ejhs.org/volume7/bodyimage.html](http://www.ejhs.org/volume7/bodyimage.html)).
- Cohn, L. D. and Adler, N. E. (1992). "Female and male perceptions of ideal figures: Distorted views among Caucasian college students". *Psychology of Women Quarterly*, Volume 16, Issue 1.  
<http://dx.doi.org/10.1111/j.1471-6402.1992.tb00240.x>
- Crawford, S. and Eklund, R. C. (1994). "Social physique anxiety, reasons for exercise, and attitudes toward exercise settings". *Journal of Sport & Exercise Psychology*, Volume 16.
- Eklund, R. and Crawford, S. (1994). "Active women, social physique anxiety, and exercise". *Journal of Sport & Exercise Psychology*, Volume 16, Issue 4.
- Encuesta de Alimentación y Bienestar (dECON-FCS-UdelaR) (2014). G. Ares, M. R. Curutchet, Z. Ferre, A. Giménez and M. Rossi: "Resultados de la Encuesta sobre Alimentación y Bienestar" Working Paper No. 08/15 Departamento de Economía (dECON), Facultad de Ciencias Sociales, Universidad de la República.  
<http://cienciassociales.edu.uy/departamentodeeconomia/wp-content/uploads/sites/2/2015/11/0815.pdf>
- Etilé, F. (2007). "Social norms, ideal body weight and food attitudes". *Health Economics*, Volume 16, Issue 9.
- Feingold, A. and Mazzella, R. (1998). "Gender differences in body image are increasing". *Psychological Science*, Volume 9, Issue 3.
- Frank, R. H. (2005). "Positional externalities cause large and preventable welfare losses." *American Economic Review*, Volume 95, Issue 2.
- Furnham, A., Badmin, N. and Sneade, I. (2002). "Body image dissatisfaction: Gender differences in eating attitudes, self-esteem, and reasons for exercise". *The Journal of Psychology Interdisciplinary and Applied*, Volume 136, Issue 6.
- Gardner, R. M., Jappe, L. M. and Gardner, L. (2009). "Development and validation of a new figural drawing scale for body-image assessment: The BIAS-BD". *Journal of Clinical Psychology*, Volume 65, Issue 1.

Instituto Nacional de Estadísticas (INE, 2011). Viviendas y población en el país según departamento. Censos de Población años 1908, 1963, 1975, 1996, 2004 (Fase 1) y 2011. Montevideo: Instituto Nacional de Estadística; available at: <http://www.ine.gub.uy/socio-demograficos/pobhogyviv2008.asp>

Kashubeck-West, S. and Saunders, K. (2001). "Inventories used to assess eating disorder symptomatology in clinical and non-clinical settings". In *Eating disorders in women and children. Preventions, stress management*, Chapter 4. CRC Press.

Kearney-Cooke, A. and Striegel-Moore, R. H. (1997). "The etiology and treatment of body image disturbance". Pp. 295-306, in D. M. Garner and P. E. Garfinkel (Eds.) *Handbook of treatment for eating disorders*, 2nd ed. New York: The Guilford Press.

Lavine, H., Aweaney, D. and Wagner, S. (1999). "Depicting women as sex objects in television advertising: Effects on body dissatisfaction". *Psychological Science*, Volume 9, Issue 3.

Lawler, M. and Nixon, E. (2011). "Body dissatisfaction among adolescent boys and girls: The effects of body mass, peer appearance culture and internalization of appearance ideals". *Journal of Youth Adolescence*, Volume 40, Issue 1.

Markey, C. N., Tinsley, B. J., Ericksen, A., Ozer, D. and Markey, P. (2002). "Preadolescents' perceptions of females' body size and shape: Evolutionary and social learning perspectives". *Journal of Youth and Adolescence*, Volume 31, Issue 2.

McElroy, S. L., Kotwal, R., Malhotra, S., Nelson, E. B., Keck, P. E., Jr. and Nemeroff, C. B. (2004). "Are mood disorders and obesity related? A review for the mental health professional". *The Journal of Clinical Psychiatry*, Volume 65, Issue 5.

Mendelson, B. K., Mendelson, M. J. and White, D. R. (2001). "Body esteem scale for adolescents and adults". *Journal of Personality Assessment*, 76.  
[https://doi.org/10.1207/S15327752JPA7601\\_6](https://doi.org/10.1207/S15327752JPA7601_6)

McKinley, N. M. and Hyde, J. S. (1996). "The objectified body consciousness scale. Development and validation". *Psychology of Women Quarterly*. Volume 20, Issue 2.

Meland, E., Haugland, S. and Breidablik, H. J. (2007). "Body image and perceived health in adolescence". *Health Education Research*, Volume 22, Issue 3.

Mutale, G. J., Stiller, J. and Larkin, R. (2014). "Development of a body dissatisfaction scale assessment tool". *The New School Psychology Bulletin*, Volume 13, Number 2.

Muth, T. F. and Cash, J. F. (1997). "Body-image attitudes: What difference does gender make?" *Journal of Applied Social Psychology*, Volume 27, Issue 16.

National Institute of Mental Health (NIMH, 2018). <https://www.nimh.nih.gov/health/statistics/any-anxiety-disorder.shtml>

Needham, B. and Crosnoe, R. (2005). "Overweight status and depressive symptoms during adolescence". *Journal of Adolescent Health*, Volume 36, Issue 1.

Noles, S. W. and Winstead, B. A. (1985). "Body image, physical attractiveness, and depression". *Journal of Consulting and Clinical Psychology*, Volume 53, Issue 1.

Olivardia, R., Pope, H. G. Jr., Borowiecki, J. J. III and Cohane, G. H. (2004). "Biceps and body image: The relationship between muscularity and self-esteem, depression, and eating disorder symptoms". *Psychology of Men & Masculinity*, Volume 5, Issue 2.  
<http://dx.doi.org/10.1037/1524-9220.5.2.112>

Pope, H. G.; Olivardia, R., Gruber, A. and Borowiecki, J. (1999). "Evolving ideals of male body image as seen through action toys". *Eating Disorders*, Volume 26, Issue 1.

- Silberstein, L. R., Striegel-Moore, H., Timko, C. and Rodin, J. (1988). "Behavioral and psychological implications of body dissatisfaction: Do men and women differ?" *Sex Roles*, Volume 19.
- Stice, E. and Shaw, H. (2002). "Role of body dissatisfaction in the onset and maintenance of eating pathology: A synthesis of research findings". *Journal of Psychosomatic Research*, Volume 53, Issue 5.
- Stutzer, A. and Meier, A. N. (2016). "Limited self-control, obesity, and the loss of happiness". *Health Economics*, Volume 25, Issue 11.
- Stunkard, A., Sorenson, T. and Schulsinger, F. (1983). "Use of the Danish adoption register for the study of obesity and thinness". In S. Kety, L. Rowland, R. Sidman and S. Mattysse (Eds.), *Genetics of neurological and psychiatric disorders* (pp. 115-120). New York: Raven Press.
- Thompson, J. K., Heinberg, L. J., Altabe, M. and Tantleff-Dunn, S. (1999). "Exacting beauty: Theory, assessment, and treatment of body image disturbance". Washington, DC, US: American Psychological Association.  
<http://dx.doi.org/10.1037/10312-000>
- Thompson, J. K. and Heinberg, L. J. (1999). "The media's influence on body image disturbance and eating disorders: We've reviled them, now can we rehabilitate them?" *Journal of Social Issues*, Volume 55, Number. 2.
- Vartanian, L. R. and Dey, S. (2013). "Self-concept clarity, thin-ideal internalization, and appearance-related social comparison as predictors of body dissatisfaction". *Body Image*. Volume 10, Issue 4.
- Yamamiya, Y., Cash, T. F., Melnyk, S., Posavac, E. H. D. and Posavac, S. S. (2005). "Women's exposure to thin-and-beautiful media images: Body image effects of media-ideal internalization and impact-reduction interventions". *Body Image*, Volume 2, Issue 1.