

## Original Article

# Sense of Coherence According to Gender and Obesity

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### Abstract

**Background:** The sense of coherence (SOC) provide significant information on stress management

**Aim :** It was to investigate the possible association between SOC, obesity and gender

**Material and Methods:** Two hundred and fifty individuals visiting cosmetic centers were enrolled in this cross-sectional study. Participants were selected from a representative sample of the cosmetic centers in the area of Attica. The SOC scale was used as the research tool.

**Results:** Total SOC score per BMI classification was  $136.13 \pm 20.48$  for normal weight,  $133.91 \pm 16.31$  for overweight and  $137.49 \pm 20.10$  for obese women, without statistically significant difference between the three groups. Significant difference was detected in the subscale (meaningfulness) in females only: Overweight women had statistically lower values than normal weight women ( $39.25 \pm 5.81$  vs  $42.92 \pm 6.42$ ,  $p=0.022$ ).

**Conclusions:** Overweight women may be a vulnerable population, exhibiting low sense of coherence and demanding psychological interventions in order to effectively cope with stress, especially during weight loss efforts.

**Key words:** Overweight, Sense Of Coherence, Women

### Introduction

Sense of coherence (SOC) theory was developed in the late 1970s by the medical sociologist Aaron Antonovsky. It focuses on psychological health resources (Antonovsky 1996). SOC reflects a flexible orientation to life that promotes successful coping and not a fixed way of response to challenges. SOC is about dealing with stressors developing anxiety management skills. SOC exerts a significant influence on the QoL; the stronger the SOC, the better the QoL, while SOC is a valid tool in predicting a good QoL (Wolf & Ratner 1999; Eriksson & Lindstrom 2007; Skar et al., 2014).

SOC has a strong sociological element, since coping is not restricted to the person concerned, but it rather involves interaction between people and the society around them and refers to people integration into their social environments. SOC comprises a generalised life orientation to

perceive and control the environment in a health promoting way. (Suominen & Lindstrom 2008)

In that context, conditions with a strong psychosocial element, as obesity may be related to SOC. (Von Lengerke et al., 2004; Von Lengerke et al., 2007; Fagermoen et al., 2015) Weight stigma poses a significant threat to psychological and physical health, resulting to poor physical health outcomes for obese individuals. Weight stigmatization has been proposed as a significant risk factor for depression, low self-esteem and body dissatisfaction. (Puhl & Heuer 2010, Jelastopulu et al 2012). Body weight itself does not seem to account for the aforementioned conditions, since these independent risk factors persist despite control for variables as age, gender, obesity onset, and BMI (Garipey et al., 2010, Rekleiti and Sapountzi-Krepia 2009). There is growing evidence that the adverse biochemical changes associated with adiposity may be precipitated by

the psychological stress accompanying the experience of weight-based discrimination. Moreover, chronic stress, anxiety, and negative mood associated with abdominal obesity and social disadvantages may further increase risk for obesity (Sareen et al, 2005; Mannuci et al., 2010).

SOC seems to have three major components: comprehensibility, manageability and meaningfulness and Antonovsky proposed the SOC questionnaire, examining SOC and its dimensions. However, Antonovsky claimed that even though each item of his questionnaire (SOC-29/SOC-13) represented one of the three dimensions of SOC, the scale measured the SOC construct unidimensionally, a solution partially not supported, since some analyses present a three factor solution. (Feldt et al., 2003; Eriksson & Lindstrom 2005; Eriksson & Lindstrom 2006).

Although many factors affect SOC, gender has a crucial role, because it is a determinant of salary (Laaksonen et al. 2010), health status and life expectancy (Lahelma et al. 1999) and reproductive responsibilities. Since women might face significant difficulties with stress management under certain situations, obesity may pose additional burden on women, especially in the weight loss period. Indeed, Women are considered more vulnerable in terms of coping with health and life situation and this vulnerability is reflected on a low SOC, especially among older women (Skar et al., 2014).

The purpose of the present study was to investigate the association of gender and obesity based on SOC theory.

## Materials and Methods

Two hundred and fifty individuals visiting cosmetic centers were enrolled in this cross-sectional study. Participants were selected from a representative sample of the cosmetic centers in the area of Attica. The population under study came from 9 different areas of Athens, which cover geographically and demographically the largest part of the region of Athens and suburbs. These areas include Peristeri and Aigaleo (western suburbs), Ampelokipoi, Syntagma and Kallithea (centre of Athens), Cholargos (eastern suburbs), Glyfada (south suburbs), Kifissia and Maroussi (north suburbs).

From the 300 people who initially agreed to participate in the study, 10 were excluded for not providing reliable information on their

anthropometric characteristics, 5 because they suffered from adult diabetes mellitus, 10 due to hypothyroidism and 25 because they suffered from polycystic ovary syndrome. These diseases, as they affect body weight, were considered as exclusion criteria for participation in the study so as not to cause confusion on the relationship between stress management and the existence or absence of obesity. Obese people came for slimming services while non-obese people for other cosmetic medicine services.

The research tool was a structured questionnaire. The questionnaire in the first part included questions on the demographic and anthropometric characteristics of the individuals. The second part of the questionnaire included the stress management scale, Sense of Coherence (SOC), which consists of 29 questions. The 29 items are presented on a 7-point Likert scale with scores ranging from 29 to 203. A higher score suggests a stronger SOC; however, extremely high scores indicate rigidity (no cutoff point is mentioned). Three subscales (comprehensibility, meaningfulness and manageability) were extracted. BMI classification was as follows: Normal: 18.5-24.9, overweight: 25.0—29.9, obesity: 30.0-34.9. The questionnaire has been weighed in Greek and we received permission from those responsible to use it. The collection of observations took place during a personal interview using the structured questionnaire described above between September 2016 and February 2017. Descriptive and inferential statistics was performed. Analysis of Variance (ANOVA) and post hoc analysis with Bonferroni correction was also performed. Statistical significance was set at  $p=0.05$ . SPSS 22.0 and Sigma plot 12.5 were used for analyses.

## Results

Table 1 presents the demographic characteristics of the population under study: 72.4 % were women, 56.4% were single, while they were, on average, 35 years old with 13 years of education. Mean BMI value was  $26.80 \pm 6.20$ . Morbid obesity (BMI greater than 40.0) was detected in 8 cases. Regarding women, total SOC score per BMI classification was  $136.13 \pm 20.48$  for normal weight,  $133.91 \pm 16.31$  for overweight and  $137.49 \pm 20.10$  for obese women, without statistically significant difference between the three groups ( $p=0.998$ ). However, regarding SOC subscales significant difference was detected in the subscale “meaningfulness”:

Overweight women had statistically lower values than normal weight women ( $39.25 \pm 5.81$  vs  $42.92 \pm 6.42$ ,  $p=0.022$ ). Differences between the three BMI classes in women are depicted in Graph 1. Men had higher values than women in overweight and obese category ( $136.46 \pm 25.62$  vs  $133.91 \pm 16.31$ ,  $p=0.642$  for overweight men and women respectively and  $142.10 \pm 30.94$  vs  $137.49 \pm 20.10$ ,  $p=0.452$  for obese men and women respectively) (Table 2&3). In normal weight category, women had higher score than men:  $136.13 \pm 20.48$  vs  $134.10 \pm 21.74$  respectively,  $p=0.690$ . No statistical differences were detected, either between groups (men-women), or within groups (BMI classification),  $p>0.1$  for all comparisons of total score and subscales). However, obese men had higher scores than normal weight men in all three SOC subscales:  $50.90 \pm 12.92$  vs  $45.45 \pm 9.94$  respectively for comprehensibility ( $p=0.419$ ),  $41.43 \pm 10.51$  vs  $41.10 \pm 5.75$  respectively for meaningfulness ( $p=0.995$ ) and  $49.76 \pm 10.68$  vs  $47.55 \pm 8.22$  respectively for manageability ( $p=0.990$ ).

### Discussion

According to the findings of the present study, overweight women differed from their normal weight counterparts in the meaningfulness subscale of SOC, indicating a less effective component of SOC. Although total and subscale scores did not reveal any significant difference between men and women, the lower scores for women in overweight and obese category, along with the finding of the lower score in the meaningful subscale for overweight women, allow assumptions for women vulnerability in stress management.

Previous research shows that a closer look at SOC subscales reveals differences either between men and women or between BMI categories. In that context, Von Lengerke et al. (2004, 2007) found no significant differences between normal-weight, overweight and obese respondents with regard to the Sense of Coherence and other psychological dimensions. Nevertheless, Bjorvell et al. (1994) using the Karolinska Scales of Personality questionnaire found higher totals in most subscales in the group of obese people in comparison to the control group, while in case of morbid obesity differences are strongly emerged. SOC reflects personal resources and people with a strong SOC are considered more resilient to stress and exhibit effectiveness in finding solutions by themselves to cope with a health problem. A strong SOC score has also been related with improved HRQoL and may be an index of protectiveness for people facing stressful health situations. (Fok et al., 2005) A low SOC score, suggests illness vulnerability and need for further support. Overweight people may retain less skills to manage successfully with change and weight loss. (Teixeira et al., 2015). This finding is consistent with Antonovsky's theoretical framework, relating SOC to the degree of illness. (Teixeira et al., 2015). Obesity may pose risk for anxiety disorders through various pathways. For instance, weight-related discrimination and stigma can be deeply distressing for obese individuals (Puhl & Heuer 2010) while in addition, the negative effect of obesity on health and quality of life might be particularly stressful. (Christaki et al., 2013)

**Table 1. Demographic and somatometric characteristics of the sample**

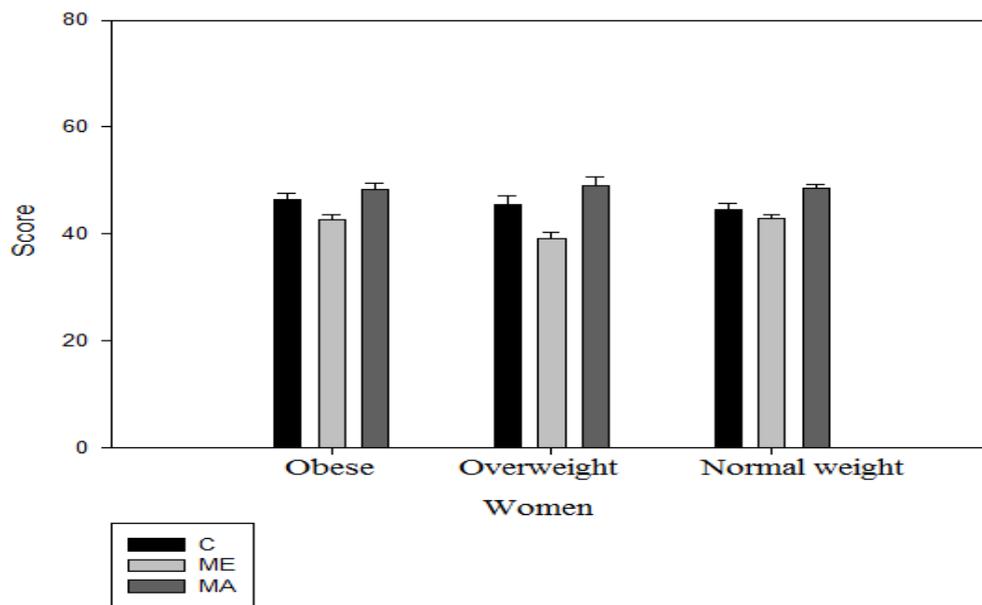
	Mean± SD	N (%)
<b>Gender</b>		
Female		181(72.4)
Male		69(27.6)
<b>Marital status</b>		
Single		141(56.4)
Married		88(35.2)
Separated or divorced		14(5.6)
Widower		7(2.8)
<b>Age (years)</b>	34.90±11.47	
<b>Years of study</b>	13.40±3.01	
<b>BMI (kg m<sup>2</sup>)</b>	26.80±6.20	

**Table 2. SOC total and subscales score in females depending on BMI classification**

<b>Gender</b>	<b>BMI</b>		<b>N</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>p</b>
<b>Females</b>	Normal weight	Comprehensibility	98	24.00	72.00	44.60	10.40	
		Meaningfulness*	98	30.00	55.00	42.92	6.42	
		Manageability	98	36.00	67.00	48.61	7.65	
		Total score	98	105.00	183.00	136.13	20.48	
	Overweight	Comprehensibility	32	31.00	60.00	45.50	9.14	<0.05
		Meaningfulness*	32	28.00	50.00	39.25	5.81	
		Manageability	32	31.00	63.00	49.16	8.14	
		Total score	32	93.00	158.00	133.91	16.31	
	Obese	Comprehensibility	51	30.00	60.00	46.41	8.29	
		Meaningfulness*	51	24.00	54.00	42.67	7.46	
		Manageability	51	28.00	64.00	48.41	7.94	
		Total score	51	94.00	175.00	137.49	20.10	
Women in the overweight group had statistically significant lower values than women in the normal weight group (p=0.022, post hoc analysis, Bonferroni t test)								

**Table 3. SOC total and subscales score in males depending on BMI classification**

<b>Gender</b>	<b>BMI</b>		<b>N</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>p</b>
<b>Males</b>	Normal weight	Comprehensibility	20	29.00	73.00	45.45	9.94	
		Meaningfulness*	20	28.00	56.00	41.10	5.75	
		Manageability	20	35.00	64.00	47.55	8.22	
		Total score	20	102.00	193.00	134.10	21.74	
	Overweight	Comprehensibility	28	22.00	65.00	44.93	11.84	NS
		Meaningfulness*	28	26.00	51.00	41.14	7.19	
		Manageability	28	36.00	70.00	50.39	9.13	
		Total score	28	84.00	177.00	136.46	25.62	
	Obese	Comprehensibility	21	33.00	76.00	50.90	12.92	
		Meaningfulness*	21	22.00	55.00	41.43	10.51	
		Manageability	21	31.00	69.00	49.76	10.68	
		Total score	21	89.00	191.00	142.10	30.94	
*NS: Non Significant								

**Graph 1. Bar chart of SOC subscales score in women**

C: Comprehensibility ME: Meaningfulness MA: Manageability

Psychopathological disturbances are the most relevant factors associated with poor HRQL in obese patients, affecting not only psychosocial, but also physical domains, largely independent of the severity of obesity. (Garipey et al., 2010) Obesity carries a unique disease burden especially on women who experience greater weight-related stigma and discrimination and are at increased risk for depression than obese men. (Azarbad & Gonder-Frederick 2010) Compared to men, women in the study of Skar et al (2014) had a greater proportion of low SOC scores probably implying that women need more support to cope with their health situations. Previous clinical and population-based studies of patients with obesity or other chronic illnesses enhance this concept. (Burns et al., 2001; Song et al., 2010) Moreover, overweight individuals exhibit a neuropsychological profile of inflexible information processing, a finding demanding further investigation. (Roberts et al., 2007) Stress and negative emotions have been shown to be critical factors in inducing overeating as a form of maladaptive coping in obese people and it is likely that stress management could facilitate weight loss in obese women. (Christaki et al., 2013) These indications underline the necessity for psychological intervention and further study of SOC in specific vulnerable groups, such as women.

The findings of the present study expands previous results of ours, showing no significant

differences between obese and non-obese individuals in total SOC scores, (Sardeli et al., 2017) now focusing on gender and SOC subscales. Since the present study included individuals that had already decided to take initiative towards weight loss, a strong SOC obscuring subtle group differences is possible. Moreover, as few morbid cases were included in the study, SOC may not fully represent the actual situation in general obese population and this is a limitation of our study. Future studies on non morbid obese individuals should include large, representative samples focusing on SOC subscales for definite conclusions to be drawn.

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