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Association between Subjective Social Status and Emotional Eating among US Latinx Adults

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ABSTRACT

Introduction: Subjective social status (SSS) is a predictor of psychological distress and cardiometabolic diseases independently from objective measures of socioeconomic status (SES). Lower SSS may act as a psychosocial stressor and affect emotional eating (EE). Although US Latinx adults often report low SSS, the association between SSS and EE has not been examined in this population. This study aimed to evaluate the association between SSS (past and current) and EE among US Latinx adults.

Methods: Data from the Latino Health and Well-being Study were used for this secondary analysis. The sample included 584 Latinx adults recruited from a community health center serving a predominantly Latinx community in Lawrence, MA. SSS was measured with the MacArthur scale using four different ladders (familial SSS from 0-12 years and 13-18 years, current neighborhood SSS-within Lawrence, and current societal SSS-within the US). EE was measured with the Three-Factor Eating Questionnaire R18-V2 and was categorized into no, low, and high EE. Adjusted polytomous logistic regression models were used to examine the associations between each SSS measure and EE.

Results: Approximately 73% of the participants were of Dominican heritage. Twenty-seven percent and 34% experienced low and high EE, respectively. In adjusted regression models, each unit increase in the current neighborhood SSS scale was associated with 11% lower odds of low EE vs. no EE (OR: 0.89; 95% CI (0.81-0.97)) and 14% lower odds of high EE vs. no EE (OR: 0.86; 95% CI (0.79-0.94)). Similarly, each unit increase in the current societal SSS ladder was associated with 10% lower odds of low EE vs. no EE (OR: 0.90; 95% CI (0.82-0.99)) and 16% lower odds of high EE vs. no EE (OR: 0.84; 95% CI (0.76-0.93)). Familial SSS at 0-12 years and 13-18 years were not significantly associated with EE.

Conclusions: In a sample of US Latinx adults, greater current neighborhood and societal SSS were associated with lower odds of low and high EE (vs. no EE), but past familial SSS was not. Future research is needed to confirm our findings and to evaluate potential mechanisms explaining the relationships between SSS and EE.

Keywords: US Latinxs, Subjective Social Status, Emotional Eating, Dysregulated Eating Behaviors

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TABLE OF CONTENTS

BACKGROUND/LITERATURE REVIEW

Subjective Social Status (SSS)

SSS is a measure of an individual's perception of their social status compared to a referent population in their community, city, or country.[1,2] People rate themselves based on how they perceive their social position, which includes social class, income, wealth, occupational status, and current and future socioeconomic mobility, compared to a reference group.[3-9] While SSS and socioeconomic status (SES) are both measurements of socioeconomic position, these metrics may influence health differently. Studies have shown that SSS remains significantly associated with physical health (i.e., heart disease, diabetes), psychological health (i.e., depression, anxiety), and health behaviors (i.e., dysregulated eating) even after adjusting for SES. [10-12] This may be because SSS captures the internalization and psychosocial consequences of objective SES ranking within a social hierarchy. Further, epidemiologic studies that rely on objective measures of social status (e.g., income and education) are subject to information bias by having a high non-response rate or cultural differences. [6] Instead, SSS measures may overcome these limitations.

One of the most commonly used tools to measure SSS is the MacArthur Scale of Subjective Social Status.[2] This instrument is validated and used in many countries, settings, and population subgroups.[2,3,10,13-15] The MacArthur scale measures SSS using a ladder illustration where individuals compare themselves, in terms of education, social status, jobs, and income, to a reference population.[3] The scale can be used to measure SSS in comparison to multiple reference groups from different social spheres.[2,16] For example, community or neighborhood SSS ladders measure an individual's perceived social position in comparison to people in the community they live in, including people in the same neighborhood, city, or surrounding region.[2]

In contrast, societal SSS ladders measure subjective social position in comparison with everyone in the country where the individual resides. [2] Thus, evaluating SSS using different reference groups may shed light on how SSS within specific social spheres affects an individual.

SSS ladders can also be used to measure perceptions of social positions across the life course when assessing childhood and adulthood stages. [17] For instance, childhood SSS measurements assessed retrospectively among adults may provide knowledge on what their family SSS was during earlier life stages. [16,17] However, research shows that SSS is a relatively stable measure with most people remaining on the same trajectory throughout life and facing similar psychosocial influences as when they were younger. [18,19] The literature has shown that people with high SSS at age 12 are likely to remain with a high SSS through the transition to adulthood. [18] Furthermore, it is documented that less than 10% of children with higher SSS experience a drop in SSS later in life and less than 7% of children with a lower SSS have a decline in SSS. [18] Similar patterns are shown among healthcare workers, where SSS remained stable throughout a period of 7 months. [19]

Determinants of Subjective Social Status

Several sociodemographic factors have been identified as determinants of SSS. In particular, objective SES measures such as income, education, and occupational status are the most common and well-known determinants of SSS ratings. [4,9,11] Other sociodemographic factors such as older age, male, and being married, are associated with higher SSS ratings. [20,21] SSS also differs by race/ethnicity, with individuals of racial/ethnic minority groups reporting lower SSS ratings. [2,8,14] Ostrove and colleagues found that, in a sample of people from the San Francisco Bay area, non-Latinx white individuals rate their societal SSS higher (average of 6)

than US Latinxs (average of 4). [8] Furthermore, there are differences in SSS ratings between Latinx heritage groups. For instance, individuals of Puerto Rican heritage have a higher SSS rating than Dominican individuals and other Latinx heritage groups. [22] Additionally, individuals born on the mainland US rate themselves higher than individuals born outside of the mainland US. [22] These differences in SSS ratings may suggest that perception of social positions should be further explored in US Latinx communities, particularly among Latinxs born outside of the mainland US.

Subjective Social Status and Psychological Health

It is suggested that the internalization of low SSS may influence psychological and physical health by acting as a stressor. [13,23] To investigate how SSS was associated with psychological health outcomes (i.e., negative affect), Adler et al. used the MacArthur's social ladder of SSS. In this seminal paper, Adler et al. found that, among healthy White women in the mainland US (30-46y), higher SSS was significantly associated with lower psychological distress. [24] These findings have also been confirmed in heterogeneous samples of men and women. For instance, researchers in Japan found that, among men and women (20-74y) of different social classes, individuals who rate themselves lower on the MacArthur social ladder of SSS have higher scores of psychological distress. [23] Further evidence of the association of SSS with psychological health is also documented among adolescents, where individuals with a low SSS have higher levels of perceived stress compared to those with a high SSS. [25] Thus, the literature suggests that low SSS may negatively influence psychological distress.[23,25,26]

In addition to the documented associations between SSS and psychological distress, studies have examined the link between SSS and depression. Multiple large-scale population

studies have documented that individuals who rate themselves high on the SSS ladder are less likely to experience depression. [27,28] This association is still prominent when considering key confounders, such as SES, age, and gender. [4,29,30] However, it is important to note that prior research has found that there is no association between SSS and depression over time among racial/ethnic minority groups. For instance, youth SSS predicted depressive symptoms during adulthood among non-Latinx whites in the mainland US but not in non-Latinx blacks. [18] These mixed findings indicate that more studies evaluating past and current SSS among racially/ethnically diverse samples disproportionately affected by low SSS and mental health disorders are needed.

Subjective Social Status and Physical Health

Beyond the associations of SSS with psychological health, lower SSS is associated with poorer health status independent of objective SES measures. [21,31-33] Because of this, it suggests that SSS may provide a more nuanced understanding of health disparities compared to conventional objective measures of SES. A higher rating of SSS is linked to better overall physical health than people who had lower SSS. [10,11,34]

Studies evaluating SSS in relation to physical health outcomes, such as cardiometabolic diseases and cardiovascular health, have shown more favorable health profiles with higher SSS (independently of objective SES measures). [14,35] For example, research shows that obesity is far more prevalent among children who had lower SSS scores than children with higher SSS. [36,37] Specifically, among adolescents, a one-unit increase in SSS is associated with a 10% lower odds of obesity. [37] In addition, low SSS is associated with higher odds of cardiometabolic (i.e.,

diabetes, high cholesterol, insulin resistance, hypertension, and dyslipidemia) and cardiovascular

diseases (i.e., coronary artery disease and angina). [4,13,29,31,38-40]

Sex- and race-specific associations of SSS with cardiovascular disease have also been

identified by several studies. [31,38] Alder et al. found sex- and race-specific differences between

SSS and odds of hypertension when comparing populations from the CARDIA – Coronary

Artery Risk Development in Young Adults – (in the US) and Whitehall (in Europe) studies.

Specifically, non-Latinx white males and females and non-Latinx black females, but not non-

Latinx black males, had a significant association between low SSS and hypertension. [31]

Furthermore, the English Longitudinal Study of Aging (ELSA) found that men with low SSS had

an increased risk of incident diabetes, but this association was weaker in women. [21] Conversely,

the Jackson Heart Study (JHS) found that a low SSS was inversely associated with insulin

resistance – a risk factor for type 2 diabetes – in women but not in men. [29] Similarly, in another

analysis of the JHS, women with a lower SSS had a more severe metabolic syndrome score (high

triglyceride levels, systolic blood pressure, HDL-C, and waist circumference) at baseline,

whereas this was not observed in men. [30,41]

As science continues to uncover the critical role of the social determinants of health,

special attention should be given to SSS, particularly among vulnerable populations, as it may

help understand disparities in health that are not always captured by objective measures of

SES.[10,11,33,42]

Subjective Social Status and Latinxs in the US

Latinxs in the US have a greater burden of social inequalities, such as lower income and

education levels than their non-Latinx white counterparts. [43,44] Additionally, US Latinxs are 2.5

times more likely to live in poverty and 1.3 times more likely to be unemployed than non-Latinx whites. [44,45] Because of this, SSS may be of particular importance in the US Latinx population. In prior studies, US Latinx adults have rated their SSS lower relative to other populations in the US.[8] For example, Zvolensky et al. found that, on average, Latinx of different heritage groups rate themselves on the 4th step on the MacArthur SSS scale compared to the overall US population. [46] This is a lower rating than that of non-Latinx white population who, on average, rate themselves between the 7th and 8th steps. [47]

Consistent with the aforementioned studies on SSS and physical and psychological health, researchers have documented that Latinx individuals who rate themselves lower on the SSS scale also experience poorer cardiovascular health and more psychological distress and depressive symptoms (independently of SES measures). [35,46,48] This evidence documents the critical role that SSS may play in Latinx health disparities as this group also experience a great burden of psychological distress and cardiometabolic diseases (i.e., obesity and Type 2 Diabetes).

Emotional Eating (EE)

Low SSS may act as a psychosocial stressor and negatively impact eating behaviors. EE is a dysfunctional eating behavior defined as the propensity to eat in response to negative emotions (e.g., stress, anxiety, sadness, etc.).[49-51] Such behavioral response is used to reduce awareness and ameliorate negative emotions and is thus considered a negative behavioral adaptation to cope with stressors and adversity. [50,51] EE tends to co-occur with other dysfunctional eating behaviors such as overeating and consuming foods that are high in fat and

sugar. [49,52-54] [55] Furthermore, EE is a known risk factor for eating disorders such as binge eating and thus is ultimately detrimental to health. [49]

Epidemiologic studies typically assess EE through self-report. There are several instruments available to measure this dysfunctional eating behavior, with the Three-Factor Eating Questionnaire (TFEQ) being one of the most commonly used. [56] In its latest version, TFEQ (R18-V2), this instrument specifically includes six items that measure eating due to being anxious, tense, depressed, lonely, sad, and nervous. [56] The documented good reliability of this instrument in different settings field [51] and its ease of implementation make it a practical tool to measure EE in epidemiologic studies and characterize such behavior. [56-60]

Determinants of Emotional Eating

As stated in the EE definition, laboratory and epidemiologic studies have shown that the main determinants of EE are negative emotions and adversity. For instance, a wide range of studies in heterogenous populations have documented that depression, anxiety, sadness, and anger are all strong predictors of EE. [54,61-64] Other studies have also documented that psychological stress is linked with EE severity. [65,66] Accordingly, individuals that are exposed to stressful tasks in laboratory studies also show an increase in EE after completion of such tasks.[67,68]

Experiencing adversity and stressors is also associated with EE. For instance, food-insecure adults tend to have higher EE scores than food-secure ones. [69,70] Prior studies also suggest that adverse experiences during childhood are associated with EE in adults. For example, individuals that have experienced childhood trauma or negative parenting styles have significantly higher EE during adulthood. [71,72] Another study highlights the significant

associations between being deprived of emotional needs during childhood and EE in adulthood.[73] Thus, these studies provide evidence that psychological distress and adversity are important determinants of EE.

Other potential determinants of EE include being a female, having overweight or obesity, having a low income, and having difficulty regulating emotions. [74,75] Notably, most of the research on EE focus on women however, both populations show disparate evidence of sex-specific differences for engaging in EE. For instance, women that engage in EE are more likely to report stress, anxiety, and depression than men. [50,76,77] Further evidence of sex-specific differences in EE was demonstrated in a sample of adolescents. Specifically, among boys, confused mood was associated with EE, whereas among girls, worrying, perceived stress, and tension/anxiety was associated with EE. [51] In light of this evidence, EE studies need to continue to include men and women and account for the important psychosocial and sociodemographic determinants of EE.

Emotional Eating and Physical Health

Several studies have documented associations between EE and physical health. It is important to note that these associations were first studied in European and non-Latinx white populations and have been recently explored in different racial/ethnic minority groups. The largest body evidence on EE and physical health exists for obesity and markers of adiposity, [74,78] where studies have shown that higher EE is associated with higher odds of obesity and body mass index (BMI). [74] A plausible explanation for this is that individuals engaging in EE tend to overeat and consume foods that are high in calories, sugar, and fat, which have all been linked with obesity. [54,79] Another potential cause for this association is the fact that individuals with

overweight or obesity experience psychological distress –often resulting from weight discrimination-- and may thus be more likely to engage in EE to cope with such stress. [54,61]

Beyond obesity, EE is associated with other cardiometabolic diseases. For instance, the severity of EE is associated with a higher prevalence of hypertension, hyperlipidemia, type 2 diabetes, and high cholesterol. [80-83] Similar to associations with obesity, EE is believed to be linked with the aforementioned cardiometabolic diseases by altering food selection and promoting unhealthy dietary intake (i.e., high-fat sweets and high fat salty foods). Thus, this evidence suggests that EE may play a role in disparities of cardiometabolic diseases, particularly among populations disproportionally experiencing them such as US Latinxs.

Emotional Eating and Latinxs in the US

EE research in US Latinxs has been developing over the past decade and continues to gain attention. Latinxs in the US experience a disproportionate number of social stressors and adversity compared to non-Latinx whites, such as job and housing instability, low income, and discrimination, [43,44,84,85] which may predispose them to EE. Studies suggest that up to 60% of US Latinx adults engage in some level of EE. [58] Because of this, studies on US Latinxs have focused on understating predictors of EE in this population and how it is associated with health outcomes.

Similar to non-Latinx populations, studies have documented that experiencing negative emotions (i.e., depression and anxiety symptoms) and psychological stress are associated with EE severity in US Latinxs. [58,66,86] In addition, social stressors such as food insecurity (a proxy for low SES and a stressful life experience) and acculturative stress have been linked with greater

EE in this racial/ethnic minority group, further documenting how social disparities may shape EE in US Latinxs. [58,81,87]

EE is also studied in US Latinxs concerning dietary intake and physical health. In particular, studies have shown that US Latinxs engaging in EE are more likely to overeat, consume more energy-dense foods and saturated fats, and have lower diet quality scores. [88,89] Accordingly, studies on EE and cardiometabolic diseases in this racial/ethnic minority group have shown positive associations between this dysfunctional eating behavior and disease. For instance, among US Latinx adults, those engaging in high levels of EE had twice the odds of obesity and type 2 diabetes and were 16% more likely to experience hypertension than those without EE. [81] Altogether, this evidence suggests that EE is problematic among US Latinxs and needs to be further explored in the context of health disparities and health equity in this group.

Subjective Social Status (SSS) and Emotional Eating (EE)

Despite the established connection between psychological distress and EE, there is little research on how SSS is associated with EE. [61,74,90,91] As previously mentioned, studies have identified low SSS as a potential risk factor for stress, depressive symptoms, and anxiety. [23,46] This collection of emotions may influence maladaptive coping behaviors such as EE. [49]

Experimental studies suggest that SSS may impact eating behaviors. A study in Great Britain randomized undergraduate students to a wealthy or poor group—depending on family's class status—and manipulated social class by comparing them relative to other class groups. Individuals who perceived that they had a low social class ate more food and were more anxious than individuals who did not perceive they were in a low social class. [32,92] Another study manipulated perceived social status -- via a rigged game of Monopoly-- by randomizing people

into high or low social status groups. Researchers observed that resilient individuals (i.e., able to positively cope with stress and anxiety) consumed less energy-dense food when in a high social group but more energy-dense food when in a low social group. [93] Together, these experimental studies indicate that a lower perception of social status is associated with unhealthy eating behaviors.

To our knowledge, only one epidemiologic study evaluates the association between SSS and EE. This study shows that, among low-income African Americans in Atlanta, a one-unit decrease in the SSS ladder, when compared to individuals in their community, is significantly associated with EE severity. [94] Nonetheless, this study did not assess how past SSS (i.e., during childhood) is associated with EE. Considering the aforementioned research gaps and the high burden of low SSS, psychosocial stressors, and EE that the US Latinx population experience, it is imperative to understand how SSS is associated with EE in this high-risk group. Such knowledge is key to understanding how perceived social inequities may be linked with dysfunctional eating behaviors in US Latinxs and identifying individuals at high risk of EE for intervention and prevention. The objective of this study was to evaluate the association between past and current SSS and EE in a sample of US Latinx adults.

INTRODUCTION

Subjective social status (SSS) is a measure of an individual's perception of their social status (e.g. income, education, and employment status) relative to a population (i.e., in the same neighborhood, city, or country). [1,2] SSS is of particular public health relevance as it is inversely associated with self-rated health, psychological distress, and cardiovascular and metabolic diseases, independently of objective measures of socioeconomic status (SES). [3,19,26,27,29] SSS is thus hypothesized as a distinct measure from objective SES, capturing the psychosocial consequences of subjective SES ranking within a social hierarchy. SSS may also capture variations in perceptions of social positions across the life course when measured during childhood and adulthood, which may help understand how past and current SSS are associated with behavioral, psychological, and physical health across the life course.

SSS has gained attention in research among racial/ethnic minority groups as it may provide a more nuanced understanding of health disparities compared to objective SES measures. [4,10,27,48] This is of particular relevance to US Latinx adults as they experience a greater burden of psychological distress, [22,46,95] cardiometabolic diseases, [35] and social inequalities—i.e., lower-income and education levels and greater poverty and unemployment rates—than non-Latinx white populations. [44,45] In fact, US Latinx adults often rate their SSS lower relative to other population subgroups. For example, in a sample of diverse pregnant women, Latinxs rate themselves on the 4th rung of the MacArthur's social ladder (where higher rungs are indicative of higher SSS), whereas Chinese, African American, and non-Latinx whites rated themselves on the 5th, 5th, and 6th rung, respectively. [8] Other studies among men and women have also reported similar findings with US Latinx adults rating their SSS on the 4th rung (when compared to the overall US population)[46] and non-Latinx whites rating themselves between the 7th - 8th rungs. [47]

SSS is also of great importance to US Latinxs as it has been linked with obesity and psychological distress in this racial/ethnic minority group, [35,46] further documenting the critical role it may play in Latinx health disparities.

Experimental studies suggest that SSS may act as a psychosocial stressor and impact eating behaviors. [92] Emotional eating (EE) is a dysfunctional eating behavior characterized by eating due to an inability to resist negative emotions. [49] EE is considered a maladaptive coping strategy as it is associated with cardiometabolic diseases, including in studies among US Latinx adults. [49,81] To the authors' knowledge, only one epidemiologic study has evaluated the association between SSS and EE. [94] This study found that, among low-income African American adults in the Southeast US, lower SSS ratings compared to their community are associated with increased severity of EE. [94] This evidence is relevant to US Latinx adults as, in addition to experiencing low SSS, EE may be prevalent in this group. [58,96] Thus, SSS may play an important role in EE levels among US Latinx adults, but no study has evaluated this association. Such knowledge may help shed light on how perceived social inequities are associated with dysfunctional eating behaviors in US Latinx adults and identify individuals at high risk of EE for early intervention. Thus, the objective of this study was to evaluate the association of past and current SSS with EE in a sample of US Latinx adults.

METHODS

Study design and participants

This secondary analysis used cross-sectional data from the Latino Health and Well-being Study. [97] Participants included Latinx adults (21-84 years) who resided in Lawrence, MA recruited from September 2011 to May 2013. Individuals were recruited from the Greater

Lawrence Family Health Center. The study excluded individuals who had plans of moving out of the city within the next 12 months and had cognitive or physical impairments. Individuals were sent out mailed letters that described the purpose of the study and included a phone number to opt-out of the study. Those who did not call to opt-out were contacted to assess eligibility and desire to participate. Interested and eligible individuals were scheduled for in-person study visits where they provided written informed consent and completed standardized interviews. A total of 3,067 individuals were screened, and 602 individuals were enrolled in the study (284 were ineligible, 1,547 were not able to be reached, 484 refused to participate, and 150 did not show up for the baseline visit).

For the present study, 8 pregnant women were excluded from the analysis given that they may have experienced EE differently during pregnancy. [98] In addition, those with missing data for exposure, outcome, and covariates were excluded from analysis: SSS 0-12 years: n=1; SSS 13-18 years: n =1; income: n=2; employment status n=2; Latinx group: n=1; US-born n=1; BMI: n=2. The final number of individuals in the analytic sample was 584.

Study measures

Standardized study interviews were conducted by bilingual study personnel. Data on past and present SSS, EE, sociodemographic and behavioral characteristics, and anthropometric measurements were collected during the in-person interviews.

Exposure: Subjective Social Status (SSS)

The MacArthur Scale of Subjective Social Status was used to measure how individuals perceived their socioeconomic status relative to people in the same community, city, or country.

Participants were asked to rank themselves compared to those within the US using a picture of a 10-rung ladder, where the bottom of the ladder represents lower SSS and the top higher SSS. Specifically, participants were shown a picture of a ladder with 10 steps and asked: "Think of this ladder as representing where people stand in the United States. Make-believe that all people in the United States are standing on this ladder. People who have the most money, the most education, and the most respected jobs are on the highest steps of the ladder. People who have the least money, least education, and the least respected jobs are on the lowest steps of the ladder. Taking into consideration that the ladder represents all the people in the US, in what step of the ladder would you place yourself at this time of your life? Please place a large 'X' on the step where you think you stand relative to other people in the United States". [99] Three other ladders were used to ask participants about SSS relative to: 1) others in Lawrence, MA, and surrounding areas at this time of their life, 2) neighbors at age 0 -12 years, and 3) neighbors at age 13-18 years. For each ladder, the lower rung was scored as 1 and the highest as 10. Thus, all SSS scores ranged from 1 to 10 with higher scores indicative of higher SSS. SSS was used as a continuous variable for all analyses, except for descriptive purposes for a supplementary analysis to investigate the differences in sample characteristics between low and high scores for past and current SSS. For this, SSS was dichotomized by using the middle rung (5; ≤ 5 for low SSS and ≥ 6 for high SSS). The MacArthur Scale has been used in different populations and has been translated to multiple languages, including Spanish.[21,31]

Outcome: Emotional Eating (EE)

EE was measured using the Three-Factor Eating Questionnaire (TFEQ-R-18 V2), which has been shown to be a reliable measurement of EE in Latinx adults in the US. [52] The EE

subscale particularly consists of 6 items that measure eating in response to negative emotions (i.e., feeling sad, nervous, lonely, depressed, anxious, and wound up). Response options for all items included definitely false, mostly false, mostly true, and definitely true (scored as 1-4, respectively). To calculate the EE score, responses to all items were summed and divided by 6, to generate a mean score (range 1-4). EE did not follow a normal distribution as a continuous variable; thus, it was categorized into no EE (scores of only 1), low EE (scores at or below the median), and high EE (scores above the median) as in previous studies. [58]

Covariates

Sex, age, income, education, employment status, marital status, BMI, Latinx heritage group, and being born in the US were evaluated as covariates due to their association with SSS and EE. [11,14,20,30,31,41,50,90,94,100-102] Age was used as a continuous variable. Income was categorized as less than $15,000; $15,000 –$30,000; and greater than $30,000. Given the high proportion of participants who refused to answer or did not know their income, these individuals were included as a separate category. Education was categorized into four groups (from less than high school to some college/graduate). Employment and marital status were dichotomous variables categorized as employed or unemployed and currently married/living with a partner or unmarried (i.e., single, separated, widowed, and divorced), respectively. Participants self-reported their Latinx heritage group and were categorized as Puerto Rican, Dominican, and other (Central or South American and mixed groups). Lastly, the country of birth was self-reported and categorized as born in the mainland US (in any US State) and born outside of the mainland US (other country or Puerto Rico).

Statistical Analysis

Descriptive statistics (i.e., mean and standard deviation for continuous variables, and count and percent for categorical variables) were calculated for the total sample. T-tests (for continuous variables) and Chi-square tests (for categorical variables) were used to contrast descriptive statistics by low and high SSS for all four ladders. Spearman correlations were used to evaluate the bivariate association between continuous scores of each SSS ladder and EE. For each SSS ladder, unadjusted and adjusted polytomous logistic regression models were performed to estimate odds ratios (OR) and 95% confidence intervals (CI) of low and high EE (using the no EE group as the reference). Adjusted models included sex, age, income, education, employment status, marital status, BMI, Latinx heritage group, and place of birth. No collinearity was detected between covariates and the independent variables with the threshold set as conditional indices above 30 and two variance decomposition proportions above 0.5. A 95% confidence interval was reported for regression models. Statistical significance was set at $p < 0.05$. All analyses were performed in SAS version 9.4 (SAS Institute, Inc., Cary, NC).

RESULTS

Sample characteristics are summarized in Table 1. The mean age was 50 years (SD = 15.4). Most participants self-identified as Dominicans and almost half were female. Over two-thirds were unemployed, and half had an education of less than high school. Almost a quarter of the sample had an annual household income below $15,000 and a third refused to answer or did not know their income. The lowest SSS score was the score of current societal SSS (mean: 3.98; SD: 2.16), and the highest, was the score of past familial SSS from 13-18 years (mean: 5.26; SD:2.53). In all, approximately 40% of the sample did not experience any EE (no EE) and 34%

experienced high EE. Secondary analyses showed that individuals with low familial SSS at 0-12y and 13-18y were older in age, had a higher BMI, and had lower education levels compared to those with high SSS (Supplemental Table 1). In addition, those with low current neighborhood and societal SSS (vs. those with high current SSS) were older in age, had lower annual household income, lower BMI, and lower education levels.

In bivariate analyses, current neighborhood and societal SSS were both significantly negatively correlated with the continuous EE scores (-0.12, p = 0.01 and -0.14, p = 0.002, respectively) (Table 2). The two familial SSS measures (at 0-12y and 13-18y) were not significantly correlated with EE scores. All SSS measures were significantly correlated with each other, but the association was stronger for the pairs of current neighborhood and societal SSS and past familial SSS at 0-12y and 13-18y.

Tables 3a-3d show the association between all SSS measures and EE. There were no significant associations for either of the familial SSS scores (0-12y and 13-18y) and EE (Tables 3a-3b). In unadjusted regression models, each unit increase in the neighborhood SSS score was significantly associated with 8% and 11% lower odds of low EE and high EE, respectively, over no EE (Table 3c). In addition, each unit increase in the societal SSS score was significantly associated with 13% lower odds of high EE over no EE but not with low EE (Table 3d). Similar results were found when further adjusting for covariates (Tables 3a-3d), with each unit increase in the neighborhood SSS scored being associated with 11% and 14% lower odds of low EE and high EE, respectively, over no EE, and each unit increase in the societal SSS being linked with 16% lower odds of high EE over no EE. Sex, age, and BMI were consistently significantly associated with high EE in all models (for both past and current SSS).

DISCUSSION

The present study evaluated the association of four measures of SSS 1) past familial SSS from 0-12 years, 2) past familial SSS from 13-18 years, 3) current neighborhood SSS, and 4) societal SSS with EE in a sample of US Latinx adults from the Northeast US. The study results indicated that higher current neighborhood and societal SSS were associated with lower levels of EE, even after adjusting for objective measures of SES. No associations were found with either of the past familial SSS measurements and EE.

To our knowledge, no prior studies have evaluated the relationship between SSS and EE among Latinx adults in the US. Our results partially support the findings from a previous study conducted in a sample of predominantly African American adult women. In this prior study, Stojek and colleagues found that individuals with a lower neighborhood/community SSS had a higher likelihood of EE and severe food addiction. [94] In contrast to our findings, Stojek and colleagues did not observe an association between current societal SSS and EE. The lack of significant associations for current societal SSS and EE in their study may have resulted from a small sample size (n=89). [94] In addition, SSS measurements among African American participants may be influenced by experiences of racial discrimination. Compared to other racial groups in the US, African Americans report experiencing racial discrimination. [103] Thus, it is possible that racial discrimination may influence African Americans' self-ratings of societal SSS and account for the observed differences in findings.

In the present study, past familial SSS measured from 0-12 years and 13-18 years were not associated with current EE. Past SSS was asked retrospectively and may thus be subject to recall bias. In addition, young children may be unaware of the socioeconomic disadvantages their households face as their parents may protect them from knowing if they are experiencing

such difficulties. [104] This could potentially lead to an overestimation of SSS during childhood. In fact, both measures of past SSS had the highest ratings in our sample. Thus, it is possible that this group of Latinx adults could have been shielded from their family's financial difficulties when younger inflating their perception of past SSS and accounting for the null associations between past SSS and EE in our sample. Further analyses with longitudinal studies are needed to explain how changes in past and current SSS are associated with EE among US Latinx.

This study adds to the body of literature on SSS and EE by examining this association in an underrepresented group of individuals in the US. While prior findings have introduced evidence of an association between SSS and obesity and other cardiometabolic diseases.[3,4,21,29,38,41] Findings from this study advance the literature suggesting that among US Latinx, low SSS may trigger dysfunctional eating behaviors, like EE. In this way, EE may serve as a mechanism for the complex relationship between low SSS and cardiometabolic diseases.

One possible mechanism that may explain the association between SSS and EE is psychological distress from perceived socioeconomic inequalities. People with low SSS may internalize the differences in SES between ethnic groups or social groups. These perceived inequalities may stress individuals, exacerbating psychological distress. To cope with these negative emotions, individuals may engage in eating. A study by Guerrini Usubini and colleagues introduced evidence that showed that psychological distress is associated with higher levels of EE and that this association is mediated by emotional dysregulation. [77] In addition, Kauffman and colleagues reported that college students with lower SSS use eating to cope with negative affect and improve their emotional well-being. [105]

Experimental studies support the hypothesis that a lower perception of social status affects eating behaviors. These studies have shown that, under stressful conditions, individuals

who are manipulated to have low social status eat more energy-dense foods—specifically foods high in fat and calories—than the group manipulated to high social status (even in the absence of hunger). [92,106] Considering that these studies are manipulating social status and providing various types of foods in the absence of differential access, it hints that there may be a physiological mechanism that triggers EE during psychological distress. Animal studies provide support for this hypothesis. For instance, studies show that monkeys eat comforting foods during times of stress and that this response is facilitated through the dopamine-reward pathway. [107,108] While our analyses did not examine differences in the levels of dopamine, dopamine is likely to increase after EE, thus, conditioning individuals to seek comfort in energy-dense foods.

Our results indicate that individuals with lower current SSS may be more vulnerable to engaging in EE. This highlights the importance of tailoring behavioral interventions targeting EE to US Latinx adults with low SSS. Effective interventions reduce EE through stress reduction methods, like mindfulness-based stress reduction programs. [109] However, these approaches need to be modified for Latinx individuals with low SSS who may have limited access to resources. Further, interventions need to be extended beyond short-term programs to have lasting effects on EE. [110]

The current study has specific limitations that need to be considered when interpreting our results. First, this was a cross-sectional study, thus causality cannot be determined. A second limitation is that past familial SSS was assessed retrospectively, and thus might have introduced recall bias. Nonetheless, this limitation is also a study strength as, to the researchers' knowledge, this is the first study to evaluate how past familial SSS is associated with present EE. Another limitation is that our sample was comprised primarily of Caribbean Latinxs adults residing in the Northeast US, thus our results may not be generalizable to other Latinx heritage groups or Latinx

residing in other areas of the US. This limitation is also a study strength as this population

subgroup of Caribbean Latinx experience profound health disparities and social disadvantages

(i.e., low income, high poverty rates, and high food insecurity) and are underrepresented in

research. [111] Other strengths of the study include the use of methods to maximize the

representation of the Latinx community in Lawrence, MA, by including recruitment strategies

that ensured equal representation by sociodemographic factors, such as age and sex.

In conclusion, greater current neighborhood and societal SSS were associated with lower

EE in a sample of US Latinx adults, but past familial SSS was not. Future research is needed to

confirm our findings and to evaluate potential mechanisms explaining the relationships between

SSS and EE.

CONCLUSIONS, IMPLICATIONS, AND FUTURE DIRECTIONS

The current study found that higher current neighborhood and societal SSS, but not past familial SSS, were significantly associated with lower EE among US Latinx adults. These findings suggest that individuals with current low neighborhood and societal SSS may be particularly vulnerable to engaging in EE. While it was beyond the scope of this study, US Latinx adults may internalize experienced socioeconomic inequalities and may engage in EE as a coping strategy. Further research is needed to examine this pathway. In addition, although our measures of past familial SSS—asked retrospectively—were not associated with EE, longitudinal studies need to explore if SSS assessed during the childhood period is associated with EE in adulthood.

Understanding how SSS affects modifiable factors for Latinx health, such as EE, can guide intervention efforts geared towards populations at increased risk for obesity and cardiometabolic diseases. Given the high burden of low SSS, EE, and cardiometabolic diseases experienced by US Latinx adults, research that tests tailored behavioral interventions targeting EE in this vulnerable group is needed to ameliorate health disparities.

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TABLES

Table 1: Characteristics of Study Population in Lawrence, MA

	Total Sample, n = 584
Age, mean (SD)	49.92 (15.37)
Female, n (%)	291 (49.83)
Married, n (%)	250 (42.81)
Unemployed, n (%)	239 (40.92)
Income	-
< $15,000, n (%)	139 (23.80)
$15,000 – < $30,000, n (%)	147 (25.17)
$30,000 +, n (%)	116 (19.86)
Refused/Do not Know, n (%)	182 (31.16)
BMI, mean (SD)	29.76 (5.97)
Education	-
< High School, n (%)	302 (51.71)
High School Graduate, n (%)	114 (19.52)
Some College >, n (%)	168 (28.77)
Latinx group	-
Puerto Rico, n (%)	111 (19.01)
Dominican, n (%)	428 (73.29)
Other Country, n (%)	45 (7.71)
Mainland US, n (%)	47 (8.05)
SSS 0-12 y, mean (SD)	4.84 (2.74)
SSS 13-18 y, mean (SD)	5.26 (2.53)
Neighborhood SSS, mean (SD)	4.67 (2.41)
Societal SSS, mean (SD)	3.98 (2.16)
EE, mean (SD)	-
No EE, n (%)	226 (38.70)
Low EE, n (%)	159 (27.23)
High EE, n (%)	199 (34.08)

a. Abbreviations: SD (standard deviation); SSS (subjective social status); EE (emotional eating)

Table 2: Correlations of SSS and EE Measures

	Spearman Correlations (p-value)			
	1	**2**	**3**	**4**
1.EE	–			
2.Familial SSS 0-12 y	-0.04 (0.29)	–		
3.Familial SSS 13-18 y	-0.05 (0.27)	0.79 (<0.0001) **	–	
4.Neighbor hood SSS	-0.12 (0.01) *	0.34 (<0.0001) **	0.40 (<0.0001) **	–
5.Societal SSS	-0.14 (0.002) *	0.32 (<0.0001) **	0.37 (<0.0001) **	0.76 (<0.0001) **

a. Abbreviations: SD (standard deviation); SSS (subjective social status); EE (emotional eating)
*p < 0.05
** p < 0.0001

Table 3a: Unadjusted and Adjusted Multinomial Logistic Regressions for Familial SSS and EE[a]

	Low EE[c,d]		High EE[c,d]	
	OR (95% CI)	p-value	OR (95% CI)	p-value
Familial SSS 0-12 y/o	0.98 (0.91-1.06)	0.57	0.97 (0.90-1.04)	0.36
Sex	1.31 (0.86-1.98)	0.21	2.37 (1.58-3.56)	<0.0001**
Age	1.00 (0.98-1.01)	0.63	0.98 (0.97-1.00)	0.02*
Income	1.08 (0.90-1.29)	0.42	0.97 (0.82-1.16)	0.74
Education	0.95 (0.74-1.24)	0.73	0.83 (0.64-1.07)	0.15
Employment status	1.33 (0.86-2.06)	0.21	1.11 (0.73-1.70)	0.62
Marital status	1.05 (0.69-1.60)	0.83	0.88 (0.58-1.34)	0.55
BMI	1.04 (1.00-1.08)	0.09	1.09 (1.05-1.14)	<0.0001**
Latinx Group	1.06 (0.69-1.63)	0.79	0.91 (0.60-1.37)	0.64
US Born	0.79 (0.31-2.00)	0.62	1.46 (0.66-3.22)	0.35

a. Abbreviations: OR (odds ratio); CI (confidence interval); SSS (subjective social status); EE (emotional eating)
b. Model 1: unadjusted
c. Model 2: adjusted for sex, age, income, education, employment status, marital status, and BMI
d. Reference group: No EE
*p < 0.05
** p < 0.0001

Table 3b: Unadjusted and Adjusted Multinomial Logistic Regressions for Familial SSS and EE[a]

	Low EE[c,d]		High EE[c,d]	
	OR (95% CI)	p-value	OR (95% CI)	p-value
Familial SSS 13-18 y/o	0.92 (0.85-1.00)	0.06	0.95 (0.87-1.03)	0.18
Sex	1.33 (0.88-2.02)	0.18	2.39 (1.59-3.59)	<0.0001**
Age	1.00 (0.98-1.01)	0.59	0.98 (0.97-1.00)	0.02*
Income	1.07 (0.90-1.29)	0.45	0.97 (0.82-1.16)	0.74
Education	0.99 (0.76-1.28)	0.92	0.84 (0.65-1.08)	0.18
Employment status	1.34 (0.86-2.08)	0.20	1.12 (0.73-1.71)	0.60
Marital status	1.03 (0.67-1.57)	0.90	0.87 (0.57-1.33)	0.52
BMI	1.04 (1.00-1.08)	0.07	1.10 (1.06-1.14)	<0.0001**
Latinx Group	1.06 (0.69-1.63)	0.80	0.91 (0.60-1.37)	0.64
US Born	0.80 (0.31-2.03)	0.64	1.49 (0.67-3.28)	0.33

a. Abbreviations: OR (odds ratio); CI (confidence interval); SSS (subjective social status); EE (emotional eating)
b. Model 1: unadjusted
c. Model 2: adjusted for sex, age, income, education, employment status, marital status, and BMI
d. Reference group: No EE
*p < 0.05
** p < 0.0001

Table 3c: Unadjusted and Adjusted Multinomial Logistic Regressions for Neighborhood SSS and EE[a]

	Low EE[c,d]		High EE[c,d]	
	OR (95% CI)	p-value	OR (95% CI)	p-value
Neighborhood SSS	0.89 (0.81-0.97)	0.01*	0.86 (0.79-0.94)	0.001*
Sex	1.36 (0.89-2.06)	0.16	2.47 (1.64-3.72)	<0.0001**
Age	1.00 (0.98-1.01)	0.57	0.98 (0.97-1.00)	0.02*
Income	1.11 (0.92-1.33)	0.27	1.00 (0.84-1.20)	0.97
Education	1.05 (0.80-1.38)	0.71	0.93 (0.71-1.21)	0.58
Employment status	1.36 (0.88-2.12)	0.17	1.15 (0.75-1.77)	0.52
Marital status	1.05 (0.69-1.61)	0.83	0.88 (0.58-1.34)	0.55
BMI	1.04 (1.00-1.08)	0.07	1.10 (1.06-1.14)	<0.0001**
Latinx Group	1.07 (0.70-1.65)	0.75	0.92 (0.61-1.39)	0.69
US Born	0.81 (0.32-2.05)	0.65	1.52 (0.68-3.35)	0.31

a. Abbreviations: OR (odds ratio); CI (confidence interval); SSS (subjective social status); EE (emotional eating)
b. Model 1: unadjusted
c. Model 2: adjusted for sex, age, income, education, employment status, marital status, and BMI
d. Reference group: No EE
*p < 0.05
** p < 0.0001

Table 3d: Unadjusted and Adjusted Polytomous Logistic Regressions for Societal SSS and EE[a]

	Low EE[c,d]		High EE[c,d]	
	OR (95% CI)	p-value	OR (95% CI)	p-value
Societal SSS	0.90 (0.82-0.99)	0.05*	0.84 (0.76-0.93)	0.001*
Sex	1.35 (0.89-2.05)	0.16	2.47 (1.64-3.73)	<0.0001**
Age	1.00 (0.98-1.01)	0.72	0.98 (0.97-1.00)	0.04*
Income	1.11 (0.92-1.33)	0.27	1.02 (0.85-1.21)	0.85
Education	1.01 (0.78-1.32)	0.93	0.91 (0.70-1.18)	0.48
Employment status	1.40 (0.90-2.19)	0.14	1.22 (0.79-1.87)	0.37
Marital status	1.02 (0.67-1.56)	0.92	0.85 (0.56-1.30)	0.45
BMI	1.04 (1.00-1.08)	0.07	1.10 (1.06-1.14)	<0.0001**
Latinx Group	1.07 (0.70-1.64)	0.77	0.91 (0.60-1.38)	0.65
US Born	0.80 (0.32-2.04)	0.64	1.52 (0.69-3.36)	0.30

a. Abbreviations: OR (odds ratio); CI (confidence interval); SSS (subjective social status); EE (emotional eating)
b. Model 1: unadjusted
c. Model 2: adjusted for sex, age, income, education, employment status, marital status, and BMI
d. Reference group: No EE
*p < 0.05
** p < 0.0001

APPENDIX: SUPPLEMENTARY TABLES

Supplementary Table 1A: Characteristics of Study Population in Lawrence, MA by the MacArthur Scale[a]

	Low Familial SSS 0-12 y (steps 1-5)	High Familial SSS 0-12 y (steps 6-10)	p-value[b]	Low Familial SSS 13-18 y (steps 1-5)	High Familial SSS 13-18 y (steps 6-10)	p-value[b]
Age, mean (SD)	47.94 (15.38)	45.46 (15.28)	<0.0001**	49.00 (15.11)	44.69 (15.36)	<0.0001**
Female, n (%)	165 (47.83)	126 (52.72)	0.25	148 (48.68)	143 (51.07)	0.56
Married, n (%)	148 (42.90)	102 (42.68)	0.96	135 (44.41)	115 (41.07)	0.42
Unemployed, n (%)	143 (41.45)	96 (40.17)	0.76	131 (43.09)	108 (38.57)	0.27
Income	-	-	0.53	-	-	0.67
< $15,000, n (%)	82 (23.77)	57 (23.85)	-	77 (25.33)	62 (22.14)	-
$15,000 - < $30,000, n (%)	84 (24.35)	63 (26.36)	-	74 (24.34)	73 (26.07)	-
$30,000+, n (%)	64 (18.55)	52 (21.76)	-	56 (18.42)	60 (21.43)	-
Does not Know/Refused, n (%)	115 (33.33)	67 (28.03)	-	97 (31.91)	85 (30.36)	-
BMI, mean (SD)	29.82 (6.22)	29.68 (5.60)	<0.0001**	29.84 (6.41)	29.69 (5.46)	<0.0001**
Education	-	-	0.0002*	-	-	<0.0001**
< High School, n (%)	203 (58.84)	99 (41.42)	-	185 (60.86)	117 (41.79)	-
High School Graduate	57 (16.52)	57 (23.85)	-	49 (16.12)	65 (23.21)	-
Some College >, n (%)	85 (24.64)	83 (34.73)	-	70 (23.03)	98 (35.00)	-
Latinx group	-	-	0.50	-	-	0.54
Puerto Rican, n (%)	67 (19.42)	44 (18.41)	-	57 (18.75)	54 (19.29)	-
Dominican, n (%)	248 (71.88)	180 (75.31)	-	220 (72.37)	208 (74.29)	-
Other Country, n (%)	30 (8.70)	15 (6.28)	-	27 (8.88)	18 (6.43)	-
Mainland US, n (%)	30 (8.70)	17 (7.11)	0.49	24 (7.89)	23 (8.21)	0.89

Supplementary Table 1A: Characteristics of Study Population in Lawrence, MA by the MacArthur Scale[a] (continued)

Familial SSS 0-12 y, mean (SD)]	-	-	-	3.06 (1.83)	6.78 (2.20)	<0.0001**
Familial SSS 13-18 y, mean (SD)	3.82 (1.90)	7.33 (1.77)	<0.0001**	-	-	-
Neighborhood SSS, mean (SD)	4.08 (2.24)	5.54 (2.41)	<0.0001**	3.85 (2.13)	5.58 (2.39)	<0.0001**
Societal SSS, mean (SD)	3.44 (1.93)	4.76 (2.23)	<0.0001**	3.30 (1.78)	4.73 (2.28)	<0.0001**
Emotional Eating	-	-	0.173	-	-	0.25
No EE, n (%)	124 (35.94)	102 (42.68)	-	108 (35.53)	118 (42.14)	-
Low EE, n (%)	94 (25.91)	65 (27.20)	-	86 (28.29)	71 (26.07)	-
High EE, n (%)	127 (36.81)	72 (30.13)	-	110 (36.18)	89 (31.79)	-

a. Abbreviations: SD (standard deviation); SSS (subjective social status); EE (emotional eating)
b. P-values are from t-test for continuous variables and chi-square tests for categorical variables
*p < 0.05
** p < 0.0001

Supplementary Table 2A: Characteristics of Study Population in Lawrence, MA by the MacArthur Scale[a]

	Low Neighborhood SSS (steps 1-5)	High Neighborhood SSS (steps 6-10)	p-value[b]	Low Societal SSS (steps 1-5)	High Societal SSS (steps 6-10)	P value[b]
Age, mean (SD)	49.51 (15.08)	42.64 (14.91)	<0.0001**	47.81 (15.43)	44.28 (14.95)	<0.0001**
Female, n (%)	177 (48.63)	114 (51.82)	0.46	210 (48.05)	81 (55.10)	0.14
Married, n (%)	158 (43.41)	92 (41.82)	0.71	191 (43.71)	59 (40.14)	0.45
Unemployed, n (%)	160 (43.96)	79 (35.91)	0.06	190 (43.48)	49 (33.33)	0.03*
Income	-	-	<0.0001**	-	-	0.007*
< $15,000, n (%)	109 (29.95)	30 (13.64)	-	117 (26.77)	22 (14.97)	-
$15,000 - < $30,000, n (%)	91 (25.00)	56 (25.45)	-	111 (25.40)	36 (24.49)	-
$30,000+, n (%)	52 (14.29)	64 (29.09)	-	76 (17.39)	40 (27.21)	-
Does not Know/Refused, n (%)	112 (30.77)	70 (31.82)	-	133 (30.43)	49 (33.33)	-
BMI, mean (SD)	29.69 (5.72)	29.88 (6.37)	<0.0001**	29.52 (5.87)	30.50 (6.21)	<0.0001**
Education	-	-	<0.0001**	-	-	<0.0001**
< High School, n (%)	237 (65.11)	65 (29.55)	-	257 (58.81)	45 (30.61)	-
High School Graduate	61 (16.76)	53 (24.09)	-	78 (18.85)	36 (24.49)	-
Some College >, n (%)	66 (18.13)	102 (46.36)	-	102 (23.34)	66 (44.90)	-
Latinx group	-	-	0.72	-	-	0.71
Puerto Rican, n (%)	66 (18.13)	45 (20.45)	-	80 (18.31)	31 (21.09)	-
Dominican, n (%)	271 (74.45)	157 (71.36)	-	324 (74.14)	104 (70.75)	-
Other Country, n (%)	27 (7.42)	18 (8.18)	-	33 (7.55)	12 (8.16)	-
Mainland US, n (%)	21 (5.77)	26 (11.82)	0.009*	35 (8.01)	12 (8.16)	0.95
Familial SSS 0-12 y, mean (SD)	4.24 (2.71)	5.83 (2.83)	<0.0001**	4.43 (2.72)	6.05 (2.42)	<0.0001**
Familial SSS 13-18 y, mean (SD)	4.57 (2.46)	6.40 (2.21)	<0.0001**	4.77 (2.47)	6.69 (2.14)	<0.0001**

Supplementary Table 2A: Characteristics of Study Population in Lawrence, MA by the MacArthur Scale[a] (continued)

Neighborhood SSS, mean (SD)	-	-	-	3.84 (2.01)	7.17 (1.68)	<0.0001**
Societal SSS, mean (SD)	2.91 (1.54)	5.75 (1.86)	<0.0001**	-	-	-
EE			0.20			0.33
No EE, n (%)	134 (36.81)	92 (41.82)	-	163 (37.30)	63 (42.86)	-
Low EE, n (%)	946(26.37)	63 (28.64)	-	118 (27.00)	41 (27.89)	-
High EE, n (%)	134 (36.81)	65 (29.55)	-	156 (35.70)	43 (29.25)	-

a. Abbreviations: SD (standard deviation); SSS (subjective social status); EE (emotional eating)
b. P-values are from t-test for continuous variables and chi-square tests for categorical variables
*p < 0.05
** p < 0.0001