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Analyzing Food-Related Life Satisfaction and other Predictors of Life Satisfaction in Central Chile

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Abstract. This study aimed to assess the effect of satisfaction with food-related life on life satisfaction among inhabitants of the main municipalities of central Chile. A survey was applied to a sample of 1,277 people, distributed proportionally by municipality. The questionnaire included the following scales: SWLS (Satisfaction with Life Scale), SWFL (Satisfaction with Food-related Life) and the Health-Related Quality of Life Index (HRQOL). Questions were asked regarding eating habits inside and outside the home, time available for meals at home, the assessment of five sources of happiness and the demographic characteristics of those surveyed. An ordered logit model was proposed, in which the dependent variable was satisfaction with life. Satisfaction with life was significantly related to the respondent's socioeconomic status, self-perception of health, degree of satisfaction with food-related life, monthly food expenditure, time available for supper with the family ($p < .01$); gender, self-reported number of days affected by mental health problems, frequency of supper with the family, the degree of agreement with respect to family being an important source of happiness ($p < .05$); and family size and frequency of food consumption in fast food outlets ($p < .10$). Satisfaction with life in the study sample is related to aspects associated with health, family and eating, and the family interaction associated with eating may play an important role in overall satisfaction with life.

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Quality of life (QoL) is a broad term which encompasses notions of a good life, a valued life, a satisfying life, and a happy life (McCrea, Shyy, & Stimson, 2006). QoL generally refers to evaluating the general well-being of individuals and societies (Derek, Ron, & Geraldine, 2009) with key well-being indicators of life satisfaction (Ryff & Keyes, 1995). Depending on the research objectives, quality of life can be investigated either with a focus on one specific aspect or by a multidimensional construct consisting of several domains (Cummins, 2005; Felix & Garcia-Vega, 2012; International Living, 2011).

Diener (1984, cited in Headey, Veenhoven, & Wearing, 1991) distinguished between bottom-up and top-down theories of subjective well-being (SWB) and life satisfaction (LS). Bottom-up causation implies that particular variables cause SWB. In such case, overall life satisfaction would be a combination of satisfaction in particular domains (Brief, Butcher, George, & Link, 1993). On the other hand, top-down causation states that people assess their general life satisfaction and rely on this when judging domains (Lucas, 2004), that is, global life satisfaction determines satisfaction in specific domains (Lance, Lautenschlage, Sloan, & Varca, 1989). Satisfaction in life domains is commonly treated as causes of overall LS but they may also be consequences of it. Evidence supports that both directions can occur simultaneously (Brief et al., 1993; Headey et al., 1991), and this is known as a "bidirectional" or "reciprocal" model (Lance et al., 1989).

The concept of satisfaction with life has been defined as a positive assessment that a person makes of their life in general, or of particular domains such as family, studies, work, health, friends and free time, among others (Diener, Emmons, Larsen, & Griffin, 1985; Diener & Biswas-Diener, 2000). Numerous studies have addressed satisfaction with life overall or in certain domains, in a single period or during significant transitions and milestones such as parenthood.

Although studies are still scarce (Veenhoven, 2008), the evidence so far suggests that food is among the important domains of life which affect the satisfaction of individuals (Blanchflower, Oswald, & Stewart-Brown, 2013; Grunert, Dean, Raats, Nielsen, & Lumbers, 2007; Schnettler et al., 2012). However, little attention has been paid to the domain of food so far. The contribution

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of food to quality of life has been well established (American Dietetic Association, 2005) but research focuses the effects of nutrition on physical health, e.g. health is one of the frequently mentioned motivations when consumers make their food choices (Chen, 2011; Mollet & Rowland, 2002). The link between food intake and objective health seems clear but there are other aspects to both of these variables that require further study. Brief et al. (1993) point out that objective health is one of the most important influences on overall life satisfaction, but self-perceived health is an important mediator in this relationship. And the need for food, as stated below, goes beyond nutritional fulfillment.

Following the bottom-up approach, Grunert et al. (2007) consider food a prerequisite for people to be content with their lives. Studies conducted with low-income samples in South Africa, Ethiopia and Peru have shown that the availability of food is one of the fundamental conditions for having a good life (Clark, 2000; Guillen-Royo, 2008). Other studies indicate that the possibility of spending a higher amount of money on food for the home is associated with the possibility of access to better quality and healthier food (French, Wall, & Mitchell, 2010; Schnettler et al., 2012; Story, Kaphingst, Robinson-O'Brien, & Glanz, 2008). Thus income may improve life assessment as it allows to fulfilling basic and psychosocial needs (Tay & Diener, 2011). These findings point out that in spite of, and sometimes because of the abundance of food available, food occupies a considerable part of an average person's life in terms of time and resources (Grunert et al., 2007).

According to Tay and Diener (2011), a mix of daily activities that include, among others, social relationships and the meeting of physical needs is required for optimal SWB. In this sense, food fulfills a utilitarian function for the body but it is also a vehicle for pleasure and social construction (Hausman, 2005; Kniazeva & Venkatesh, 2007). Ateca-Amestoy, Cortés, and Moro-Egido (2013) state that social relationships correlate positively with life satisfaction in Latin America, and Hargreaves, Schlundt, and Buchowski (2002) stress the emotional dimension of food associated with celebrations and social interaction. Food is prepared in the expectation that it will be shared and enjoyed in company (Kniazeva & Venkatesh, 2007), on weekdays with the family and on weekends with friends (Dean et al., 2008; Gillespie & Gillespie, 2007). Research into positive emotions has shown that basic need activities, such as eating, are an important category of stimuli eliciting happiness (Macht, Meininger, & Roth, 2005). Macht, Haupt, and Salewsky (2004) found that more than one third of meals in everyday life are linked to positive emotions and determined that the pleasure of eating is associated with food qualities (tasty and healthy), the environment (comfortable and calm), social factors (interaction with friends, family), the person (feeling good and relaxed) and a hedonist attitude in the sense of perceiving the pleasure of eating as an important part of life. Indeed, happy people eat out more often and spend more time with friends (Veenhoven, 2003), although a greater frequency of eating out is linked to a higher income in both developed and developing countries (Rezende & de Avelar, 2012; Thornton, Crawford, & Ball, 2011).

Given the importance of food for satisfaction or dissatisfaction with life, Grunert et al. (2007) developed and tested the Satisfaction with Food-related Life scale (SWFL) in three studies in eight European countries. Like the Satisfaction with Life Scale (SWLS) (Diener et al., 1985), the SWFL scale consists of five items; these items exhibit good reliability as measured by Cronbach's alpha, good temporal stability, convergent validity with two related measures, and construct validity as indicated by relationships with other quality of life indicators, including satisfaction with life. Schnettler et al. (2013) evaluated the psychometric properties of the SWFL scale and its relation to the SWLS using a confirmatory factor analysis. The results indicated an adequate level of internal consistency and a good fit to the data, thus demonstrating discriminant validity between the two constructs. The evaluation of a causal covariance structure analysis model composed of the SWFL as the antecedent construct and the SWLS as the consequent construct indicates a medium level of relationship between the two constructs. However, one of the limitations of these studies arises from the fact that no questions were included in the questionnaire about other domains of life, as a way of testing whether satisfaction in other domains of life influences overall life satisfaction. Also, the results from these studies have yet to explain in detail the mechanisms by which food affects satisfaction with life, so it is important to carry out further research on this relationship.

Therefore, the aim of this study was to assess the effect of satisfaction with food-related life on life satisfaction among inhabitants of the main municipalities of central Chile through the application of an ordered logit model. To do this, the results of the SWFL scale were used as an explanatory variable of life satisfaction. Additionally, the effect of other variables on the degree of satisfaction with life was examined, such as sociodemographic characteristics and eating habits inside and outside the home. The joint effect of eating and other domains on satisfaction with life is explored in aggregated form.

Based on previous studies (Grunert et al., 2007; Schnettler et al., 2012, 2013), we expected to confirm the existence of a positive relation between satisfaction with

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life and satisfaction with food-related life. At the same time, considering the link between health and eating (American Dietetic Association, 2005; Chen, 2011; Mollet & Rowland 2002; Veenhoven, 2008) and between eating and social interaction with family and friends (Gillespie & Gillespie, 2007; Hargreaves et al., 2002; Kniazeva & Venkatesh, 2007; Macht et al., 2005; Veenhoven, 2003), we expected to find a combined effect of eating and other domains on people's satisfaction with life.

Method

Sample

Personal interviews were conducted by trained interviewers (psychologists) with a sample of 1,277 people over age 18 from the Regions of Valparaiso, Metropolitan Santiago, Libertador Bernardo O'Higgins and Maule in central Chile. The surveys were conducted in the main municipalities of these regions (over 100,000 inhabitants), with the number of respondents set proportionally to the number of inhabitants of the municipalities of Valparaiso, Viña del Mar (Valparaiso Region), El Bosque, La Florida, La Pintana, Las Condes, Maipú, Ñuñoa, Peñalolen, Pudahuel, Puente Alto, Recoleta, San Bernardo, Santiago (Metropolitan Region), Rancagua (Libertador Bernardo O'Higgins Region) and Talca (Maule Region).

Procedure

The survey was conducted during May and July 2011 in supermarkets and food courts inside malls located in different socioeconomic areas. The interviewers explained to the respondents the objectives of the survey and the strictly confidential treatment of the information obtained, and then asked if they agreed to answer the questionnaire. The response rate was 58%.

Prior to the survey, the questionnaire was pre-tested with 5% of the survey sample, using the same method of addressing the participants as in the final survey. As no problems were detected, no changes were required in either the questionnaire or the interview procedure. The questionnaires obtained in the pre-test were not incorporated into the analysis of the results. The participants signed informed consent statements before responding. The execution of the study was approved by the Ethics Committee of the Universidad de La Frontera in Temuco, Chile.

Instrument

The questionnaire included the following scales:

SWLS (Satisfaction with Life Scale)

Developed by Diener et al. (1985), this is a scale consisting of five items grouped into a single factor to evaluate overall cognitive judgments about a person's own life: "In most ways my life is close to my ideal"; "The conditions of my life are excellent"; "I am satisfied with my life"; "So far I have gotten the important things I want in life"; "If I could live my life over, I would change almost nothing". Studies conducted in Spain report a high internal consistency of the scale in its Spanish version with Cronbach's alpha values between 0.82 and 0.88 (Chico & Ferrando, 2008; Vásquez, Duque, & Hervás, 2013). The existence of a single factor for all items in the Spanish SWLS has also been confirmed in previous studies in Spain and Chile (Schnettler et al., 2012; Vásquez et al., 2013; Vera-Villarroel, Urzúa, Pavez, Celis-Atenas, & Silva, 2012).

SWFL (Satisfaction with Food-related Life)

Proposed and tested by Grunert et al. (2007) in eight European countries, it shows adequate levels of internal consistency (Cronbach's α varying between 0.81 and 0.85). The SWFL scale also presented adequate levels of internal consistency (Cronbach's α: 0.878,) in a study in Chile (Schnettler et al., 2012). The five items of the scale are grouped in a single dimension: "Food and meals are positive elements"; "I am generally pleased with my food"; "My life in relation to food and meals is close to ideal"; "With regard to food, the conditions of my life are excellent"; "Food and meals give me satisfaction in daily life". In both SWLS and SWFL the respondents must indicate their degree of agreement with these statements using a 6-level Likert scale (1: disagree completely, 6: agree completely).

HRQOL (Health related quality of life index)

Developed by Hennessy, Moriarty, Zack, Scherr and Brackbill (1994), it consists of four items that explore the self-perception of health, recent physical health, recent mental health and recent limitations on activity.

Two bilingual translators translated all the original items of the SWLS (Diener et al., 1985), SWFL (Grunert et al., 2007) and the HRQOL (Hennessy et al., 1994) from English to Spanish. A third bilingual translator back-translated the Spanish versions of the scales to English. The discrepancies between both versions were resolved by discussion until all the translators agreed on the final versions of the scales. These Spanish versions of the SWLS and SWFL have been previously tested in Chile (Schnettler et al., 2012), presenting adequate levels of internal consistency, the existence of a single factor for all the items and good convergence validity in the sample studied.

Additionally, five Likert-type responses were included (1: strongly disagree, 5: strongly agree) in order to

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evaluate beliefs about the importance of five sources of happiness: family, work, leisure, friends and food.

Monthly food expenditure was inquired through questions such as the frequency of meals in the home together with the family group (breakfast, lunch, supper and dinner), as well as the time available for each of these meals. The frequency of meals outside the home in restaurants, fast food outlets and street food carts, as well as the frequency of the purchase of prepared food were also enquired.

Questions for sociodemographic classification were included at the end of the questionnaire: gender, age, marital status, number of members in the family group, presence and age of children, area of residence, occupation and level of education of head of the household, and possession of 10 domestic goods. The combination of these two latter variables in a matrix allows the socioeconomic status to be determined, classified as ABC1 (high and upper middle), C2 (middle-middle), C3 (lower middle), D (low) and E (very low). These variables are, conceptually, related with income, educational level and possessions accumulated by the family group, allowing a simple but adequate estimate of the socioeconomic status of Chilean households (Adimark, 2004).

Statistical analysis

The results were analyzed using SPSS v. 16.0 for Windows in Spanish. The scale factors from the SWLS and SWFL were extracted using a principal components analysis, considering eigenvalues greater than 1. The internal consistency of the scales was calculated using Cronbach's alpha coefficient (Hair, Anderson, Tatham, & Black, 1999).

In order to compare the influence of different explanatory variables in the satisfaction with life of people in the main municipalities in central Chile, an ordered logit model (Greene, 1999) was proposed, entering degree of satisfaction with life as the dependent variable, and the responses obtained in the questionnaire as explanatory variables. This statistical approach treats the satisfaction response categories as ordered, and applies an ordered probability model (ordered probit or ordered logit). In other words, this approach imposes ordinality on the data, with a category such as "extremely satisfied" viewed as having a higher rank than the category "satisfied" (Kristofferson, 2010). Ferrer-i-Carbonell and Frijters (2004) have argued that assuming cardinality or ordinality of well-being measures makes little or no difference. However, logit ordered models have been used recently to measure life satisfaction of high school students (Becchetti & Pisani, 2014), the relationship between social capital and life satisfaction (Sulemana, 2014), among others. The specifications of the dependent and explanatory variables that were significant in the model generated are presented in Table 1. The following were used to measure the goodness of fit of the model: Nagelkerke's $R^2_{adj.}$ (Pseudo-R^2) and -2 log likelihood (-2LL).

Results

Sociodemographic characteristics

The sample was composed of mostly women (59.9%), single or without a partner (55.5%), resident in urban areas (99.6%), in family groups of three to four members (54.0%), without children (51.8%) or with children between ages 5 and 12 (19.4%), with university studies (61.6%), employed (68.4% taking private sector and public sector employees together), from high socioeconomic status (ABC1, 30.5%) (Table 2). The mean age of the sample was 37 years (*SD* = 13.6). Table 3 displays the results of the health-related quality of life index (Hennessy et al., 1994). The average on which the mental and/or physical health of the respondents was not good in the last month prior to the survey was 10.6 days (minimum 0, maximum 30). The greatest proportion of respondents had a good (37.8%) or very good (35.8%) self-perception of their health.

The average monthly food expenditure in the sample was USD 367.5 (486.49 Chilean pesos/1USD), a value that exceeds the national average monthly food expenditure by 16.6%, estimated for the main Chilean cities in the last Survey of Family Budgets, corresponding to USD 315.2 (National Statistics Institute, 2007). A significant part of the sample had breakfast (40.5%) and lunch (59.8%) with their family "only on weekends"; supper with the family occurred mainly daily (33.3%) and "only on weekends" (29.4%). Dinner with the family was mainly daily (36.8%) and occasionally (21.1%). Around 35% of respondents did not have time for breakfast or had 15 to 30 minutes. Approximately 31% did not have time for lunch, 31.6% had 15 to 30 minutes and 30.8% had 45 to 75 min. 17% of respondents did not have time for supper, 47.5% had 15 to 30 minutes. Just about 23.2% did not have time for dinner, whereas 30.4% had 15 to 30 minutes and 34.3% 45 to 75 minutes (Table 4). With respect to the frequency of food consumption outside the home (Table 5), the greatest proportion of respondents "occasionally" ate in restaurants (41.0%) and in fast food outlets (43.7%); "never" (34.3%) and "occasionally" (28.6%) bought prepared food and "never" bought food from street food carts (60.3%).

In relation to the sources of happiness (Table 6), 78.2% of respondents strongly agreed that the family was an important source of happiness, followed by friends (41.1%), food (34.0%), leisure (20.7%) and work (24.0%). The SWLS and SWFL scales presented adequate levels

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Table 1. *Definition of dependent variables and explanatory variables for the ordinal logit regression model generated to measure the satisfaction with life of people in the central zone of Chile*

Dependent variable	Description
LifeSatis	Level of *satisfaction with life* (multinomial): <<0>> implies that the person is unsatisfied with their life, <<1>> implies that moderately satisfied, <<2>> satisfied, <<3>> extremely satisfied.
Explanatory variables	**Description**
Gender	*Respondent's gender* (binomial): <<1>> Female, <<0>> Male.
SEL	*Socioeconomic level* (multinomial): <<0>> ABC1, <<1>> C2 and C3 , <<2>> D and E.
Family size	*Size of respondent's family group* (multinomial): <<0>> one or two members, <<1>> three to four members, <<2>> five members or more.
Health Perception	*Self-perception of health* (multinomial): <<0>> the person reports very poor health, <<1>> the person reports fair health, <<2>> the person reports being in good health, <<3>> the person reports being in very good health, <<4>> the person reports being in excellent health.
Mental health	*Number of days during the last 30 days with poor mental health* (continuously quantitative).
SWFL	*Level of Satisfaction with food-related life* (multinomial): <<0>> implies that the person is unsatisfied with their eating, <<1>> implies that they are moderately satisfied, <<2>> satisfied, <<3>> extremely satisfied.
Monthly expenditure	*Monthly expenditure on food*. Amount of money spent monthly on food for consumption in the home (continuous).
Fast food	*Frequency with which the person goes to fast food outlets* (multinomial): <<0>> always (several days per week), <<1>> generally (one or two days per week), <<2>> occasionally (one or two days per month), <<3>> almost never (one or two days per year), <<4>> never.
Supper family	*Frequency with which the person has* supper *with the family* (multinomial): <<0>> Daily, <<1>> two to three times per week, <<2>> only weekends, <<3>> occasionally, <<4>> other, <<5>> alone or does not have supper.
Time supper	*Time that the person takes per day, on average, to have* supper *at home* (multinomial): <<0>> does not have time, <<1>> 15 to 30 minutes, <<2>> 45 minutes to an hour and a quarter, <<3>> an hour and a half to two hours, <<4>> more than two hours.
Family happiness	Degree of agreement of respondent regarding the family constituting their main source of happiness (multinomial): <<0>> strongly disagree, <<1>> disagree, <<2>> indifferent, <<3>> agree, <<4>> strongly agree.

of internal consistency and the existence of a single factor. In both scales, "extremely dissatisfied" and "dissatisfied" were merged in a single category due to the low number of participants in each. In the total sample for both scales, the proportion of satisfied people was higher (Table 7).

Ordered logit model analysis

The results for the ordered logit model generated for "satisfaction with life" (LifeSatis) are presented in Table 8. The fit of the model was significant at $p < .01$ for the -2 log likelihood with the Nagelkerke pseudo R^2 value greater than 0.3. The signs of the coefficients of the logit model generated directly show the direction of the relation of each explanatory variable with the dependent variable. The Wald statistical values indicate the individual significance of the coefficients, which, when associated with their probability, make it possible to reject or not the null hypothesis of non-significance. This study used a 10% level of significance (*$p < .10$), 5% (**$p < .05$) and 1% (***$p < .01$). Upper limit and lower limit are the confidence intervals for the coefficients estimated from the model. In general, the signs of the coefficients are consistent with what was expected.

A lower likelihood of high satisfaction with life ($\beta = -0.304$) in women compared to men was observed (Table 8), which is a common finding in Latin America (Copestake, Guillen-Royo, Chou, Hinks, & Velazco, 2009). According to the results, there is a greater likelihood of high satisfaction with life in higher socioeconomic levels (ABC1 $\beta = 1.213$; C2-C3 $\beta = 1.103$) than in people with lower incomes (D and E). Our results confirm those obtained in recent studies that concluded that higher income or a comfortable economic situation improve life satisfaction in different countries (Agrawal et al. 2011; Diener, Ng, Harter, & Arora, 2010; Schnettler et al. 2012; Yiengprugsawan, Somboonsook, Seubsman, & Sleigh, 2012). Considering the classic function of satisfaction (utility), depending on "consumption of goods" and "recreational behavior", the former means that belonging to those segments with

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Table 2. *Demographic characteristics of the sample. July 2011*

Sample	Total (%)
Female	59.9
Male	40.1
Single, separated, divorced, widowed	55.5
Married or in a conjugal relationship	44.5
Urban	99.6
Rural	0.4
1–2 family members	19.1
3–4 family members	54.0
5 family members or more	26.9
Without children	51.8
Children < 5 years	13.1
Children 5–12 years	19.4
Children 13–17 years.	15.7
Without studies	1.3
Elementary	5.8
High school	31.3
University	61.6
Independent worker	18.7
Businessperson	4.3
Private-sector worker	51.8
Public-sector worker	16.6
Retired	5.8
Unemployed	0.9
Other situation	1.8
ABC1 (high and upper middle)	30.5
C2-C3 (middle-middle-lower middle)	54.0
D-E (low-very low)	15.5
Valparaiso Region	14.8
Metropolitan Region	76.7
Libertador Bernardo O'Higgins Region	3.6
Maule Region	4.9

higher income implies that they have the opportunity to acquire more goods and enjoy more leisure time. This way, and considering all the other constant variables, income level indirectly contributes to a greater probability of satisfaction with life since it enables more opportunities for consumption of goods that can positively influence a person's well-being.

Family size is a variable that also helps explain satisfaction with life (Table 8) by being associated with different dimensions of the relationship between a person and their family, such as the benefits associated with eating at home (Alonso, O'Neill, & Zizza, 2012) or the family as a source of happiness (Delle Fave, Brdar, Freire, Vella-Brodrick, & Wissing, 2011).

Using people who stated that their health is excellent as a basis for comparison, the other groups that considered their health to be very poor (β = –1.955), fair (β = –1.200) or good (β = –0.695) most likely reported less satisfaction with life compared to the baseline group (Table 8). This is consistent with the results of Kouvumaa-Honkanen et al. (2000), Strine, Chapman, Balluz, Moriarty, & Mokdad (2008) and the Human Development Report in Chile (UNDP, 2012), that indicate that people's satisfaction with life tends to increase when they have a positive self-evaluation of their health. In relation to mental health, the more days spent dealing with mental health problems (β = –0,017), the lower the likelihood of a high satisfaction with life. This result confirms the relation between mental state and life satisfaction (Lyubomirsky, King, & Diener, 2005; Yiengprugsawan et al., 2012).

According to the results of the SWFL scale, people who are dissatisfied (β = –3.059), moderately satisfied (β = –2.140) or satisfied (β = –0.785) with their food-related life are less likely to be highly satisfied with life compared to people who are extremely satisfied with their food. Notably, in every case it was observed that the coefficient is significant to the p value < .01 (Table 8). This confirms the results obtained by Grunert et al. (2007), Schnettler et al. (2012) and Schnettler et al. (2013) that there is a positive relation between people's food-related satisfaction and their satisfaction with life.

Table 3. *HRQOL results for the sample. July 2011*

Item	%	*M*	*SD*
Self-perception of health			
Very poor health	0.6		
Fair health	15.4		
Good health	37.8		
Very good health	35.8		
Excellent health	10.4		
Days in the last month on which…			
… respondents' emotional and/or physical health was not good		10.6	16.9
…respondent's physical health was not good		4.01	7.3
… respondent's mental health was not good		4.52	7.9
… the person could not perform their usual activities due to their health		2.1	5.6

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Table 4. *Frequency with which the person has meals with the family and time that the person takes per day, on average, to have meals at home in the total sample. July 2011*

Item	Total (%)
Breakfast	
Daily	22.1
Two to three times per week	8.5
Only weekends	40.5
Occasionally	23.1
Alone or skips breakfast	5.8
Lunch	
Daily	14.5
Two to three times per week	11.6
Only weekends	59.8
Occasionally	11.7
Alone or skips lunch	2.4
Supper	
Daily	33.3
Two to three times per week	17.7
Only weekends	29.4
Occasionally	15.5
Alone or skips supper	4.1
Dinner	
Daily	36.8
Two to three times per week	9.4
Only weekends	16.9
Occasionally	21.1
Alone or skips dinner	15.8
Time for breakfast	
Does not have time	34.8
15 to 30 minutes	34.9
45 minutes to an hour and a quarter	20.5
An hour and a half to two hours	9.6
More than two hours	0.2
Time for lunch	
Does not have time	30.6
15 to 30 minutes	31.6
45 minutes to an hour and a quarter	30.8
An hour and a half to two hours	5.7
More than two hours	1.4
Time for supper	
Does not have time	17.0
15 to 30 minutes	47.5
45 minutes to an hour and a quarter	27.8
An hour and a half to two hours	3.9
More than two hours	3.8
Time for dinner	
Does not have time	23.2
15 to 30 minutes	30.4
45 minutes to an hour and a quarter	34.3
An hour and a half to two hours	7.5
More than two hours	4.6

In the case of the explanatory variable referring to the monthly food expenditure, it was observed that a higher expenditure positively influenced the likelihood of high satisfaction with life (β = 2.378E-6), showing that in addition to the person's socioeconomic status, spending on the consumption of goods – food in this case – influenced satisfaction with life (Table 8).

Table 5. *Frequency of consumption of food outside the home in the total sample. July 2011*

Item	Total (%)
Restaurant	
Always	4.6
Generally	10.9
Occasionally	41.0
Almost never	27.4
Never	16.2
Fast food outlets	
Always	1.7
Generally	11.0
Occasionally	43.7
Almost never	21.4
Never	22.2
Buy prepared food	
Always	2.4
Generally	8.9
Occasionally	28.6
Almost never	25.8
Never	34.3
Buy food from street carts	
Always	2.0
Generally	6.4
Occasionally	12.5
Almost never	18.8
Never	60.3

The habit of fast food consumption reduces the probability of high satisfaction with life when the frequency of said consumption is always (β = –2.864), generally (β = –0.406) or occasionally (β = –0.346) compared to those who stated that they never eat in fast food restaurants (Table 8). In this vein, it was observed that the likelihood of high satisfaction with life increases significantly when the person reported having supper with family either daily (β = 2.864), twice or three times a week (β = 0.748) or on weekends (β = 0.616), compared to those who have supper alone or omit this meal entirely (Table 8). With respect to the time available for supper, a lower likelihood of high satisfaction with life was observed if the person does not have time (β = –1.185), has 15 to 30 minutes (β = –1.587), 45 minutes to an hour and a quarter (β = –1.187) or between an hour and a two and a half hours (β = –1.066) compared to those who have more than two hours for supper (Table 8). This indicates that not only is it important to share this meal as a family, but that the time the family can dedicate to this meal is also relevant for a higher level of satisfaction

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Table 6. *Importance of five sources of happiness in the total sample. July 2011*

Item	Total (%)
Family	
Strongly disagree	6.2
Disagree	2.3
Indifferent	2.5
Agree	10.8
Strongly agree	78.2
Friends	
Strongly disagree	1.6
Disagree	1.5
Indifferent	11.7
Agree	44.0
Strongly agree	41.1
Food	
Strongly disagree	0.7
Disagree	2.0
Indifferent	12.8
Agree	50.5
Strongly agree	34.0
Leisure	
Strongly disagree	7.9
Disagree	9.1
Indifferent	25.6
Agree	36.7
Strongly agree	20.7
Work	
Strongly disagree	3.6
Disagree	4.0
Indifferent	17.2
Agree	51.2
Strongly agree	24.0

with life because it is associated with the social interaction around food.

Finally, the decrease in the likelihood of a high satisfaction with life if the person strongly disagreed ($\beta = -1.951$) or disagreed ($\beta = -0.444$) with the family being an important source of happiness compared to those participants who strongly agreed with this statement (Table 8), is consistent with the idea that family is a universal source of gratification (Delle Fave et al., 2011) that satisfies basic human needs (Yiengprugsawan et al., 2012).

Discussion

This study assessed the effect of satisfaction with food-related life on life satisfaction among people of upper-middle incomes in the main municipalities of central Chile, where the population is predominantly urban. This assessment was conducted following the bottom-up approach in LS research, using, as an explanatory variable for life satisfaction (measured by the SWLS), the categories of satisfaction with food-related life obtained through the results of the Satisfaction with Food related-life (SWFL) scale in an ordered logit model.

The SWLS and SWFL scales presented adequate levels of internal consistency and the existence of a single factor for all the items. The values of Cronbach's alpha coefficient from both scales were similar than those obtained by Schnettler et al. (2012) with a sample of native Mapuche people in the Araucanía Region in Chile (0.876 and 0.878, respectively). The results of the present study make it possible to confirm the existence of a positive relation between satisfaction with life and satisfaction with food-related life. The correlation between the two scales was significant and similar to that obtained in a previous study in Chile (Schnettler et al., 2012) and higher than that obtained in eight European countries by Grunert et al. (2007). This result may be related to the fact that consumers in developing countries spend a much higher proportion of their income on food than consumers in developed countries (Selvanathan & Selvanathan, 2006). Food is a need common to everyone; nevertheless, if this takes up the greatest part of the household budget, it is to be expected that this will become a significant concern and have a greater impact on the satisfaction with life of these people compared to those for whom the food budget is less relevant.

Table 7. *Description of the sample according to degree of satisfaction with life and food-related life*

	Satisfaction with life (%)	Satisfaction with food-related life (%)
Dissatisfied	7.7	7.1
Somewhat satisfied	16.8	16.4
Satisfied	53.2	50.6
Extremely satisfied	22.3	25.9
Explained variance (%)	64.7	66.5
Cronbach's α	0.861	0.873
Pearson's correlation between the scales	0.513*	

Notes: *The correlation is significant at 0.01 (two-tailed)

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Table 8. *Results of the ordinal logit regression model generated to measure the satisfaction with life (LifeSatis) of people in central Chile*[a]

	Estimation	Wald	Upper limit	Lower limit
γ^2_b	–3.704***	26.929	–5.103	–2.305
γ^3_b	–1.894**	7.168	–3.281	–0.508
γ^4_b	1.204*	2.922	–0.176	2.584
Explanatory variables				
Gender = 1	–0.304**	5.713	–0.553	–0.055
Gender = 0	0[c]			
SEL = 0	1.213***	14.344	0.585	1.841
SEL = 1	1.103***	12.090	0.481	1.725
SEL = 2	0[c]			
Family size = 0	–0.071	0.115	–0.484	0.341
Family size = 1	0.247*	2.728	–0.046	0.541
Family size = 2	0[c]			
Health perception = 0	–1.955**	6.900	–3.414	–0.496
Health perception = 1	–1.200***	21.634	–1.706	–0.695
Health perception = 2	–0.695***	10.282	–1.120	–0.270
Health perception = 3	–0.248	1.356	–0.664	0.169
Health perception = 4	0[c]			
Mental health	–0.017**	4.885	–0.033	–0.002
SWFL = 0	–3.059***	124.216	–3.597	–2.521
SWFL = 1	–2.140***	104.087	–2.551	–1.729
SWFL = 2	–0.785***	26.863	–1.082	–0.488
SWFL = 3	0[c]			
Monthly expenditure	2.378E-6***	12.713	1.071E-6	3.685E-6
Fast food = 0	–1.147**	5.775	–2.082	–0.212
Fast food = 1	–0.406*	3.172	–0.853	0.041
Fast food = 2	–0.346*	3.604	–0.703	0.011
Fast food = 3	–0.131	0.684	–0.442	0.180
Fast food = 4	0[c]			
Supper family = 0	2.864**	4.872	0.321	5.407
Supper family = 1	0.748**	4.437	0.052	1.443
Supper family = 2	0.616*	3.080	–0.072	1.304
Supper family = 3	0.571	2.467	–0.142	1.284
Supper family = 4	0.537	2.151	–0.181	1.255
Supper family = 5	0[c]			
Time supper = 0	–1.185***	10.261	–1.910	–0.460
Time supper = 1	–1.587***	20.853	–2.268	–0.906
Time supper = 2	–1.187***	11.144	–1.884	–0.490
Time supper = 3	–1.066**	5.583	–1.950	–0.182
Time supper = 4	0[c]			
Family happiness = 0	–1.951***	10.345	–3.139	–0.762
Family happiness = 1	–0.444**	7.883	–0.749	–0.133
Family happiness = 2	–2.087	2.360	–4.750	0.576
Family happiness = 3	0.001	0.000	–0.973	0.974
Family happiness = 4	0[c]			
Nagelkerke Adjusted R^2[d]		0.338		
-2 Logarithm of the Likelihood (-2LL)[e]		1145.846***		

Notes:[a]Significant variables at *$p < .10$, **$p < .05$, ***$p < .01$ based on the Wald statistic. [b]Value of the threshold or limit parameter *(cut parameter)*. There are three threshold parameters because there are four response categories for the dependent variable "satisfaction with life" (LifeSat); [c]This parameter is at zero because it is redundant. This is a comparison category for each explanatory variable in the model; [d]Nagelkerke's R^2 is a statistical *proxy* of the determination coefficient (Pseudo-R^2) in the logit model; [e]Significant model at the level ***$p < .01$ for the -2 log likelihood.

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Objective life circumstances and global personality dimensions both affect LS. The top-down and bottom-up approaches are met by the interpretation of one's circumstances (Brief et al., 1993). In this regard, the result that indicates that people less satisfied with their food-related life are less likely to report high satisfaction with life, reaffirms the idea that a daily basic need such as food can be an important source of life satisfaction for people, because eating is not only a biological act but an act of subjective and social significance that binds individuals with needs for affection, recognition and identity.

It also confirms that the domains of functioning closest to the personal life of individuals have the greatest influence on personal life satisfaction (García-Viniegras & González, 2000). Lance et al. (1989) assert that the direction of the relationship between overall and domain life satisfaction depends on the function of the domains. The function varies according to (1) the scope, the extent to which the domain encompasses only one or a few persons, entities or activities; (2) criticalness, the extent to which substitute domains are not readily available; and (3) centrality, the persistence of the individual's conscious attention to the domain. The domain of food tends to involve a narrow scope (usually closest family members and friends), and it cannot be replaced by other domains in fulfilling the individual's food-related demands, which require constant attention every day, even more so, every few hours. A specific, critical and central life domain like this one, according to Lance et al. may be more likely to contribute to global life satisfaction.

In this sense, food involves activities and daily considerations relating to its procurement, preparation and intake (Grunert et al., 2007), activities undertaken by everyone, regardless of their socioeconomic status. Moreover, food is related to other areas of life, such as health (Chen, 2011; Dean et al., 2008; Mollet & Rowland, 2002) and the social interaction with family and friends (Gillespie & Gillespie 2007; Hargreaves, et al. 2002; Kniazeva & Venkatesh, 2007; Macht et al., 2005), and this has been previously reported as a source of happiness (Macht et al., 2005).

Although the results complement the reports from previous studies that relate food and quality of life in low-income populations (Clark, 2000; Guillen-Royo, 2008), the use of the SWFL scale in the present study makes it possible to suggest that food and the degree of satisfaction associated to it influence life satisfaction and people's quality of life in general. This is to say that food not only has an impact on the quality of life of people who are poor, it affects everyone, including those who have access to good food, which presumably is the case for those of higher socioeconomic status.

Also, the present investigation contributes to the detection of food-related variables that influence satisfaction with life state that satisfaction is considered to reflect a comparison of what people have, to what they think they deserve, expect, or may reasonable aspire to. Income can be seen as an instrument to buy goods and services, including food, that contribute to individual well-being (Salinas-Jiménez, Artés, & Salinas-Jiménez, 2010). The lack of food derived from material deprivation has a negative effect on life satisfaction (Ateca-Amestoy et al., 2013). An increasing likelihood of a high satisfaction with life is related to the person being able to spend more money on food every month, which confirms the findings by Schnettler et al. (2012). The possibility of spending a higher amount of money on food for the home is associated with the possibility of gaining access to food of better quality (French et al., 2010; Schnettler et al., 2012; Story et al., 2008) and variety, and according to the preferences of the individual without price limitation. This is important if we consider that food consumption is not only an act of satisfaction of the basic need for nutrition but also a source of pleasure and an expression of one's own identity (Hausman, 2005; Kniazeva & Venkatesh, 2007; Macht et al., 2005).

Despite evidence regarding happy people eating out more often (Veenhoven, 2003), the results of the present investigation indicate a decrease in the likelihood of a high satisfaction with life if the person eats in fast food outlets, always, frequently or occasionally, compared to those who never eat at this type of establishment. This may be related to the low chance people have of going home for lunch given the long distances between home and work, mainly in large cities such as capitals (76.1% of the sample is in the Metropolitan Region of Santiago). In this respect, Rezende and de Avelar (2012) conclude that on many occasions people opt to eat out because they are pressed for time or are unable to have their meals at home on a daily basis. Even though many people cannot eat at home for the aforementioned reasons, and eating in fast food outlets becomes a convenient alternative due to the low prices and the time saving it entails, we can conclude that the consumption of food in fast food restaurants has a negative effect on satisfaction with life in the sample studied.

In Chile, supper is an evening meal traditionally to be had in the company of others, frequently chosen instead of dinner, considered a larger, more elaborated meal. In this regard, one noteworthy result is the increase in the probability of high satisfaction with life if the person can have supper with their family daily, two to three times per week or at least on weekends, compared to those who have supper without their family. This may relate to the fact that hedonic eating is mostly experienced in the presence of familiar persons who easily engage in social interactions during the meal (Macht et al., 2005). Food is prepared

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in the expectation that it will be shared and enjoyed in the company of family and friends (Dean et al., 2008; Gillespie & Gillespie, 2007; Kniazeva & Venkatesh, 2007). Thus, food preparation and consumption in the home are considered healthful and beneficial (Alonso et al., 2012), because the homemade meal symbolizes the family unit (Kniazeva & Venkatesh, 2007). Also, there is increasing evidence that frequency of shared family mealtimes is associated with positive health outcomes for children and youth, including reduced risks for eating disorders (Neumark-Sztainer, Eisenberg, Fulkerson, & Story, 2008), increased consumption of healthy food and less consumption of unhealthful food (Hammons & Fiese, 2011), less risk for childhood obesity (Gable, Chang, & Krull, 2007) and greater family cohesion (Welsh, French, & Wall, 2011). However, it is not always possible to eat frequently with the family during the day, particularly in the Metropolitan Region, due to the long distances between the home and the workplace. Quick, Fiese, Anderson, Koester and Marlin (2011) identify work/life stress among the barriers to sharing meals together. This means that on many occasions, breakfast and lunch are not eaten with the family, which might be compensated by sharing meals at the end of the day.

Therefore, if eating frequently with the family benefits the health of family members and at the same time increases people's satisfaction with life, this practice must be promoted by the corresponding government institutions (for example, Ministry of Health, Ministry of Labor) with the aim of improving the population's quality of life. It should be emphasized that having supper with the family not only increases the likelihood of a high satisfaction with life, the time available to eat with the family also plays an important role. Our results indicate a significant reduction in the probability of high satisfaction with life if the person has less than two hours to have supper with their family. This confirms previous studies that have shown that spending more time with family is related to a higher quality of life (Greenhaus & Powell, 2006), but the results of this study highlight the impact that having enough time to share a meal with family has on life satisfaction. In the case of the study sample, this is related again to the long commutes that are detrimental to spending more time with the family. Also, it may be related to the longer work schedule in Chile, commonly extend until 7 pm or later. There are even some types of work (many of them related to management positions), where the person must make weekends available to fulfill the goals demanded by companies, at the expense of spending this time with their family. There is evidence that those who dedicate more time and energy working at the expense of investing in their interpersonal relationships (i.e. with family) tend to experience more work-to-family conflict, and decreased family function and mental health (Smith-Major, Klein, & Ehrhart, 2002). Based on our results, we agree with the proposal by Masuda and Sortheix (2012) of creating policies that allow citizens and employees to spend more time and energy building their family relationships. Their study provided empirical evidence of the importance of allowing individuals to spend more time and devote more energy caring for their family, which, according to the results of this study, should be pursued by getting together with family to share a meal on a daily basis. Associated with the results that indicate a relation between satisfaction with life and family size, and between satisfaction with life and the frequency and time available for supper with the family, it should be noted that only the agreement that family is one of the main sources of happiness was a significant explanatory variable of satisfaction with life. Family support has a greater effect on happiness and life satisfaction, and family support has been found to buffer life satisfaction in the face of traumatic periods (North, Holahan, Moos, & Cronkite, 2008).

Thus, it is possible to suggest that satisfaction with life in the study sample is influenced by different areas: food (satisfaction with food-related life, the frequency of food consumption in fast food outlets, the monthly food expenditure), health (self-perception of health, days with mental health problems) and family (family size, the frequency and time available for early evening meal with the family, the level of agreement with the family being one of the main sources of happiness). The results of the study point to an important link between food and family; therefore, family meals should be pursued as a more common practice to contribute to a better life in Chile.

One limitation of this study is that the sample consisted to a large degree of participants from higher socioeconomic status, women and residents of urban areas, and this is not representative of the sociodemographic distribution in Chile. The proportion of people in the high and upper middle segment is approximately 10% (Adimark, 2004). At the same time, according to data from the 2002 Census, the percentage of women is 50.5% and the urban population is 13.4% (National Statistics Institute, 2003). Therefore, the results may be valid for people who reside in urban areas of the central regions of the country, where more than 50% of the Chilean population is located, and belongs preferentially to the higher and upper middle, middle-middle and lower middle socioeconomic levels. Another limitation is that, although the results suggest a causal relationship between LS and SWFL, the use of cross-sectional data does not allow proving causality. These limitations lead to the need to carry out further research on satisfaction with food-related life, and its

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relation to satisfaction with life, in a longitudinal manner and in representative samples of the population.

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