

Research



# The OWLQOL and WRSM in European Community Studies

(Obesity and Weight-Loss Quality of Life and Weight-Related Symptom Measures)

Bushnell DM<sup>1</sup>, Patrick DL<sup>2</sup>, Zhang M<sup>3</sup>, Rothman M<sup>3</sup>

<sup>1</sup>HRA, Inc., Seattle, WA, USA; <sup>2</sup>Dept. of Health Services, University of Washington, Seattle, WA, USA; <sup>3</sup> Johnson & Johnson Pharmaceutical Service, L.L.C., Raritan, NJ, USA



Int'l Society for Quality of Life Research 9th Annual Conference Orlando, Florida, USA November 1, 2002

ermission: Health Economics & Pricing, clo Johnson & Johnson Pharmaceutical Services, LL 920 Route 202, POB 300 Rantan, NJ 08889-0602, Fax: (908) 231-731

### **OBJECTIVES**

Associates, Inc.

- To compare patient-reported outcome characteristics of obese and nonobese populations in Europe.
- To compare and confirm basic psychometric properties of the Obesity and Weight-Loss Quality of Life (OWLQOL) measure and the Weight-related Symptom Measure (WRSM) in these four European countries to the original U.S. validation.
- To confirm the subscale structure based on a sample of obese persons in the United States: self-image, social stigma, trying to lose weight, physical health.

### **METHODS**

- Data were collected in four countries. In Germany, France and the United Kingdom data were collected via mail questionnaires. In Italy, questionnaires were delivered and picked up by the interviewers.
- The questionnaire consisted of the OWLQOL (condition-specific QOL), WRSM (weight-related symptoms), SF-36 (general health status), Current Health-State Desirability Rating (CHDR) scale (health-state "thermometer") and demographic characteristics.
- Item reduction statistics were used to evaluate missing data, ceiling effects, item-to-item and item-to-total correlations.
- A confirmatory principal components analysis (varimax rotation) was conducted using previously identified subscales from the original U.S. validation study.
- Pearson's correlation coefficients were used to assess association with the SF-36 subscales. We hypothesized stronger associations with the vitality, social functioning, and bodily pain subscales.

### SAMPLE

The sample in each country was divided evenly between an obese population (body mass index of 30 or more) and a mutually exclusive nationally representative population (which may include obese persons).

As expected, BMI values were higher and self-reported health-state lower for the obese samples. Symptoms (WRSM) were more bothersome in the obese samples and (except in France) the female samples. Note: there was not a general population comparator from the original U.S. validation shirtly.





### RESULTS

#### **Table 1. Population Characteristics**

	₩₩ U.K.		GERMANY		FR/	ANCE	ITALY		
	General Obese (n=997)	General Population (n=1079)	General Obese (n=1017)	General Population (n=1000)	General Obese (n=493)	General Population (n=500)	General Obese (n=500)	General Population (n=510)	
Age (mean ± st. dev.)	49.5 ± 14.2	47.2 ± 15.4	44.9 ± 12.8	44.2 ± 12.7	46.1 ± 12.9	44.9 ± 14.9	52.3 ± 13.3	43.4 ± 16.6	
Gender (% female)	53.6	54.4	56.7	65.0	94.1	74.6	50.0	50.8	
Marital Status (% married)	N/A	N/A	74.9	66.5	64.5	70.4	68.2	57.3	
Education (% college degree)	39.6	45.9	16.3	24.4	6.9	10.4	6.0	7.5	
Employment (% unemployed)+	20.4	13.9	18.7	18.2	13.8	14.6	13.2	10.0	
Income (%)	>= £ 35,000		>= DM 42,000		>= FF	1,800,000	>= Lira 30,000,000		
	51.3	61.1	55.5	54.7	29.8	38.2	58.0	57.5	

<sup>†</sup> the % unemployed refers to the populations studied and not the unemployment rate for the countries

#### **Population Comparisons**

Figures 1 through 4 show comparisons between the obese population and a representative sample of the general population in each country. Figure 1 shows obesity-specific quality of life (OWLQOL), scores in populations with a BMI of 30 or more. Their scores are considerably lower than those from each general population, (Figure 2), SF-36 scores (a more generic health/functional status measure) show similar results, atthough the differences are smaller (Figure 3 and 4).

Figure 1



Figure 2



Figure 3

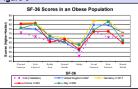


Figure 4



#### Item Reduction

No items, other than the item "I avoid having sex because of my weight" (6.2%) had greater than 5% missing. The UK had the greatest number of missing items.

Five items exhibited a ceiling effect in 3 or more countries: "I avoid having sex because of my weighf", "I feel left out by others because of my weighf", "I feel others are ashamed of me because of my weighf", "I worry others think I am lazy because of my weighf", and "I feel that others cannot see the real me because of my weighf".

All item-to-total correlations were ≥ 0.60. Item-to-ltem correlations exceeding 0.75 (indicating possible redundancy) existed with several items, however they are items that are similar in construct (i.e., I feel that others cannot see the real new with I feel left out by others; or I feel depressed with I feel uply). Similar relationships were seen in the original validation data

#### **Confirmatory Factor Structure**

A confirmatory factor analysis was conducted within each country. Table 2 shows a comparison of each OWLOOL liem and factor (subscale) it entered into. While the subscale structure of Trying to Lose Weight and Physical Health subscale were confirmed, there was some variation in the Self-Image and Social Stigma domains. Two times in the Self-Image subscale (from the original validation data) loaded on the Social Stigma subscale in all samples [I avoid having sex. and I feel embarrassed eating certain foods in front of others...]

#### Table 2. Confirmatory Factor Analysis

Self-image	UK	GER	FRA	IT/
CHL21 Secause of my weight, I am embanassed to undress in font of others	97	11	11	- 51
CHE13 Secause of my weight, I by to avoid being seen in swimwear or shorts	2	11	11	21
CHLO1 Because of my weight, I by to wear dothes that hide my shape	27	11	11	27
OHE 17 Secause of my weight, I try to avoid having my photograph taken	2.	11	11	21
CHIE.10 Secause of my weight, I get trustrated trying to find dothes I look good in	54	14	14	54
CHIL1S I dread getting on the scale to weigh myself	54	14	14	54
CHILSE I have difficulty accepting my body because of my weight	2.	1/	3+	21
OWE22 I avoid having any because of my weight	2*	2*	2*	21
CHIL18 I feel embarrassed eating certain foods in front of others because of my wt	2*	2*	2*	21
CHL25 I feel depressed because of my weight	3*	11	2*	21
OREST I warry about the impression others have of me because of my weight	2*	2*	11	21
OHE25 I feel uply because of my weight	2*	11	2*	- 21
CRICOL I feel frustrated that I am not able to eat what others do because of my at	3*	1/	3+	- 21
CRECO I feel guilty when I eat because of my weight	54	14	14	- 54
Social Stigma				
CHIESS I feel that people stare at me because of my-weight	24	24	34	2
CHIE12 I feel I am beated differently by others because of my weight	24	34	34	24
CWLS1 I feel others are ashamed of me because of my weight	27	27	27	7
CHIL2S I feel left out by others because of my weight	27	27	27	~
CRESK I warry others think I am lazy because of my weight	2/	27	27	*
CHIL37 I feel that others cannot see the real me because of my weight	×	2/	2/	21
OHLOS I am embarrassed about moving more slowly than others because of my et	24	4+	4.	24
CHILO? I am bothered by what other people say about my weight	1+	1+	1.0	1+
ORLOS I feel embarrassed about needing more room than others because of my wt	×	4.	4+	2
Trying to lose weight				
CREAD I get discouraged when I try to bee weight	>	34	31	>
CRESS I am shaid that I will gain back any weight that I lose	>	34	31	>
CHIL29 I am moody when I by to lose weight	24	34	34	>
CNICAT I need support from others to loss weight	27	2	21	25
CRE.33 I envy people who are thin	27	3/	27	2
Physical health				
CHIL22 I warry about the physical stress that my weight puts on my body	44	6/	44	- 44
CRIC30 I worry about the future because of my weight	81	4.	2*	- 41
CRE20 My weight prevents me from doing what I want to do	14	47	4	45
CRECO I feel frustrated that I have less energy because of my weight	4	4/	4	10
CHIL 19 Decause of my weight. I have to pay close afterfion to personal hydrone	w	11	4	- 11

#### Table 3: Internal Consistency of the OWLOOL and WRSM Measures

	Obese Populations Only						
	UK N=995	<b>GER</b> N=1015	FRA N=493	ITA N=500			
WRSM (20 items)	0.88	0.87	0.88	0.89			
OWLQOL (33 items)	0.98	0.97	0.97	0.97			
Self-Image (19 items)	0.96	0.95	0.95	0.95			
Social Stigma (9 items)	0.95	0.93	0.94	0.93			
Trying to Lose Weight (5 items)	0.90	0.86	0.84	0.87			
Physical Health (5 items)	0.90	0.86	0.86	0.85			

#### Convergent Validity

Convergence was assessed using Peason's correlation to measure the association between the OVILOCA and WRSMA with the 5F-58 octate. It was expected that the scores on the OVILOCA, would be more closely associated with the study body pain and social functioning subscales of the 5F-38 and that correlations sould be higher using the symptom scale. Table 4 shows the correlations between the OVILOCA clost social one of the 5F-38 subscales. In all countries, the OVILOCA has highly sprift card association with the Vitally and Social Functioning subscules and moderately significant list with the overall contribution of the overall contribution of

## Table 4: Correlation Matrix of the OWLQOL/WRSM Measures with the SF-36

	Obese Populations Only							
	OWLQOL				WRSM			
	UK	GER	FRA	ITA	UK	GER	FRA	ITΑ
SF-36 Physical Functioning	.23	.37	.31	.39	65	64	58	58
SF-36 Role Physical	.24	.27	.24	.29	60	59	54	56
SF-36 Bodily Pain	.24	.28	.36	.29	65	65	62	57
SF-36 General Health	.36	.37	.42	.36	64	64	61	54
SF-36 Vitality	.46	.52	.45	.45	67	66	64	55
SF-36 Social Functioning	.40	.41	.48	.44	66	59	61	52
SF-36 Role Emotion	.39	.38	.34	.34	55	49	51	57
SF-36 Mental Health	.51	.51	.50	.45	56	59	59	48

Note: all correlations significant at the 0.01 level (2-tailed

### CONCLUSIONS

- The general psychometric performance of the OWLQQL and WRSM in these four European countries was similar to the original U.S. validation study. The OWLQQL, WRSM, SF-36 and CHDR measures were able to discriminate between an obese population and a general population.
- While some variation occurred between the Self-Image and Social Stigma domains, there was confirmation of the previously identified subscale structure.
- These weight-related QOL measures are good options for use in clinical trials.