

Functional disability in France and its relationship with health-related quality of life – a population-based prevalence study

C. Loos-Ayav¹, N. Chau², C. Riani¹, F. Guillemin¹ and the Lorhandicap Group*

¹Nancy-Université, EA 4003, Ecole de Santé Publique, Nancy; ²INSERM, Unité 669, Paris
Sud Innovation Group in Adolescent Mental Health, IFR25-RFRH “Réseau Fédératif de
Recherche sur le Handicap”, Paris, France.

Abstract

Objective

To estimate the prevalence of functional disability in France and assess its association with the health-related quality of life (HRQoL).

Methods

Each member in 8,000 households randomly selected in the Lorraine population were mailed a questionnaire asking about their sociodemographic characteristics; the presence of chronic locomotor or non-rheumatic diseases; functional disability on the Health Assessment Questionnaire (HAQ); and HRQoL on the Duke Health Profile. The prevalence of functional disability was described, and its relationship with HRQoL was assessed by logistic regression analysis.

Results

Among the 6,148 subjects who responded (mean age 46 years \pm 18.3, 48% men), the prevalence of moderate (HAQ \geq 1) and severe (HAQ \geq 2) functional disability, adjusted for age and sex, was 6.5% and 1.6% respectively. HRQoL was significantly low in all dimensions for subjects with severe functional disability. Functional disability of locomotor origin significantly affected the physical (OR = 10.6 [5.1-22.1]), mental (OR = 4.4 [2.5-7.8]), and social (OR = 2.4 [1.4-4.3]) dimensions, with a threshold effect according to the disability level and perceived health (OR = 10.6 [5.8-19.4]), with a cause-effect relationship.

Conclusion

The prevalence of reported (i.e., not observed) functional disability in terms of its impact on HRQoL helps physicians to better understand its differential consequences, which should ease patient dependence, facilitate the analysis of health care needs and the development of prevention measures, and improve the HRQoL of patients and their families.

Key words

Health-Related Quality of life, functional disability, prevalence, Duke Health Profile, Health Assessment Questionnaire.

Carole Loos-Ayav, MD;
Nearkasen Chau, PhD;
Cyrille Riani, MD;
Francis Guillemin, MD, PhD.

*Lorhandicap Group: N. Chau,
Francis Guillemin, J. Sanchez, J.F.
Ravaud, J.P. Michaely, A. Dazord,
S. Guillaume, B. Legras, J.P. Meyer,
N. Tubiana-Rufi, L. Méjean, M. Choquet,
Y. Schléret, J.M. Mur, C. Otero Sierra.

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Please address correspondence and
reprint requests to: Prof. Francis
Guillemin, Ecole de Santé Publique,
Faculté de Médecine, BP 184,
54505 Vandœuvre-les-Nancy, France.

E-mail:

francis.guillemin@medecine.uhp-nancy.fr

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Introduction

Health-Related Quality of Life (HRQoL) is an emerging concept that is important for health policy and clinical research. It measures the individuals' perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns (1). Measuring HRQoL allows for a broad, multi-dimensional approach to many health-related issues. The items in the HRQoL capture these multiple aspects. Measurement tools for HRQoL are still somewhat heterogeneous, although a trend towards standardization is emerging (2, 3).

Functional capacity is a reflection of health, so functional limitations are defined as any partial or total reduction in the capacity to accomplish an activity in a way or within limits considered normal for a human being. Measures of functional disability allow one to quantify this capacity (4). Functional disability is considered to be a marker of the impact of rheumatic disorders on daily living.

Both the functional disability and HRQoL measures offer a global appreciation of how patients live with their disease and both extend the evaluation of medical interventions beyond the physical aspects.

The Bone and Joint Decade report focuses on the consequences of musculoskeletal and osteoarticular diseases and underlines the lack of data in terms of disability as well as HRQoL (5, 6). Numerous studies have investigated the functional disability of subjects with chronic disease or handicap, but few have focused on subjects' perception of their HRQoL. Functional disability could be evaluated by an external observer, but insufficiently reflects the individual's perceptions of the consequences of this functional disability on HRQoL in its various dimensions. This insufficient knowledge is one of the reasons why such diseases have not received enough attention.

A review of the literature from 1990 to 1998 on the prevalence of disability, handicap and HRQoL in the general population showed that such estimates were lower than population-specific

estimates (7). The prevalence of disease in populations is difficult to compare because of the lack of homogeneity in age, socioeconomic factors, and heterogeneous concepts and indicators of disease used across studies.

The search for a link between a given functional disability and HRQoL offers a new approach to understanding the impact of functional disability. In the International Classification of Functional Disability and Health (ICF) model (8), relating impaired body structure and function to limitations in ability resulting in restrictions in participation, functional disability would be expected to be strongly correlated with the physical dimensions of the HRQoL. However, the magnitude of this link is unknown. Moreover, the impact of functional disability on other dimensions of the HRQoL remain to be elucidated.

The objective of this epidemiologic study conducted within a larger research program [Lorhandicap (9)] on a representative sample of the French general population was to estimate the prevalence of self-reported functional disability and to assess its impact on the HRQoL according to the degree of functional disability.

Materials and methods

Sample

The Lorhandicap program (9) was conducted in 1996 with a population of adults more than 15 years of age who lived in the Lorraine region of France. The main objective was to determine the prevalence of handicap in the general population (using a simple random procedure) and to study its determinants and consequences. A total of 8,000 households among 2,300,000 inhabitants living in the region were randomly sampled from the regional telephone list. A first postal survey collected subjects who were willing to participate in the study together with information on the composition of their household. A self-administered questionnaire was then sent to each member of this household aged 15 years or more, with a cover letter and a pre-paid envelope for the response. If the composition of the household was not known, two questionnaires were sent initially. Additional questionnaires

Competing interests: none declared.

for other household members were sent on return of the completed first questionnaires. Among the 8,000 addresses obtained, 193 (2%) were incorrect or incomplete. Two postal reminders were sent once a month for the following 2 months.

Among the 7,807 households we were able to contact, an individual in 3,460 households responded, for a household participation rate of 44.3%. A total of 6,242 subjects completed a questionnaire: 73% of questionnaires were completed by the individuals contacted, 17% by the head of household, 6% by children, 2% by parents, and 2% by another person. For 14% of households, no one completed the questionnaire. In total, 83 individuals with unknown sex or age (1.3%) were eliminated; the final sample included 6,159 subjects, with complete information for HRQoL from 6,148. The distribution of the sample according to age and sex closely reflected that of the population in Lorraine (10).

Measurement

Data were collected on the following parameters: sex; age; socioeconomic class according to the International Standard Classification of Occupation (ISCO 88) (11), grouped into 6 classes (executives and intellectual professionals, technicians, employees, workers, farmers, and unemployed people); level of education in 5 categories derived from the ISCED classification (primary education, first stage of secondary education, second stage of secondary education, first university degree, postgraduate university degree) (12); the presence of a chronic locomotor or non-rheumatic disease; level of functional ability; HRQoL; and current perception of overall health.

Information on the absence of disease or the presence of at least one chronic disease, one locomotor disease or one chronic non-rheumatic disease was collected by a combination of 3 questions:

- “Did your physician tell you that you had one or several among the following diseases?” A list of 31 conditions including 5 locomotor diseases was proposed.
- A question focusing on the presence

of osteoarthritis, arthritis, other rheumatic diseases, or muscular, bone or nervous troubles.

- An open question inviting subjects to list any other condition.

Functional capacity was measured by the health assessment questionnaire (HAQ) (13) adapted and validated in French (14), which explores 8 domains of daily activity: dressing and grooming, arising, eating, walking, hygiene, reaching, gripping, and other activities. Each domain includes 2 or 3 questions, for a total of 20 questions with response categories as follows: “without any difficulty” = 0, “with some difficulty” = 1, “with much difficulty” = 2, and “unable to do it” = 3. In each domain the score corresponds to the highest value, weighted by the patient’s use of an aid, a person or a technical device, in which case the minimal score of 2 was attributed to the domain. The HAQ score corresponds to the mean of the score for each of the 8 domains, ranging from 0 (no disability) to 3 (maximal disability). The HAQ is a self-administered questionnaire initially developed to quantify functional disability in rheumatoid arthritis (13) and has been further shown to capture generic ability limitations. It is easy to understand and has been adapted and validated in several languages (15).

HRQoL was assessed by the Duke health profile (16) adapted and validated in French, according to psychometric standards (17). The questionnaire is self-administered and covers 17 items with 5 independent dimensions – physical (5 items), mental (5 items), social (5 items), perceived health (1 item), and disability (1 item) – and 5 dysfunctions resulting from a recombination of items chosen from the previous list, which allows one to evaluate the spheres of self-esteem (5 items), anxiety (6 items), depression (5 items), and pain (1 item), and provides a general score that averages the physical, mental and social scores. Answer modalities are 0, 1 or 2 and are summed for each dimension. The score for each dimension is normalized from 0 (worst) to 100 (best) HRQoL. The dimensions presented for this analysis are physical, mental, social and perceived health.

The overall perception of health was investigated by the following question: “Given your current age, how do you evaluate your health status: good, fair, moderate or bad?”

Statistical analysis

The prevalence of functional disability was estimated as the ratio of the number of cases observed to the total sample of responders. Rates standardised by age and sex according to the national census data of 1999 (18) and 95% confidence intervals were calculated assuming a Poisson distribution.

Quantitative variables were expressed as means \pm SD and qualitative variables as percentages. Associations between variables were tested by the chi-square test, *t*-test or ANOVA and the Pearson correlation coefficient. The cut-off point for the HRQoL scores was set at 50, with people having a score ≥ 50 or < 50 considered as having a good or a low HRQoL, respectively, in each dimension. Four logistic regression models – one for each physical, mental, social and perceived health dimension as a dependent variable – were fit to the data, while controlling for age, sex, occupation and the presence of chronic disease being locomotor or not.

Functional disability was considered to be moderate or severe when the domain score was ≥ 1 (some difficulty) or 2 (much difficulty), respectively. Subjects with a HAQ score ≥ 1 and ≥ 2 were considered as having some difficulties and much difficulty, respectively, in most daily activities. The HAQ score was divided into 3 categories: 0–1 = no disability, 1–2 = moderate disability, and 2–3 = severe disability.

Statistical analysis involved use of the SAS® 8.2 package with a type I error set at 5%.

Results

Sample description

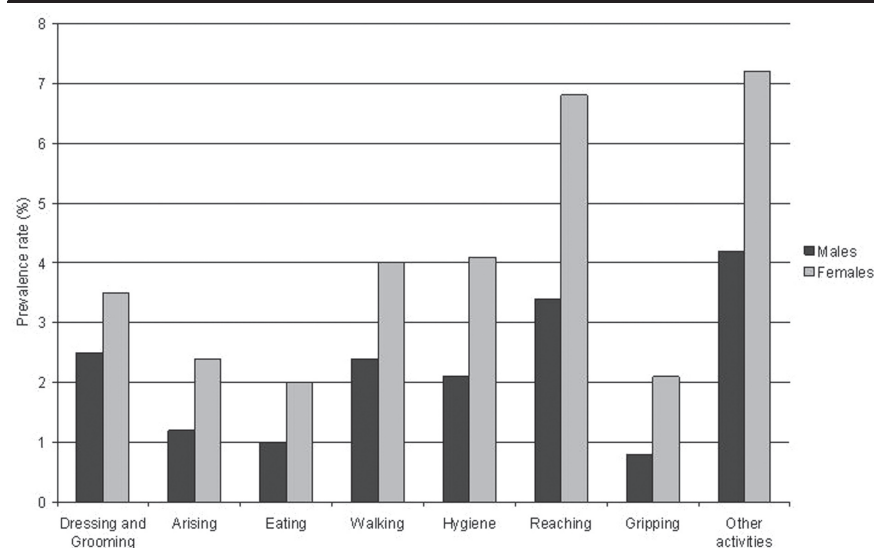
The study sample was comprised of 6,148 subjects aged 15 years and older. The mean age was 46 ± 18.3 years, and the male-to-female ratio was 0.91 (Table I). This sample was representative of the French population (national census) (18) with regard to age, sex, educational level, and occupation. The

Table I. Characteristics of the study subjects.

		Number	%
Age	mean (SD)	45.7 (18.3)	
Sex	Female	3,197	52.0
	Male	2,951	48.0
Socio-economic category	Executives, intellectual professionals	947	15.4
	Employees	1,655	26.9
	Technicians	488	7.9
	Workers	1,222	19.9
	Farmers	180	2.9
	Unemployed	1,656	26.9
Education level	Primary school	1,796	30.9
	Secondary school (years 1 to 4)	2,041	35.2
	Secondary school (years 5 to 7)	919	15.9
	University degree	553	9.5
	Post-graduate university degree	494	8.5
Overall health perception	Good	3,465	57.8
	Fair	2,065	34.5
	Moderate	332	5.5
	Bad	132	2.2
Presence of at least one chronic disease		4,018	65.4
Presence of at least one chronic non-rheumatic disease		2,640	42.9
Presence of at least one locomotor disease		3,112	50.6
Location of reported symptoms	Backbone, head, neck	1,900	31.0
	Shoulder	830	13.5
	Arm, elbow, forearm	577	9.4
	Wrist, hand, fingers	696	11.3
	Rachis	168	2.7
	Hip, pelvis	600	9.8
	Thigh, knee, leg	1,014	16.5
	Ankle, foot	509	8.3
HAQ score mean (SD)		0.19 (0.44)	

mean composition of the participating households (2.3 responders per household) was close to that in France (2.5).

The overall self-perceived health was considered good by more than half of the participants, and about two-thirds

**Fig. 1.** Prevalence of functional disability by domain (HAQ) and sex.

of the subjects reported at least one chronic disease (Table I).

Prevalence of functional disability

The overall standardised prevalence was 6.5% for moderate disability ($\text{HAQ} \geq 1$) and 1.6% (1.1% in men, 1.9% in women) for severe disability ($\text{HAQ} \geq 2$). The mean HAQ score was 0.19 ± 0.44 , with 29.4% having an $\text{HAQ} > 0$.

Functional disability was significantly higher in women than in men for every domain ($p < 0.0001$) (Fig. 1). The prevalence of disability was higher in people older than 60 years ($p < 0.0001$) and increased with age in both men and women older than 60 years. Three groups were identified according to the domain of limitation in decreasing order of frequency (Fig. 2):

- Group 1 had limitations in complex activities: “reaching” (men 3.4%, women 6.7%) and “other activities” (men 4.2%, women 7.1%).
- Group 2 had limitations in daily activities: “dressing and grooming” (men 2.5%, women 3.5%), “walking” (men 2.4%, women 4.0%), and “hygiene” (men 2.1%, women 4.1%).
- Group 3 had limitations in basic activities: “arising” (men 1.2%, women 2.4%), “gripping” (men 0.8%; women 2.1%), and “eating” (men 1.0%, women 2.0%).

The prevalence of severe functional disability also increased with increasing age in both sexes.

For severe locomotor functional disability, 1.5% to 5.8% of the subjects reported disability in one domain only, 5.7% in 2 domains, and 2% in 8 domains.

Health-Related Quality of Life

Mean scores in the physical, mental, social and perceived health dimensions were $71.2 (\pm 23.4)$, $72.0 (\pm 21.8)$, $67.5 (\pm 18.2)$ and $68.4 (\pm 34.7)$, respectively. The social dimension was most severely affected. On average women showed a significantly lower HRQoL than men in all dimensions ($p < 0.0001$; Table II). HRQoL decreased significantly with increasing age ($p < 0.0001$). Correlation coefficients for the physical, mental, social, and perceived health dimensions with age were -0.46 , -0.08 , -0.12 and -0.27 , respectively. Executives and intellectual professionals, and technicians

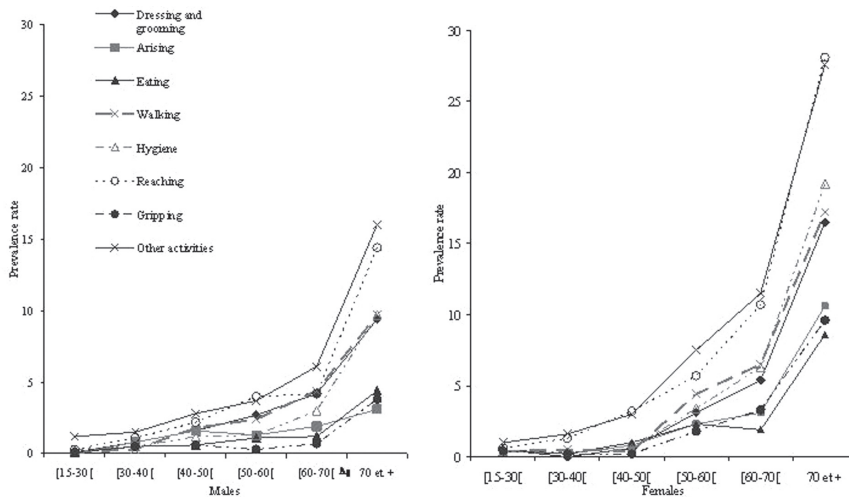


Fig. 2. Prevalence of functional disability by domain (HAQ) and age in men and women.

had the highest mean HRQoL scores (Table II).

Subjects reporting no disease had the highest HRQoL scores (from 70.7 in the

social to 83.5 in the physical dimensions). HRQoL was similar in people reporting either a chronic disease with a locomotor disease or a chronic non-rheumatic disease HRQoL ($p < 0.0001$; Table II).

The HRQoL in subjects with an HAQ score of 0 (no disability) was high, with scores ranging from 68.0 (18%) in the social dimension to 73.3 (21.2%) in the physical dimension (Table II). HRQoL in subjects with a functional disability was lower in subjects with severe functional disability (HAQ > 2) than in those with or without moderate functional disability (Table II). Subjects without functional disability had the highest HRQoL scores. In subjects with functional disability, HRQoL was lowest mainly in the physical dimension and perceived health.

Table II. Mean HRQoL dimension scores (Duke Health Profile) according to sex, age, socio-demographic factors, presence of disease and functional ability.

		Physical	p*	Mental	p*	Social	p*	Perceived health	p*
		mean (sd)		mean (sd)		mean (sd)		mean (sd)	
Sex	Men	75.9 (21.7)	<0.0001	76.9 (19.8)	<0.0001	68.2 (18.2)	<0.0001	70.9 (33.8)	<0.0001
	Women	66.8 (24.1)		67.5 (22.6)		66.9 (18.1)		66.0 (35.3)	
Age	[15-30[80.6 (17.7)	<0.0001	72.6 (20.6)	<0.0001	69.9 (18.3)	<0.0001	75.8 (34.0)	<0.0001
	[30-40[	78.4 (18.2)		74.8 (20.6)		68.9 (17.5)		75.5 (31.7)
	[40-50[	71.1 (21.4)		71.3 (21.5)		66.4 (18.3)		69.8 (32.4)
	[50-60[	64.4 (24.0)		71.2 (22.3)		64.9 (17.8)		61.1 (34.3)
	[60-70[	56.8 (25.0)		70.3 (24.3)		65.9 (18.4)		55.0 (34.9)
	70 et +	44.4 (25.2)		66.1 (24.9)		63.7 (18.2)		44.5 (34.0)	
Socio-economic category			<0.0001		<0.0001		<0.0001		<0.0001
Executives, intellectual professional		74.8 (21.0)		76.8 (19.1)		70.5 (17.6)		73.0 (32.3)	
Employees		70.7 (22.1)		70.3 (22.3)		66.9 (18.2)		68.2 (34.2)	
Technicians		74.8 (22.7)		78.6 (18.7)		69.3 (17.4)		72.3 (31.8)	
Workers		69.6 (23.9)		71.2 (22.1)		64.7 (17.9)		64.7 (35.5)	
Farmers		63.7 (26.1)		75.2 (20.1)		68.1 (18.6)		64.3 (32.1)	
Unemployed		70.3 (25.5)		69.1 (22.9)		68.1 (18.5)		67.8 (36.7)	
No disease		83.5 (15.6)	<0.0001	78.2 (18.8)	<0.0001	70.7 (17.3)	<0.0001	80.3 (30.1)	<0.0001
Presence of at least one chronic disease		64.0 (24.2)		68.4 (22.6)		65.6 (18.4)		61.3 (35.3)	
Presence of at least one locomotor disease		61.8 (24.3)		68.3 (22.6)		66.0 (18.3)		60.1 (35.3)	
Presence of at least one chronic non rheumatic disease		60.7 (25.6)		65.5 (23.5)		64.1 (18.8)		56.2 (36.1)	
HAQ score			<0.0001		<0.0001		<0.0001		<0.0001
[0-1[		73.5 (21.2)		73.1 (21.1)		68.0 (18.0)		70.5 (33.5)
[1-2[		29.8 (19.7)		52.8 (25.1)		60.6 (18.5)		32.5 (33.5)
[2-3[		21.7 (23.4)		47.3 (24.5)		54.2 (18.7)		17.5 (30.0)

p* by Student's *t*-test or ANOVA.

Table III. Relationship between HRQoL (Duke Health Profile < 50) and functional ability (HAQ) adjusted for socio-demographic characteristics and the presence of disease.

		Physical		Mental		Social		Perceived health	
		OR*	CI 95%**	OR*	CI 95%**	OR*	CI 95%**	OR*	CI 95%**
Sex	Men	1		1		1		1	
	Women	2.1	[1.7-2.6]	1.8	[1.5-2.2]	1	[0.8-1.2]	1.1	[0.9-1.4]
Age	[15-30[	1		1		1		1	
	[30-40[	1.2	[0.8-1.7]	0.9	[0.7-1.2]	0.9	[0.7-1.2]	0.7	[0.5-0.9]
	[40-50[	2.3	[1.7-3.3]	1.1	[0.9-1.5]	1.3	[1.0-1.7]	0.7	[0.5-1.0]
	[50-60[	3.3	[2.4-4.6]	1	[0.8-1.4]	1.3	[1.0-1.8]	1	[0.8-1.4]
	[60-70[	4.9	[3.6-6.9]	1.1	[0.8-1.5]	1.1	[0.8-1.5]	1.3	[1.0-1.8]
	70 et +	9.6	[6.8-13.7]	1.1	[0.8-1.6]	1.3	[0.9-1.9]	1.8	[1.3-2.5]
Socio-economic category									
Executives, intellectual professional		1		1		1		1	
Employees		1.6	[1.1-2.2]	2.1	[1.5-2.9]	1.7	[1.2-2.3]	1.5	[1.1-2.1]
Technicians		1.8	[1.2-2.7]	1	[0.6-1.6]	1	[0.6-1.5]	0.9	[0.6-1.5]
Workers		2.3	[1.7-3.2]	2.1	[1.5-2.9]	1.8	[1.3-2.5]	1.9	[1.4-2.6]
Farmers		1.4	[0.7-2.5]	0.9	[0.4-1.9]	1.7	[0.9-3.1]	0.7	[0.3-1.4]
Unemployed		2.3	[1.6-3.2]	2	[1.4-2.8]	1.5	[1.1-2.1]	1.8	[1.3-2.5]
At least one chronic disease									
No		1		1		1		1	
Yes		1.6	[1.1-2.5]	1	[0.7-1.4]	1.5	[1.1-2.2]	0.7	[0.5-1.1]
At least one chronic non rheumatic disease									
No		1		1		1		1	
Yes		2.8	[2.3-3.5]	2.6	[2.1-3.4]	1.5	[1.2-1.9]	2.9	[2.3-3.8]
At least one locomotor disease									
No		1		1		1		1	
Yes		2.2	[1.7-2.9]	1.5	[1.2-2.0]	0.9	[0.7-1.1]	1.8	[1.4-2.3]
HAQ score									
[0-1[		1		1		1		1	
[1-2[		10	[6.7-14.9]	3.7	[2.6-5.2]	1.2	[1.0-2.1]	3.9	[2.8-5.6]
[2-3]		10.6	[5.1-22.1]	4.4	[2.5-7.8]	2.4	[1.4-4.3]	10.6	[5.8-19.4]

*OR: Odds ratio (logistic regression model analyzing the probability that HRQoL < 50).

**CI 95%: confidence interval.

The higher the HAQ score, the lower the physical DUKE health profile ($r = -0.57, p < 0.0001$). With an HAQ score > 2, mean scores were severely altered, from 17.5 (30%) for perceived health to 54.2 (18.7%) for the social dimension. Similar patterns were observed for perceived health and the mental and social dimensions, with coefficients of -0.35, -0.28 and -0.16 ($p < 0.0001$), respectively.

Multivariate analysis confirmed the impact of sociodemographic characteristics and chronic diseases on HRQoL, and the relationship between HRQoL and HAQ was adjusted for these factors. The probability of a low HRQoL was significantly increased in subjects

with severe functional disability overall in all dimensions (score < 50) as compared to subjects without functional disability (Table III). The probability was 10 times higher for physical and perceived health (OR = 10.6 [5.1-22.1] and 10.6 [5.8-19.4], respectively) and about 2.4 to 4.4 times higher for the mental and social dimensions (OR = 4.4 [2.5-7.8] and 2.4 [1.4-4.3], respectively).

We observed several threshold effects in the relationship between the physical, mental and social dimensions and the HAQ score. For the physical and mental dimensions, subjects with moderate functional disability had a low HRQoL, with no difference between subjects with moderate and severe

functional disability. For social health, the threshold was between subjects with moderate and severe functional disability. For the perceived health dimension, the link between HRQoL and HAQ score was a marked cause-effect relationship: the lower the functional ability, the lower the HRQoL score.

Discussion

This study, conducted in a representative sample of the French population, estimates the point prevalence of functional disability (moderate or severe, 6.5%; severe 1.6%) and documents its impact on HRQoL in the general population. The prevalence of functional disability increases with age and is higher

in women and in subjects in the lower socioeconomic classes. Functional disability rarely affects only one domain of the HRQoL (evaluated by the HAQ). Severe functional disability of locomotor origin has a significant impact on all domains – physical as well as mental and social and perceived health.

Our main observation was a differential threshold effect in the relationship between functional disability measured by the HAQ and HRQoL by the Duke Health Profile in the physical, mental and social dimensions and a cause-effect relationship with the perceived health dimension. As expected, a strong link exists between the physical dimension and the HAQ score. The lower HRQoL in the physical dimension occurs in subjects with even minor functional disability. Functional disability has a deleterious effect on other dimensions as well. Low functional ability cannot by itself explain a low HRQoL, but probably represents an intervening variable that mediates the impact of the disorders.

The use of a self-reporting questionnaire may have some drawbacks, including the limited ability of some subjects to read and understand questions and severe functional disability of locomotor origin possibly necessitating the help of a proxy. Some differences have been shown in responses to questionnaires completed by the person or by proxy (19).

We defined severe functional disability as a HAQ score ≥ 2 , which corresponds to performing activities in 6 of 8 domains with much difficulty. For instance, an individual may have much difficulty in, or be unable to perform the tasks of washing his/her hair, going to bed, or opening a car door. A cut-off score of 1.5 would correspond to deterioration in 4 or more domains, and a cut-off of 1 a deterioration in 3 or more domains.

A threshold below 50 for the HRQoL was chosen as an arbitrary value. The independence of this cut-off point from the observed values allows for the generalization of the results and reproduction of the study in other populations. The scores observed in this study were similar to those in another representa-

tive sample of the general population (17). The usual sociodemographic factors influenced the levels of HRQoL, with a low level in women, elderly people and those from low social classes. Such higher functional disability (20) and lower HRQoL (21) levels have been consistently observed in many populations.

People without chronic disease had the highest optimal quality of life. People with chronic disease, whether rheumatologic or not, had a low HRQoL. This was lowest in the physical dimension and to a lesser degree in the mental and social dimensions and perceived health. The characterisation of the relationship between functional disability and HRQoL according to dimensions is a new approach and fits into the conceptual differentiation of related approaches, such as limitations in activity and participation as revealed by the ICF model (8). Moreover, Wang *et al.* emphasized the importance of the ICF model in the examination of disability models (22). The prevalence of rheumatoid arthritis or musculoskeletal diseases has been studied in general populations (23-27). The relationship or impact of locomotor diseases on the HAQ score or HRQoL has often been studied (27-30), but not the impact of functional ability on the HRQoL. Our population-based study explores this relationship. Although the absolute HRQoL and HAQ levels might be slightly different today from those based on data collected in 1996, the overall relationship is likely to be still present. It should be further confirmed in other populations.

Functional disability affects the physical as well as mental, social and perceived health dimensions of the HRQoL, and although highly significant, the relationship between functional disability and the HRQoL remains moderate in the social dimension. The lack of a clear definition of the clinical significance of differences in HRQoL scores precludes drawing conclusions about the correlation. Like Smith (31), we consider that it could be linked to the patients' differential perception of their HRQoL on the one hand and their perceived health on the other. Essential determinants of these two concepts are

mental health and physical functioning. Mental health would have more impact on the HRQoL, whereas physical functioning would have more impact on perceived health. However, this association is not strong enough to allow prediction of the HRQoL level according to functional disability. Phenomena such as coping or adaptation, environment, and social support may account for a modifying effect of the impact of disability (32).

The results of this study place into perspective the availability of reliable, useful measures of functional disability and HRQoL in determining social health programs oriented toward people with functional disability. Our epidemiological data provide information that may help to better understand the consequences of functional disability and HRQoL and therefore to integrate in the analysis of health care the need to develop preventative measures, to limit dependence, and to improve the HRQoL of functionally impaired people and their families.

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