Barriers and expectations for patients in post-osteoporotic fractures care in France: the EFFEL Study

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Background

Poor management of osteoporosis : 70 to 80% of victims of a first fracture do not undergo any further examination and do not receive any anti-osteoporosis treatment. This situation is worrying because osteoporosis represents a significant cost for the health system and deteriorates the quality of life of patients.

There is a **need for a clear vision** of the barriers to improving osteoporosis management.

Many studies have identified barriers and expectations for the implementation of a secondary prevention policy for osteoporosis. However, the **patient's perspective has never been taken into account** in the optimization of care provision. The aim of the EFFEL study is to **give a voice** to patients with osteoporotic fractures so that they can share their experiences and expectations for change, and thus identify priorities for improving care provision.

This report presents information on the identification and relative importance of barriers to secondary prevention, as perceived by patients' experiences, using the Best and Worst scaling method.

Methods

Best and Worst Scaling

A quantitative method of preference elicitation based on the Thurstone assumption that the difference between an individual's best and worst choice is the maximum difference in the utility that governs his or her decision making and based on McFadden's random utility theory.

The case-object BWS: respondents must choose from a list of attributes, those they consider the most important (best) and those they consider the least important (worst). from a list of attributes, those they consider to be the most important (best) and those they consider to be the least important (worst).

In this context, patients are asked **to choose which obstacles they consider most important and which they consider least important** (object-case).

Design of the BWS questionnaire

Questionnaires were constructed from **two balanced incomplete block designs** : one for barriers and one for expectations.

Each attribute is **repeated five times** in the twenty-one choice experiments. **Pairs of attributes meet only once**. The study block is incomplete because the number of attributes in a choice set is less than the total number of attributes. The design is balanced because it respects the balance of frequency of appearance of attributes, the balance of position of attributes, the orthogonal balance. In order to reduce the cognitive load, the questionnaire has been questionnaire was "broken down" into three versions with 7 choice experiments.

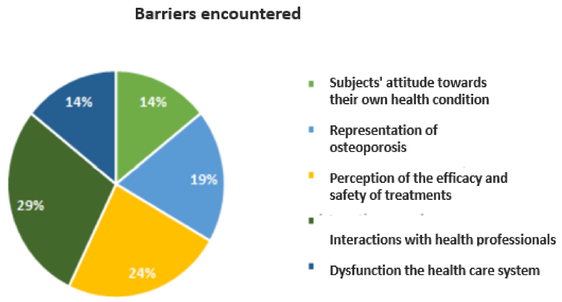

Figure 1. Distribution of barriers

Statistical analysis

A **count analysis** was conducted to examine the frequency of choices. Arithmetic prioritization scores were calculated such as **the importance score** : (Bi - Wi) and the **mean importance score** : $(Bi\text{-}Wi)/N$ where B is the number of times an attribute was chosen as best, and W is the number of times an attribute was chosen worse. N is the number of respondents in the study.

Individual heterogeneity was analyzed using the **Bayesian hierarchical model**. In order to capture individual differences, a mean relative importance score (RIS) is calculated, along with its confidence interval to identify any trends in the variance.

The latent class model was used to group participants into different groups according to the similarity of their responses. This model allows for the identification of differences in preferences between the classes.

Results

Importance Scores

Only the first 7 of the 21 barriers are significantly higher than zero. Therefore, these barriers are considered serious barriers**. Barrier #6** "My fracture is not related to osteoporosis" **is the most important** because its CI does not overlap with any of the other 18 barriers. The significantly less important barrier is barrier #16 "I have no psychological support for the management of my osteoporosis".

Latent class analysis shows that the optimal partitioning of the sample is into three classes. These groups were distinguished on their attitudes towards seeking care, perceived awareness of osteoporosis and expectations of the health care system.

Item	Ranking	Barriers (N = 311)	Best and Worst scores				Heterogeneity		
			BEST	WORST	B-W	B-W/N	SD	CI 95%	CV
6	1	My fracture has nothing to do with my osteoporosis	224	85	139	0.45	1.04	[0.33 ; 0.56]	2.32
19	2	I do not hear enough about osteoporosis and its treatment	229	110	119	0.38	1.09	[0.26 ; 0.5]	2.85
1	3	I prefer to take natural treatments and pay attention to what I eat	203	91	112	0.36	1.04	[0.24 ; 0.48]	2.89
21	4	After my fracture, the hospital did not contact my GP for follow-up	164	107	57	0.18	1.08	[0.06 ; 0.3]	5.87
2	5	I have more important health issues than my osteoporosis	118	67	51	0.16	0.88	[0.07 ; 0.26]	5.39
14	6	After my fracture, my doctor mainly recommends me lifestyle measures	130	83	47	0.15	0.88	[0.05 ; 0.25]	5.82
13	7	My GP does not see any need for osteoporosis testing after my fracture	98	71	27	0.09	0.75	[0 ; 0.17]	8.70

Table 1. Scores for the first 7 barriers

Class 1	Class 2	Class 3
18.3%	31.1%	50.5%
They have a good understanding of osteoporosis and are happy to manage their osteoporosis outside the health system	They are not concerned about the risk of osteoporosis and are not aware of system failures	They are eager to benefit from medical management of osteoporosis
They see gaps in care provision as important barriers	They deplore the lack of communication about osteoporosis and its treatment	They mainly encounter obstacles related to the lack of communication and coordination of care
The educated environmentalists	**The unaware**	**The victims of the system**

Table 2. Preferences according to the three latent classes

Discussion

Seven barriers were considered most important, related to osteoporosis awareness and care coordination. The highest ranked barrier was "my fracture is not related to osteoporosis". Finally, the latent class analysis distinguished three classes of respondents with significant differences in response profiles (educated environmentalists, ignorant and victims of the system).