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Scaling the Fear of Risk: Some findings and a proposal

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In this paper we describe an attempt to build unidimensional scales for measuring the fear of risk, or more precisely the fear of crime. By 'fear of risk' we refer mainly to subjective and emotional assessments, but also to the behaviors to which these emotions can lead (for instance, taking preventive measures to avoid risk). These subjective reactions should be confused neither with the objective probability of being victimized, nor with the subjective estimate of this probability.

Our survey of the French literature on these topics yielded no examples of such scales. We were able to find some lists of question dealing with the fear of risk, mainly in sample surveys on political matters, but the answers to these questions had been analyzed separately, and had not been used for the building of unidimensional cumulative indexes. In order to test the feasibility of building Guttman-like scales, we performed a secondary analysis of two of these sample surveys. The first survey had been conducted in 1989 on a sample of 2009 individuals, representative of the French population aged 15 and over; it dealt with a wide variety of problems, ranging from ethical values and trust in civil servants to opinion on local politics and fear of risk. The second one, conducted in 1994 on a sample of 1005 inhabitants of Paris aged 18 and over, is restricted to the fear of crime and to opinions about the police.

The second stage of this research is still in progress. It is based on the collection of items that we could use for the building of fear of risk scales, conducted through semi-directive interviews. We shall discuss the feasibility of such scales in the conclusion of this paper.

1. The fear of crime according to time and place.

Building a cumulative scale.

In the 1994 Paris survey, respondents were asked: "*In Paris, do you feel safe at home? On the street in daytime? In public places (store, restaurant)? In your car? In the subway? On the street at night? In underground parking garages?*" An ordinal scale of answers was provided: "*very safe / fairly safe / fairly unsafe / very unsafe*". "Don't Know" (DK) and "No Answer" (NA) were not explicitly provided, but were recorded when volunteered. Our results are found in Table 1, where items are ordered according to the intensity of fear of risk: in terms of scale building, the "easiest" item is "underground parking garages," which shows the highest number of "very" or "fairly unsafe" responses, and the more "difficult" is the item that nearly no-one considered unsafe: "at home." These items have previously been used to build a crude (not unidimensional) cumulative index of fear of crime (Grémy 1995, 23-24).

We have tested every possible dichotomy for each item. The six dichotomies were tested, by adding the DK and NA either to the “safe” or to the “unsafe” side of the answers. We eventually had to drop the “own car” item, for which no satisfactory hierarchical relation to the other items could be found. Moreover, the high number of NA replies to this item was due to people without a car or not using their cars in Paris, and therefore could not be fully explained in terms of fear of risk.

	Very safe	Fairly safe	Fairly unsafe	Very unsafe	DK, NA
Underground parking garages	4%	11%	25%	47%	15%
Street at night	10%	29%	31%	24%	8%
Subway	16%	46%	21%	11%	6%
Public places	47%	41%	9%	3%	2%
Street in daytime	46%	43%	7%	3%	1%
Own car	37%	26%	6%	2%	30%
At home	59%	33%	6%	2%	0%

Table 1 Items ordered by increasing “difficulty”

In our attempts to build the best possible cumulative scale from the six remaining items, we took account of three criteria: (1) the value of Loevinger’s index of homogeneity for the whole scale, by rejecting any scale whose index is less than .60; (2) the values of the index of scalability between each pair of items, by rejecting any scale showing even one scalability index value less than .25; and (3) the distribution of the additive score, by rejecting any scale generating too asymmetrical a distribution, as when nearly half of the respondents have the same score. The scale described in Table 2 shows an index of homogeneity of .64.

Items	Selected dichotomies	Frequency
Underground parking garages	“fairly safe”, “fairly unsafe”, “very unsafe”, DK + NA	96%
Street at night	“fairly safe”, “fairly unsafe”, “very unsafe”, DK + NA	91%
Subway	“fairly safe”, “fairly unsafe”, “very unsafe”	77%
Public places	“fairly safe”, “fairly unsafe”, “very unsafe”, DK + NA	53%
At home	“fairly safe”, “fairly unsafe”, “very unsafe”, DK + NA	41%
Street in daytime	“very unsafe”	3%

Table 2 A scale of fear of crime according to time and place

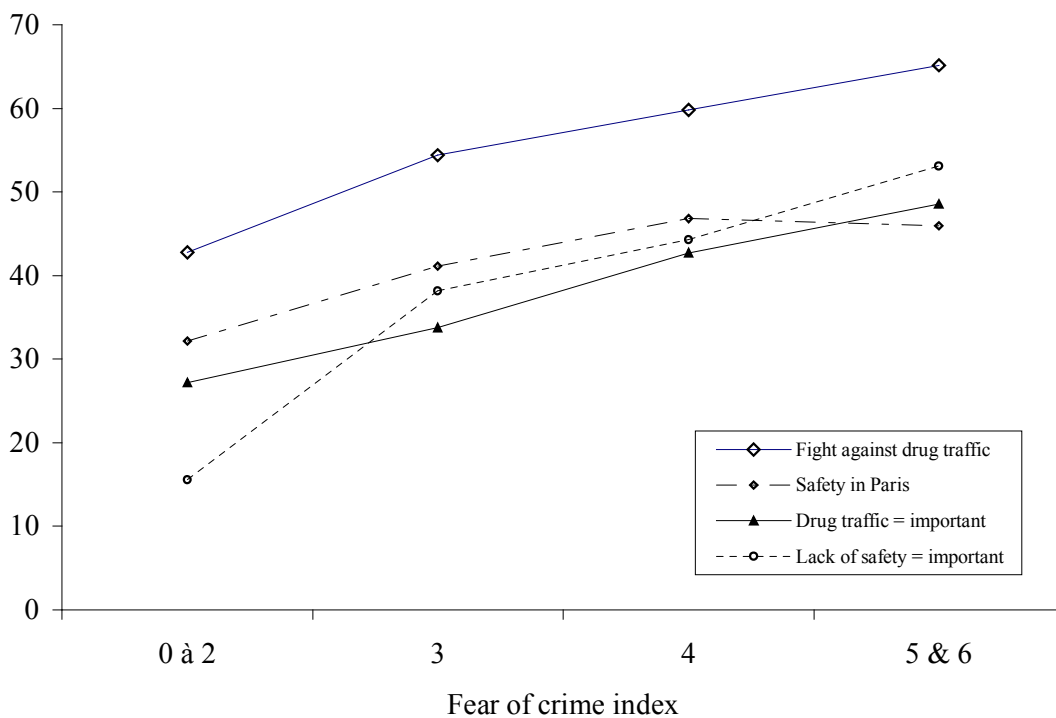
The distribution of the fear of crime score shows sufficient dispersion to allow the use of (approximate) quartiles (Table 3). We then had to test the adequacy of this index for measuring the attitude under study. To do so, we started by analyzing the statistical relations between this index and other questions related to safety. We further compared the effects of gender and age on the fear of risk with the findings of similar surveys.

Index values	0	1	2	3	4	5	6
Frequency	3%	5%	10%	27%	25%	29%	2%

Table 3 Index of fear of crime

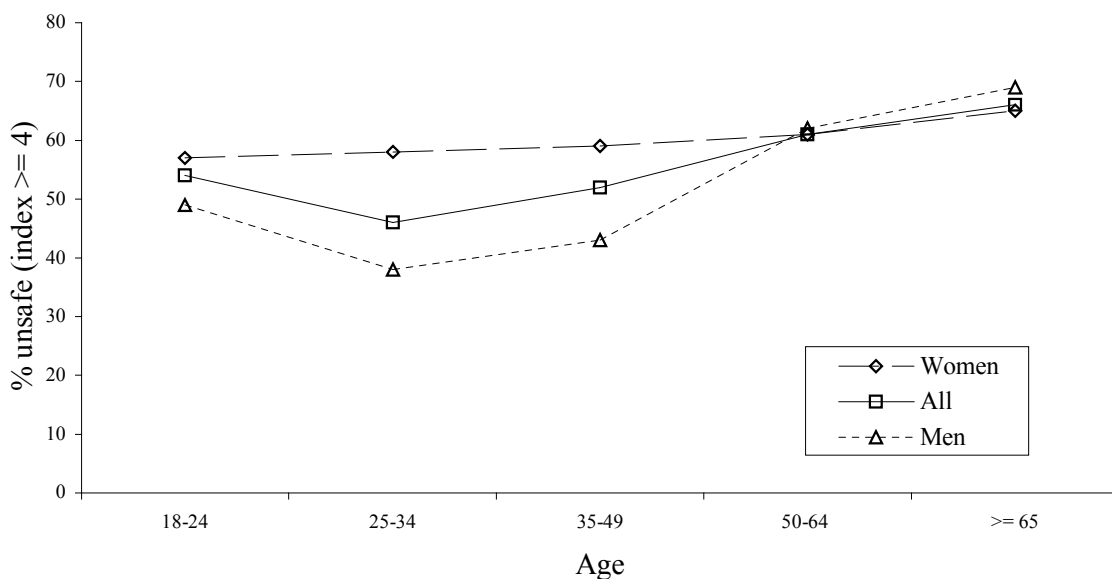
Testing the scale.

The answers to the main other questions about safety in Paris were positively correlated with the fear of crime index. The first question on the questionnaire is: “Among this list of problems, which are the most important ones in Paris today?” The list ranges from lack of safety to air pollution. The two problems that correlate most significantly with the fear of crime index are drug trafficking and lack of safety. Another question deals with the priorities to be given to police forces: “For each of the following actions which the police must carry out in Paris, would you please tell me if you consider it very important, slightly important, or unimportant?” Fighting against drug trafficking and safety are also positively correlated with this index (Graph 1).



Graph 1 Opinions on safety problems in Paris, according to the fear of crime index

As to relationship between fear of crime and respondent characteristics such as gender and age, Graph 2 shows that the proportion of respondents who feel the most unsafe (i.e. having a fear of crime index of 4 and over) follows the same pattern found in other surveys (see, for example, Grémy 1987, 60-70). Under the age of 50, more women feel “unsafe” than men. The proportion of “unsafe” women slightly increases with age. The “unsafe” proportion is higher among younger men than among middle-aged ones. It increases after 50, at which point it becomes approximately equal for men and women.



Graph 2 Proportion of “unsafe” respondents (index ≥ 4), according to gender and age

2. A fear of risk scale.

The data from the 1989 survey is richer than that on fear of crime in Paris. Our findings, based on a Guttman-like scale measuring the fear of risk, are backed up by the results of a previous analysis of this data using cross tabulations of items and a non-unidimensional cumulative index (Percheron *et al.*, 1990). This gives us a way to validate our scale and prove its feasibility.

A question offered a five-point rating scale on the various kinds of fears one might feel: “Here is a list of things. Would you please tell me if you are afraid of each of them by giving a score from 1 (not afraid at all) to 5 (very much afraid)?” We used the answers to this question to build a cumulative scale of the fear of risk. From the fifteen original items, ten proved to yield a satisfactory scale, with a Loevinger’s index of homogeneity of .54.

The content of this scale is shown in Table 4. Among the scalable items, we find those related to fear of crime (thefts in the street, burglaries, assaults in the street, drugs) or of political violence (terrorism). We find also the fear of groups generally associated with crime (street gangs, immigrants). More surprisingly, some fears unrelated to urban delinquency appear to belong in the same dimension: fear of AIDS, of food preservatives, and of natural disasters. This scale as a whole ends up measuring a general feeling of anxiety, the explicit objects of which being only symptoms. On the other hand, the fears of fires, road accidents, and “ecological” issues (air or water pollution, nuclear power plants) could not be added to this scale.

drugs (3,4,5) natural disasters (earthquakes, floods) (3,4,5) street gangs, punks (3,4,5) terrorism (4,5) food preservatives (5) thefts in the street (cars, pickpockets) (5) burglaries (5) AIDS (5) immigrants (5) assaults in the street (5)
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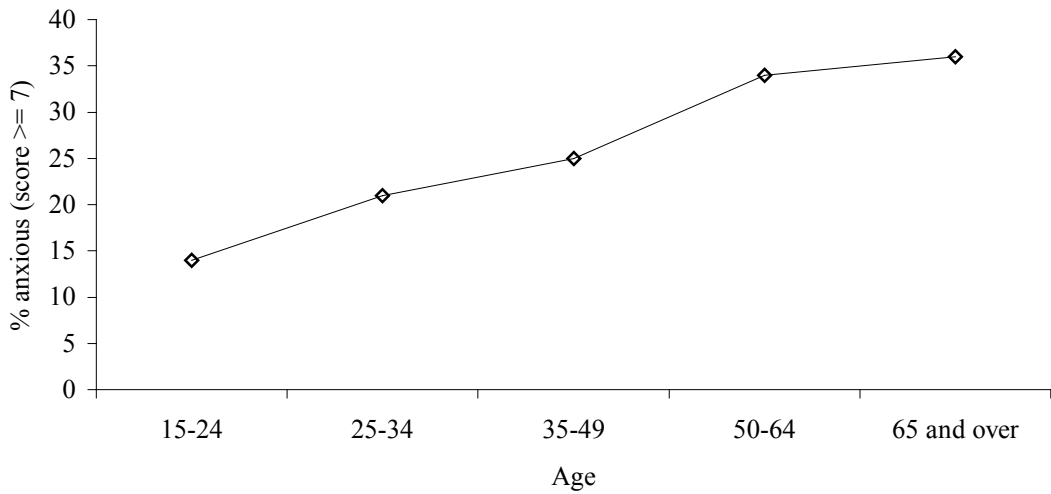
Table 4 A fear of risk scale

Each respondent was given a global score for fear of risk, according to the number of “positive” answers. The distribution of these scores has been split into quartiles. The first quartile (26%) corresponds to people who have given at least 7 positive answers (i.e. who have acknowledged at least seven causes of fear). We shall use the proportion of the most “anxious” people (scores of 7 and over) as an indicator of the level of fear of risk for a given population.

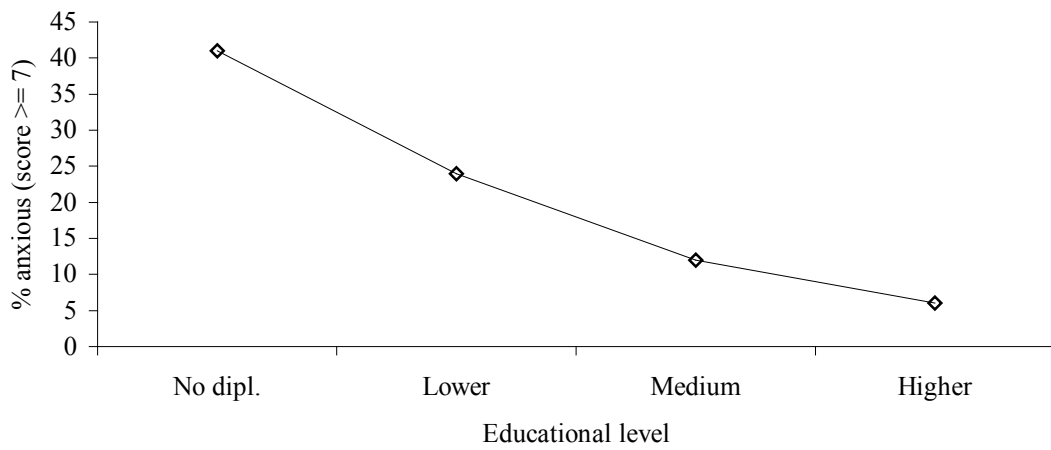
To make the meaning of this scale clear, we found a higher proportion of “anxious” people among those who consider *immigrants* to be one of the most important problems in their area (41%), and the *lack of safety* even more so (53%). This proportion ranges only from 17% to 29% for the other problems.

Effects of demographic characteristics on fear of risk.

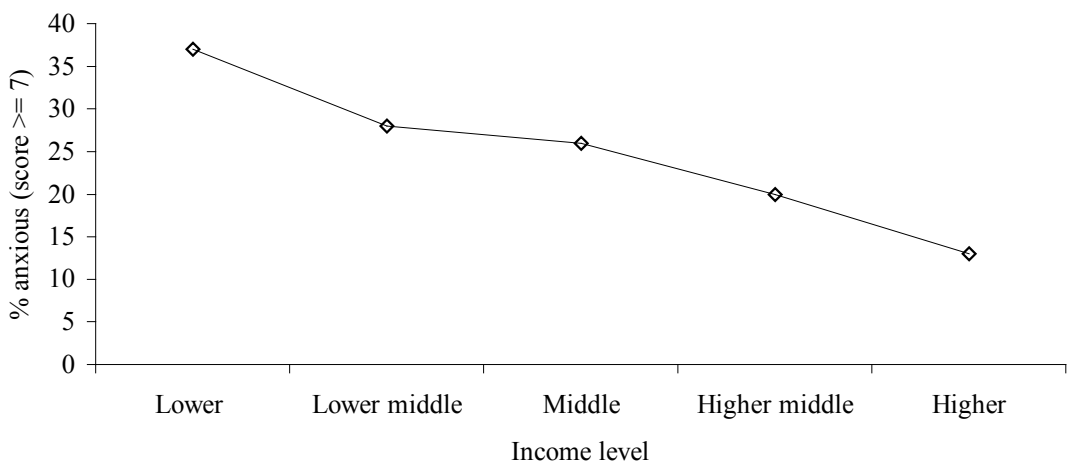
The fear of risk level is markedly higher among women and elderly people. The proportion of “anxious” people increases according to age (Graph 3), and decreases according to educational level (Graph 4) and income (Graph 5). It is higher among blue-collar workers than among white-collar workers. The fear of risk is more frequent among the “defenseless”: women, the elderly, the less educated, the less wealthy, and lower status people.



Graph 3 Fear of risk according to age



Graph 4 Fear of risk according to educational level



Graph 5 Fear of risk according to income

In France, younger people are on average the most educated. One might thus suppose that young people are less anxious because of their higher educational level. Table 5 shows that, according to educational level, younger people are slightly less anxious than elderly ones, but the main effect is due to education, not age.

Age	Educational level			
	No diploma	Lower diplomas	Medium diplomas	Higher diplomas
18-39	37% (150)	21% (442)	9% (254)	5% (142)
40 and over	42% (550)	30% (256)	16% (128)	8% (71)

Table 5 Fear of risk (% of score ≥ 7) according to age and educational level

Fear of risk and "ecological" hazards.

We have already shown that the fear of risk scale, although heterogeneous, does not include "ecological" fears other than the fear of food preservatives. However, one could make the assumption that the fear of risk, as measured by our scale, could be expanded to other kinds of fears. We tried to find a dimension pertaining to the fear of environmental risks. We succeeded in building such a scale using a series of questions on ecological hazards: air and water pollution, nuclear hazards, storage of chemical waste, transportation of dangerous materials. This fear of ecological hazards scale (Table 6) shows a Loevinger's index of .55.

"Here is a list of ecological risks. For each of them, would you please tell me if, in your area, it constitutes a rather great or a rather minor hazard?" (rather great)

- water pollution
- air pollution
- nuclear hazards
- storage of chemical waste
- transportation of dangerous materials

Table 6 Fear of "ecological" hazards scale

The level of fear of ecological hazards is only slightly higher among women than among men, more among the elderly than among the younger. One might think that a higher educational level might incline one to subscribe more to ecological arguments, but in fact the fear of environmental hazards decreases significantly according to the educational level (from 43% for the higher level to 23% for people without any diploma), and this effect is far stronger than the effect due to age.

The fear of ecological hazards and the fear of risks are positively correlated. Among the respondents who have few ecological fears (i.e. who have a score ≤ 2 , over 5), only 18% are also in the first quartile for the fear of risk; this proportion amounts to 36% of those with the highest ecological fears score possible (5).

This statistical relation between the fear of risk and the fear of ecological hazards holds for any educational level (Table 7) or age (Table 8). This relation appears to be stronger for the higher level of fear of ecological hazards, for the lower educational level, and for elderly people.

"Ecological" scale	Educational level			
	No diploma	Lower diplomas	Medium diplomas	Higher diplomas
0 - 2	26% (197)	20% (211)	9% (123)	6% (85)
3 - 4	38% (203)	18% (223)	10% (145)	5% (78)
5	53% (300)	31% (264)	16% (114)	8% (50)

Table 7 Fear of risk (% of score ≥ 7) according to fear of ecological hazards and educational level

"Ecological" scale	Age	
	15-39	40 and over
0 - 2	13% (290)	22% (329)
3 - 4	15% (366)	29% (286)
5	25% (334)	46% (402)

Table 8 Fear of risk (% of score ≥ 7) according to fear of ecological hazards and age

Fear of risk and "tolerance."

As we have shown, the level of fear increases with age, and decreases with educational level and income. These facts suggest a parallel between fears and a lack of "tolerance" (or of "liberalism"), whose variations are similar according to demographics; hence the assumption that the level of fears could be negatively correlated to the level of "tolerance."

We have built a "tolerance" scale out of five items listed in Table 9 (Loevinger's coefficient = .49). As expected, the level of "tolerance" is higher among the younger and the more educated respondents (Table 10).

"Here is a series of judgments which we have collected. For each of them, would you please tell me if you strongly agree, somewhat agree, somewhat disagree, or strongly disagree?"

- "the death penalty should be restored" (strongly disagree)
- "keeping the family as it has always been is the most important duty of all" (somewhat disagree + strongly disagree)

"For each of the following behaviors, would you please tell me if you consider it as strongly blameworthy, somewhat blameworthy, somewhat not blameworthy, or not at all blameworthy?"

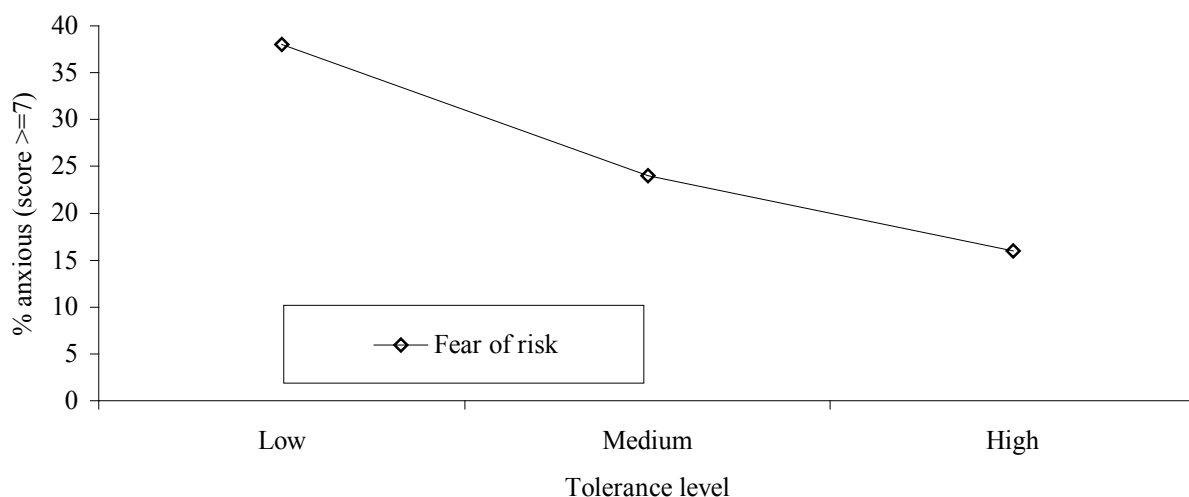
- abortion (not blameworthy at all)
- unmarried couples (somewhat not + not at all)
- homosexuality (somewhat not + not at all)

Table 9 "Tolerance" scale

Age	Educational level			
	No diploma	Lower diplomas	Medium diplomas	Higher diplomas
18-39	37% (150)	43% (442)	60% (254)	75% (142)
40 and over	17% (550)	29% (256)	42% (128)	52% (71)

Table 10 Proportion of higher scores on "tolerance" scale, according to age and educational level

In accordance with our assumption, the fear of risk decreases when the level of "tolerance" increases (Graph 6). This relation holds regardless of the respondent's educational level (Table 11), age (Table 12), or gender (Table 13). However, women, the elderly, less educated and less "tolerant" people are more likely to feel unsafe more. Thus "tolerance" appears to have a protective effect against fear.



Graph 6 Fear of risk (% of score ≥ 7) according to "tolerance"

Tolerance	Educational level			
	No diploma	Lower diplomas	Medium diplomas	Higher diplomas
Lower	46% (365)	35% (211)	17% (66)	12% (34)
Moderate	37% (186)	23% (226)	9% (110)	6% (36)
Higher	33% (149)	16% (261)	11% (206)	5% (143)

Table 11 Fear of risk (% of score ≥ 7) according to "tolerance" and educational level

Tolerance	Age	
	15-39	40 and over
Lower	30% (206)	42% (474)
Moderate	18% (282)	30% (281)
Higher	13% (502)	22% (262)

Table 12 Fear of risk (% of score ≥ 7) according to "tolerance" and age

Tolerance	Gender	
	Men	Women
Lower	31% (352)	46% (328)
Moderate	19% (257)	28% (306)
Higher	11% (343)	20% (421)

Table 13 Fear of risk (% of score ≥ 7) according to "tolerance" and gender

Regardless of "tolerance" level, the fear of ecological hazards implicates the fear of risk. It seems that the effects of the lack of "tolerance" on the fear of risk in general are equal to the effects of the fear of ecological hazards: the respondents who are the least "tolerant" and most fearful of ecological hazards are also those who are the most afraid of risks (Table 14).

Level of tolerance	Fear of ecological hazards		
	Low	Medium	High
Low	27 % (216)	32 % (209)	52 % (257)
Medium	17 % (173)	20 % (169)	33 % (221)
High	10 % (232)	14 % (274)	24 % (258)

Table 14 Fear of risk (% of score ≥ 7) according to fear of ecological hazards and level of "tolerance"

Fear of risk and trust in the authorities.

The respondents were asked how much confidence they put in ten categories of officials or authorities for working out safety-related problems. The list included police officers, "gendarmes" (soldiers serving as an armed police force for the maintenance of public order), judges, firemen, mayors, social workers, etc. We have built a scale of trust in authorities by taking into account the highest level of confidence in each of these officers (Table 15).

<p><i>"Would you please tell me how much trust you put in the following people to solve safety problems?" (trust entirely)</i></p> <ul style="list-style-type: none"> - "gendarmes" - firemen - teachers - the Mayor - judges - social workers - teachers of juvenile offenders - wardens and private security - police officers - managers

Table 15 Trust in authorities scale

We made the assumption that people in search of guide marks and reassurance are also those who rely the most on authorities. Table 16 shows that when the level of fear of risk increases, the trust in authorities for working out safety problems also increases.

Confidence in the authorities	Fear of risk			
	1 st quartile (lower)	2 nd quartile	3 rd quartile	4 th quartile (higher)
Higher level	21 % (441)	24 % (581)	29 % (469)	42 % (518)

Table 16 Fear of risk according to confidence in the authorities

Fear of risk and political attitudes.

The association of fear of risk with confidence in the authorities does not necessarily yield a higher interest in politics. To the contrary, the stronger respondents' interest in politics, the safer they feel: only 16% of the most interested in politics feel highly unsafe (score of fear of risk ≥ 7), whereas this proportion steadily increases as the interest in politics decreases. It comes to 33% among the respondents who are not interested in politics at all. This relation holds true especially for less educated people (Table 17).

Interest in politics	Educational level			
	No diploma	Lower diplomas	Medium diplomas	Higher diplomas
High	23% (31)	27% (51)	9% (55)	7% (41)
Moderate	36% (146)	23% (168)	12% (126)	2% (92)
Low	42% (252)	22% (264)	10% (118)	9% (46)
None at all	45% (267)	26% (212)	14% (81)	12% (34)

Table 17 Fear of risk (% of score ≥ 7) according to interest in politics and educational level

One might wonder if there is a statistical relation between the fear of risk and political attitudes. The level of fear is higher among people who don't consider the restraint of civil liberties to be detrimental (such as limitations on trade unions, the right to vote, to strike, to demonstrate, etc.). But this proportion is also higher among those who consider the suppression of independent schools, inheritance rights, and social welfare programs to be very prejudicial. Hence the assumption that the fear of risk could be related to right wing tendencies. Table 18 shows that the more the respondents put themselves near to the right side of a self-rating political scale, and the less they are interested in politics, the more anxious they feel (index of fear of risk ≥ 7).

Interest in politics	Left-right numerical rating scale				
	Left 1-3	4	5-6	7	8-10 Right
High + Moderate	10% (176)	12% (107)	24% (181)	21% (85)	28% (125)
Low + None at all	23% (169)	22% (132)	31% (482)	31% (89)	38% (117)

Table 18 Fear of risk (% of score ≥ 7) according to interest in politics and political tendencies

3. Suggestions for further research

We have demonstrated the feasibility of building scales of fear of risk and fear of crime. Even using materials not designed for this purpose, some items may be extrapolated for inclusion in a Guttman-like scale. The second stage of this research first involves an effort to conceptualize what we are referring to in speaking of ‘fear of crime’ or ‘fear of risk,’ to be followed by the collection of series of new items to build a cumulative scale for measuring these fears.

In a review of the literature on the fear of crime, Ferraro and LaGrange present a two-fold classification of crime perception (Ferraro *et al.*, 1987, 72). They take into account the type of perception (judgments, values, emotions), and the level of reference (general or personal). We found it useful to add a third level of reference: concern for other members of society at large (not to be confused with concern for relatives, friends, or neighbors). This led to a classification of nine types of measures (Table 19).

Type of perception	Level of reference		
	Self	Friends and relatives	Society
Emotions	Fear for self victimization	Fear for other's victimization	Fear of violence
Values	Concern about crime to self	Concern about crime to others	Intolerance of criminal activities
Judgments	Risk assessments for self	Risk assessments for others	Crime or safety assessments

Table 19 Classification of measures of crime perception

After a review of French survey questionnaires on crime problems (Grémy 1998), it seems that there are other dimensions we should take into account. First, questions may deal with the fear of any risk in any circumstance (e.g.: "*Do you feel usually very unsafe, fairly unsafe, ...?*"); they may also refer to more or less specific cases ("*in your everyday life*" compared to "*when walking alone in the dark*"), or to specific risks (e.g.: "*Are you afraid that someone will attack you on the street?*"). Second, questions may ask about how the fear arises ("*Does it happen ...?*"), its frequency ("*How often ...?*"), or its intensity ("*How worried are you about ...?*"). Third, in the case of fears for others, asking about "loved ones," young children, or elderly relatives is not the same as asking about people living next door. And fourth, as indicators of fear we could also question about the ability to cope with hazards ("*How do you think you would manage if you were deliberately assaulted?*"), or about preventive behaviors ("*Do you hide property in your home when you go out?*").

A series of semi-directive interviews have been conducted in order to build a fear of crime scale, starting with the introductory question: "*Would you please tell me what 'feeling unsafe' means to you?*" From the content analysis of these interviews, we have selected a series of possible items (Philipona 1998, 62-82). They are still to be tested in a sample survey.

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