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Original Research Article

Greatest Fears in the Era of Economic Crisis: Implications for Public Health Policy

Effie Simou

Department of Epidemiology and Biostatistics, National School of Public Health, Athens, Greece.

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ABSTRACT

Objectives: Financial and economic collapses like the Great Depression in the late 20's, have affected people's behaviours for decades. The present study investigated the extent to which long-term economic crisis in Greece has affected individual perception of fear.
Methods: A representative national sample comprising 1,227 adults was selected in September 2013 in Greece, through a telephone survey, to determine the way by which the economic crisis has affected the individuals' perception of fear in respect to various risks, along with potential associations to socio-demographic variables.
Results: "Lack of justice" (91.9%) and "unemployment" (84.6%) were the most highly-rated fears, whereas "epidemics" (45%) and "international terrorism" (47.4%) were the lowest-rated fears. Respondents encountering many financial difficulties were 3 times more likely to fear "poverty" and "unemployment" ($p<0.001$) and 1.5 times more inclined to fear "earthquake" and "sickness/disease" ($p<0.05$) compared to those facing "few/no financial difficulties".
Conclusion: The results probably reflect the perceived social inequalities caused by the long-lasting public and private sectors corruption, as shown in recent reports, which, along with the lack of meritocracy, have dominated the Greek public sphere for many years.

Keywords: fear; risk; perception; economic crisis; Greece, health system health policy

INTRODUCTION

In the postmodern age, fear is an essential feature of a new social identity in terms of communal insecurity, anxiety and global risk society. [1] It is argued that fear serves as a justification of various commercial and political decisions and actions at both national and international levels. [2,3] Moreover, the prevalence of fear in public discourse is able to impact attitudes and social policies promoting state control and surveillance, and thus, the promotion of fear has been used for purposes of social control. [4-6]

Fear is defined as a reaction to an imagined or real threat and is differentiated from abnormal, clinical fears (phobias), on the basis of diagnostic manuals (DSM-V, 2013), demographic, social and contextual factors including age, gender, socioeconomic factors, life events, persistence over a period of time and mainly daily, social and professional functioning. [7] There is evidence that negative emotions like fear, can shape an individual's decision making process, [8,9] may increase information-seeking behaviours and affect risk-taking health behavior. [10] Furthermore, fear makes persons to avert risk and take

action towards lifestyle changes and risky situations avoidance. [11]

Factors influencing fear include the psychology of risk perception. Risk-perception models, [12] specifically for natural and technological dangers, view risk as: a) a fatal threat; b) fate; c) a game of chance; d) a test of strength; and e) an early-warning indicator. Risk is a complex blend of values, facts, and fears, [13] and is a social construct, [14] whereas danger is real. [15] Furthermore, Slovic et al [16] have claimed that risk is recognised and analysed through three fundamental ways: a) through human physiology/psychology (intuitive reactions to danger), b) through cognitive analysis (logic and reasoning to danger), and c) through politics (socio-political factors/explanations). The main difference between fear and danger is that perceived danger is a cognitive evaluation of a danger, whereas fear is an emotional reaction to a real or imagined threat, to a stimulus or an event, which many times leads individuals to strong reactions against those responsible for causing it, since there is no fear without actual or potential victims. Perceived risk is what one may call 'the conception of potential danger'; any possible reactions to it are developed in an environmental context, which is full of socially-constructed meanings. [17]

Economic risk refers to a broad range of risks related to an economic climate. Financial and economic collapses like the Great Depression in the late 20's, have affected people's behaviours for decades. [18] It was in this context that President Franklin D. Roosevelt stated: "*The only thing persons have to fear is fear itself*". [19] Since 2009, Greece has been undergoing one of the most severe debt crises in its history that has probably been perceived as both a personal and national threat by a large group of people. The most recent consequences of the recession, such as unemployment and poverty rates and the general population's self-rated health status fall, can be charted in measures. [20] The psychological impact of the economic crisis is an important component of the current economic state and emotive reactions like fear may play an important part in the change of people's attitudes and the modification of their behavioural patterns. On the ground that fearful reactions may determine behaviour, it is essential to comprehend and describe, in a functional manner, the way in which people react under the pressure of an economic downturn and whether the fear of economic insecurity has altered lay public's fear perception and prioritization of major risk factors. The aim of the present study was to investigate if the long-term economic crisis has affected individual perception of fear in respect to specific personal, regional or global risks, along with potential associations to socio-demographic variables.

MATERIALS AND METHODS

Data were collected in September 2013 via a telephone survey focusing on the public opinion on health risks and health information. The telephone survey was performed using a structured ('fixed-choice') questionnaire of 51 items. The design of the survey questionnaire was based on an extensive literature review. [21] The developed questionnaire did not solely focus on the items presented in the current study, but also included other variables relevant to risk perception and health information – seeking behaviour, which were not further examined here.

A representative national sample of 1,227 persons (687 males and 540 females) was used. The survey was based on multistage sampling using quota sampling for gender and age in each region (NUTS II) according to the national demographic census by the Hellenic Statistical Authority (EL.STAT.).All participants were adults (i.e. above the age of 18 for age group categories see table 1.) and living in one of the 13

administrative regions of Greece. Participants were recruited from a list-assisted, random digit dial population of all landline telephone numbers in Greece. Additional adjustments were conducted to account for variable non -response and non-coverage. The highest standard error was 2.8%, with a respective confidence interval of 95%. For more information on the socio-demographic characteristics of the sample, please see header rows on Tables 1 and 2.

Study Variables

This survey investigated the respondents' thoughts on fear through the following question: '*How much would you say that you are afraid of each of the following?*' All participants were given a list of 13 risks to respond to, which were grouped for analysis into the following 11 risks: 1) Sickness/Disease; 2) War; 3) Accident in a Nuclear reactor; 4) Nuclear war in Europe/Spreading of nuclear, chemical, or biological weapons of massive destruction; 5) International terrorism; 6) Theft-robbery/Criminality; 7) Epidemics; 8) Earthquake; 9) Unemployment; 10) Poverty and 11) Lack of justice. These specific risks were selected, taking into consideration their applicability to the Greek social context and were especially oriented to the long-term economic crisis. For example, earthquakes might not be considered a global risk, but they constitute a common natural phenomenon in Greece; therefore, their inclusion in the study was deemed essential. The item responses for each of the risks ranged from '*a lot*' to '*not at all*' on a 4-point Likert scale. For the purpose of data analysis, item responses were recoded into: 'a lot/quite' and 'a little/not at all'. For all risks, the option to respond 'I don't know/I don't want to say' was available, but was treated as a missing value in the analysis. Information on the main socio-demographic indicators of the respondents was also collected, i.e. gender, age, occupation, geographical area, marital status, health insurance and perceived household welfare. Perceived household welfare was assessed by asking: '*Which of the following would you say that best describes the economic status of your household today?*' The response options ranged from 'face no difficulties' to 'face many difficulties' on a 4-point Likert scale. For the purpose of item analysis, the responses were recoded into 'few/no difficulties' and 'many difficulties', the latter including the item: 'quite a lot of difficulties' too - in Greek, 'many' represents a larger amount than 'quite a lot'.

Statistical Analysis

The association of the fear of the risks with the socio-demographic indicators was initially investigated using Pearson's chi-square. In order to investigate which risk of all is more strongly correlated with the current economic situation, a logistic regression analysis was also conducted. Perceived household welfare was the dependent variable and fear of the risks was the independent one. Risks found to be strongly associated with household welfare, i.e. the fear of unemployment and the fear of poverty, were the dependent variables in two new separate logistic regression models, while socio-demographic indicators were the independent variables. Socio-demographic factors that were significantly associated with each one of the two examined variables were included in each model. Only significantly associated factors with the dependent variables remained in the final models. Statistical significance was set at $p<.05$. All analyses were performed using the SPSS version 19.0.

RESULTS

As depicted in Table 1 and Table 2, statistical significance varied across correlations between risks and socio-demographic indicators, but only perceived household welfare was significantly associated with all risks. Moreover, the last also appeared as the strongest association for the vast majority of the risks examined.

Table 1. Distribution (%) of fear perception of specific risks by socio-economic indicators (i.e. gender, age, occupation).

		Gender			Age (years old)					Occupation						
	Total	Male	Female	Sig.	18-34	35-44	45-54	55+	Sig.	Public sector worker	Private sector worker	Freelancer/ Agricultural worker/ Company owner	Retired	Unemployed	Student/ Housewife/ Other	Sig.
	(n=1227)	(n=687)	(n=540)		(n=147)	(n=426)	(n=393)	(n=258)		(n=225)	(n=408)	(n=246)	(n=144)	(n=123)	(n=63)	
Fear (a lot/quite) of:																
Sickness/Disease	81.6	77.6	86.7	**<0.001**	75.5	80.9	77.9	91.9	**<0.001**	76.0	81.6	82.9	89.6	85.0	71.4	**0.006**
War	48.3	41.7	56.7	**<0.001**	51.0	46.5	46.2	53.5	0.213	44.0	48.9	43.9	54.2	58.5	42.9	**0.042**
Nuclear reactor accident	51.5	52.4	50.3	0.457	30.6	51.8	53.5	60.5	**<0.001**	53.3	48.1	50.0	62.5	53.7	47.6	0.078
Nuclear war in Europe / Spread of nuclear/ chemical/biological massive destruction weapons	53.0	50.2	56.4	**0.031**	42.9	51.1	55.0	59.3	**0.009**	50.7	50.4	51.2	62.5	58.5	52.4	0.124
International terrorism	47.4	41.5	55.0	**<0.001**	38.8	44.4	45.8	59.3	**<0.001**	42.7	49.3	41.5	60.4	41.5	52.4	**0.003**
Theft-robbery/Criminality	84.1	81.2	87.8	**0.002**	81.6	82.4	85.5	86.0	0.408	82.7	84.6	81.7	87.5	87.8	81.0	0.488
Epidemics	45.0	44.3	45.8	0.598	32.7	43.7	43.1	57.6	**<0.001**	36.0	44.4	39.0	62.5	53.7	38.1	**<0.001**
Earthquake	57.2	55.5	59.4	0.161	34.7	57.0	56.5	72.1	**<0.001**	50.7	58.8	50.0	77.1	56.1	47.6	**<0.001**
Unemployment	84.6	85.1	83.9	0.564	89.8	83.8	83.2	85.9	0.243	78.7	88.2	80.5	83.0	95.1	81.0	**<0.001**
Poverty	83.6	83.4	83.9	0.821	87.8	83.8	83.2	82.6	0.554	80.0	81.6	82.9	85.4	97.6	81.0	**0.001**
Lack of justice	91.9	92.1	91.7	0.780	85.7	90.8	93.1	95.3	**0.004**	89.3	87.4	95.1	95.8	100.0	95.2	**<0.001**

Table 2. Distribution (%) of fear perception of specific risks by socio-economic indicators (i.e. geographical area, marital status, health insurance, perceived household welfare).

		Geographical area				Marital status			Health Insurance				Perceived household welfare		
	Total	Attica	Central Macedonia	Other	Sig.	Married	Unmarried/Divorced	Sig.	EOPYY[a] only	Private	None	Sig.	None/Few difficulties	Many difficulties	Sig.
	(n=1227)	(n=723)	(n=171)	(n=333)		(n=885)	(n=324)		(n=738)	(n=369)	(n=99)		(n=534)	(n=690)	
Fear (a lot/quite) of:															
Sickness/Disease	81.6	83.8	71.9	82.0	**0.002**	82.0	80.4	0.511	83.7	82.1	62.5	**<0.001**	76.4	85.6	**<0.001**
War	48.3	47.7	45.6	50.9	0.474	46.4	52.8	0.051	50.2	46.3	42.4	0.223	41.0	54.1	**<0.001**
Nuclear reactor accident	51.5	51.5	50.9	51.8	0.980	55.8	39.3	**<0.001**	53.3	47.5	54.5	0.167	45.2	56.1	**<0.001**
Nuclear war in Europe / Spread of nuclear/ chemical/biological massive destruction weapons	53.0	53.6	50.9	52.7	0.816	54.4	49.5	0.133	53.3	49.2	63.6	**0.036**	45.8	58.3	**<0.001**
International terrorism	47.4	50.2	42.1	44.1	0.060	50.2	41.7	**0.009**	49.6	46.3	36.4	**0.040**	42.7	51.3	**0.003**
Theft-robbery/Criminality	84.1	85.5	84.2	81.1	0.192	85.4	79.6	**0.015**	85.0	83.7	78.8	0.282	81.5	86.1	**0.028**
Epidemics	45.0	45.2	43.9	45.0	0.951	46.8	38.0	**0.006**	47.8	40.2	36.4	**0.014**	36.2	51.5	**<0.001**
Earthquake	57.2	61.8	49.1	51.4	**<0.001**	61.0	46.3	**<0.001**	60.2	54.5	45.5	**0.009**	48.3	64.3	**<0.001**
Unemployment	84.6	82.1	86.0	89.2	**0.011**	83.3	87.0	0.117	88.2	78.0	81.8	**<0.001**	71.8	94.3	**<0.001**
Poverty	83.6	79.7	87.7	90.1	**<0.001**	83.4	83.3	0.981	86.6	76.4	87.9	**<0.001**	69.7	94.3	**<0.001**
Lack of justice	91.9	91.3	94.7	91.9	0.323	91.8	93.5	0.332	93.1	90.2	90.9	0.242	88.1	94.8	**<0.001**

"Lack of justice" (91.9%) and "unemployment" (84.6%) were the most highly-rated fears, whereas "epidemics" (45%) and "international terrorism" (47.4%) were the lowest-rated fears.

Pertaining to gender differences, the most significant variance appeared regarding the risks of sickness/disease, war and international terrorism. In particular, women reported that they feared all three of them more than men. Fear gradually increased with age, except for the variables of "war", "unemployment" and "poverty", where age differences were found to be non-significant. The greatest fear of young population, aged 18-34 years, was unemployment (89.8%) while for respondents aged 35 years and over, it was lack of justice (>90%). Retired and unemployed respondents showed the highest rates of fear for all risks in general (mean:74.6%), while on the contrary, public sector employees and students/housewives exhibited the lowest rates for almost all categories of the variable "fear" across all categories of occupations. Respondents coming from all occupational categories reported that they most feared lack of justice, apart from private sector employees, who, most of all, feared unemployment (88.2%).

After "lack of justice", the second most reported fear of the respondents living in the largest metropolitan region of Greece (i.e. Attica) was "theft-robbery/criminality" (85.5%), whereas, those from the second largest metropolitan region (i.e. Central Macedonia) and the rest of the country rated "poverty" as their second most reported fear (87.7% and 90.1%, respectively). Conversely, fear of "unemployment" and "poverty" were mostly reported in the rest regions (89.2% and 90.1%) compared to the largest (82.1% and 79.7%) and the second largest metropolitan regions (86.0% and 87.7%) (p=0.011 and p<0.001, respectively).

Significant differences were also found between married and unmarried/divorced participants concerning the risks of "accidents in nuclear reactors", "earthquakes" (p<0.001), "international terrorism", "epidemics" (p<0.01) and "theft-robbery/criminality" (p<0.05) – notably, married individuals showed the highest rates.

The risk of "sickness/disease" was feared by the majority of the respondents, exclusively public health insurance beneficiaries (83.7%), at a higher rate than those covered by a private (82.1%) or no health insurance scheme (62.5%) (p<0.001). Respondents, who had only public health insurance were also reported to fear "unemployment" and "poverty" (88.2% and 86.6%), at a higher percentage than those who had private (78.0% and 76.4%) or no health insurance policy (81.8% and 79.9%0) (p<0.001).

Finally, the second highest-rated risk by subjects facing many financial difficulties was: "unemployment" (94.3%) and "poverty" (94.3%), whereas "theft-robbery/criminality" was the second highest-rated fear (81.5%) for those encountering few or no financial shortcomings (p<.03).

According to the logistic regression analysis performed for perceived household welfare in relation to risks (Table 3), it was found that the respondents with many financial difficulties were 3 times more anticipated to fear "poverty" and "unemployment" (p<0.001) and 1.5 times more likely to fear "earthquake" and "sickness/disease" (p<0.05) compared to those facing few/no financial difficulties. Additional logistic regression analyses showed that higher fear of "unemployment" was more probable to be reported by unemployed subjects (OR=5.6, p<0.001), living outside the largest metropolitan regions (OR=2.1, p=0.002) and benefiting only from public health insurance (OR=2.2, p<0.001). Similarly, higher fear of "poverty" was even more expected to be reported by unemployed participants

(OR=10.9, p<0.001) and those living outside the two largest metropolitan regions (OR=2.7, p<0.001), holding no health insurance policy (OR=3.0, p=0.005).

Table 3. Logistic regression analysis for perceived household welfare[a)] (cases in analysis N=1203).

	OR[b]	95% C.I.[c]		Sig.
		Lower	Upper	
Fear (a lot/quite) of:				
Sickness/Disease	1.5	1.0	2.0	**0.029**
War	1.1	0.8	1.4	0.597
Nuclear reactor accident	1.1	0.7	1.6	0.702
Nuclear war in Europe / Spread of nuclear/ chemical/biological massive destruction weapons	1.1	0.8	1.7	0.504
International terrorism	1.1	0.8	1.5	0.401
Theft-robbery/Criminality	0.7	0.5	1.0	0.058
Epidemics	0.9	0.7	1.2	0.540
Earthquake	1.5	1.1	1.9	**0.010**
Unemployment	3.0	1.9	4.8	**<0.001**
Poverty	3.3	2.0	5.3	**<0.001**
Lack of justice	1.0	0.6	1.7	0.987

Notes: a) ref. cat.= None/few difficulties ; b) OR=Odds ratio ; c) C.I.=confidence interval

Table 4. Logistic regression analyses for perceived fear of unemployment[a)] (cases in analysis N=1191) and poverty[a)] (cases in analysis N=1194).

	Fear of unemployment				Fear of poverty			
	OR[b]	95% C.I.[c]		Sig.	OR[b]	95% C.I.[c]		Sig.
		Lower	Upper			Lower	Upper	
Occupation								
Private sector worker	2.9	1.8	4.7	**<0.001**	1.4	0.9	2.2	0.105
Free lancer/ Agriculturist/ Company owner	1.3	0.8	2.1	0.314	1.2	0.8	2.0	0.374
Retired	1.3	0.8	2.3	0.309	1.6	0.9	2.8	0.132
Unemployed	5.6	2.3	13.7	**<0.001**	10.9	3.3	36.3	**<0.001**
Student/ Household/ other	1.2	0.6	2.6	0.564	1.1	0.5	2.2	0.841
Public sector worker	1.0				1.0			
Geographical region								
Central Macedonia	1.3	0.8	2.1	0.303	1.9	1.2	3.2	**0.010**
Other	2.1	1.3	3.2	**0.002**	2.7	1.7	4.3	**<0.001**
Attica	1.0				1.0			
Health insurance								
Only EOPYY	2.2	1.5	3.2	**<0.001**	1.6	1.1	2.2	**0.015**
None	1.9	1.0	3.6	**0.048**	3.0	1.4	6.4	**0.005**
Private	1.0				1.0			

Notes: a) ref. cat.=A little/Not at all ; b) OR=Odds ratio ; c) C.I.=confidence interval

DISCUSSION

The current study is the first attempt to investigate the social and psychological impact of the economic crisis on the population's fear perception. The majority of the participants stated fear of "lack of justice", which presumably reflects the perceived social inequalities caused by the long-lasting public and private sectors corruption, as shown in recent reports, [22] which, along with the lack of meritocracy, have dominated the Greek public sphere for many years. The last two factors, corruption and meritocracy, are both considered by many as the causes of the debt crisis and indirectly the reasons behind children mortality at a global level, signaling the connection between corruption and local humanitarian crisis. [23]

Furthermore, the long-term unemployment caused by the economic crisis is not only a wasting resource but also an unjust and undemocratic punishment that maintains and magnifies the vicious circle of dignity, misery and suffering and consequently the general anxiety and probably the fear of existence.

On the other hand, the two risks that were feared by fewer respondents in the current research were "epidemics" and "international terrorism" - the latter possibly came out as a result owing to the fact that in Greece, international terrorist attacks (i.e. 1988 Abu Nidal Attack on "City of Poros" ship) date back to decades ago and, by contrast to domestic terrorism, no one remembers them.

An unforeseen finding was that the fear of epidemics was the lowest-rated fear by the Greek respondents despite the alarming increase of large-scale epidemics between 2009 and 2011 in the country: high mortality rates from the pandemic influenza A(H1N1), major outbreak infections of West Nile Virus, outbreak of autochthonous *Plasmodium vivax* malaria and major HIV outbreak among injecting drug users. [24] This probably occurred either because the respondents were not well-informed on the increase of epidemics through public health campaigns or maybe due to the prioritization of economic problems as more important. An additional possible explanation could be the dissemination of "conspiracy theories" throughout Greece, [25] on the announcement and subsequent clinical management of the pandemic influenza virus H1N1, including the development of a vaccine, globally sold and massively bought by many European countries including Greece, followed by low vaccination acceptance even among healthcare workers (17%), conceivably due to the aforementioned theories and the assumed side effects of the vaccine. [26]

Particularly, concerning gender differences, it has resulted from previous research that women perceive severely enough, than men the potential of being exposed to a threat, [27] plus, it has been shown that women have greater extreme and generalised fear rates compared to men. [28] Most of young adults seem to fear unemployment, a finding which was expectable given that the survey was conducted during the period of a severe economic recession in Greece. Based on official evidence, [29] youth unemployment increased dramatically after 2009, in fact, unemployment rates, in May 2013, reached the percentage of 64.9% for ages 15-24, and 37.7% for ages 25-34, being the highest unemployment rates in Greece across all age groups at that time.

The results, although powerful, should be interpreted in view of several qualifications. First, as noted above, the data are cross-sectional and one cannot make direct causal inferences on the economic recession-induced fear and risk perception. Another limitation of the current study is that there might have been different or additional risks to be selected for the Greek population, which were either important but unintentionally omitted from the questionnaire or others which were included in the study questionnaire but were not equally important. In any case, the author of this paper had conducted extensive literature search on the topic of fear of risks prior to the design the questionnaire, so, it is estimated that the risks most applicable to the study have been selected. Furthermore some important variables could not be included in the study owing to lack of available data. For example behavioral risk factors of early life conditions could have influenced fear perception outcomes and the recession may also influence fear perception through other mechanisms such as job insecurity and general anxiety associated with economic instability. A further limitation of this study is that, given the originality of the study and the limited (if any) knowledge of citizens' perception of fear, any comparison of the findings at a local level was not feasible.

Recent evidence [20-30] shows that for the quantitative/short-term effects of the present economic crisis on mental health due to the increased unemployment, reduction of income or increasing debts, more in-depth

analyses are required in order to justify the long-term consequences of the economic crisis. Also, additional in-depth studies are needed to better understand the link between economic crisis and risk perception. The use of qualitative methodology on the research of fear and risk perception could shed light on the causes associated with the fear of the specific risks.

COCLUSION

There is a need for better understanding of what affects risk perception, jointly with a more favorable risk management, so that better informed decisions can be taken prior to and during emergency situations attributed to such risks. Regular monitoring of persons' attitudes is vital for the prevention of extreme levels of disbelief in respect to risk management. [31] At all times, attention should be paid on the effect of risk interpretation by the mass media and on the way messages of fear are presented by them, in general. The findings might have important implications on politics. The period of the economic crisis has seen a plethora of new legislation which, under the pressure of panic, is often circumvented. Legislation should be simplified and, more importantly, it should not be subject to continuous changes that affect compliance with the law which is an essential requirement for restoring the citizens' trust in justice and the impaired credibility of the country as a member of the European Union. Author Disclosures: No conflicts of interest have been reported by any individuals, who are in control of the content of this article.

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