

FEAR DURING THE COVID-19 PANDEMIC

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Abstract: *This study will present some results of an on-line survey conducted by the author on a sample of 1640 subjects. The analysis of the results from the perspective of fear determinants during COVID-19 pandemic has revealed that being a less educated, older (but not over 70 years), social-network-informed, widow, living in a rural area, may result in an increased level of fear. Direct experience with the virus does not result in significant differences in fear level according to our findings. The impact analysis of fear on attitudinal compliance revealed that higher levels of fear may result in higher levels of compliance with preventive measures and in more willingness to get vaccinated.*

Key words: *fear; attitudinal compliance; preventive measures; willingness to get vaccinated.*

1. Introduction

As West and colleagues once remarked, human behaviour „is central to transmission of SARS-Cov-2, the virus that causes COVID-19, and changing behaviour is crucial to preventing transmission in the absence of pharmaceutical interventions” (West et al., 2020, p. 451). But what is the connection between behaviour and fear? This is a question that one attempted to answer during other pandemic times also. A study undertaken by an Australian university during the H1N1 2008 pandemic concluded that very few students were anxious, as they did not consider the pandemic a great threat. Most students did not consider changing lifestyles, fact that may have to do with the moderate character of the pandemic (Van et al., 2010, p. 6). During the H1N1 flu pandemic in Germany, 13 consecutive inquiries have been undertaken in order to monitor the knowledge, behaviour and attitude towards the illness and real time vaccination. During the peak of the pandemic (November 2009) only 18% of the participants declared perceiving the risk being high. This proportion dropped to 10% in January 2010 (Walter et al., 2012, p. 1). Bish and Michie analysed several publications about SARS, bird flu, pig flu, H5N1, and H1N1 as of 2002. In their analysis they mentioned the existence of attitudinal variables associated with a protective behaviour, among which state anxiety and its greater levels (Bish & Michie, 2010, p. 797).

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In our paper we intend to present a series of results of more extensive research we undertook at the end of 2020 and the beginning of 2021 (Pascaru, 2021a, Pascaru, 2021b, Pascaru 2021c) during the second wave of the pandemic in which a peak was reached at over 10000 infections a day at a Romanian population of approximately 19 million inhabitants. The presentation of the results will follow two directions of analysis. The first direction will be the identification of fear predictors behaviour (gender, age, education, experience with the virus, and sources of information). It was found that women declare a greater fear than men. Older people also declare a greater fear, with the exception of those over the age of 70, whose feelings must be known through new in-depth research. A high level of education is associated with low fear. The unemployed and retirees declare more fear than employees and employers. The fear seemed to be diminished for people who did not have the official responsibility of a family. Our results did not confirm the thesis of more intense fears in the urban area. Personal infection with SARS-CoV-2 did not cause a great deal of fear. There was also a rather weak association between the death of loved ones and a high fear. The use of social networks and blogs is associated with a high fear. The second direction one looks at the impact that fear has on the attitudinal compliance to different disease control measures and the willingness to get vaccinated. From this perspective, it was found that a high fear was positively associated with the agreement on disease prevention measures and the willingness to get vaccinated. The most interesting result of the associations between fear and agreement on disease prevention measures is that declaring *a moderate fear* is associated with a stronger compliance than with those who declared *a very high fear*.

The discussion section of our paper will account for our results in reference with these previous studies and the conclusions will then be relating our findings to possible new intervention directions for either the current pandemic or future ones, as well as other possible cases in which fear can be related to the need for compliance and behavioural change, like for instance, global warming (Kenny, 2020, p. 702).

2. Theoretical and Research Foundations

As Asmundson and Taylor mentioned, research studies undertaken during January and February of 2020 in Canada and the United States - at times when there were relatively few cases of COVID-19 and even fewer deaths - showed nevertheless some existing worries among the population. The level of fear of the new virus was already higher than that of the seasonal flu, notwithstanding having only been reported 11 cases and no fatalities in the United States, all of that while the flu had already resulted in over 12,000 victims for 22 million infections and 210,000 hospitalizations. In one other study, 25% of the Americans were already more scared of the new coronavirus than they were in 2014 of Ebola. An explanatory variable that was mentioned was *xenophobia* against Chinese, considering that the virus originated in China (Asmundson & Taylor, 2020, p. 1). Analysing the results of a wider research that involved several countries, Barzilay and colleagues concluded that worries about the virus were associated with anxiety for 22% of the subjects and with depression for 16%, both frequencies being considered high. Explanations were: a) that people already had symptoms; b) there were more females in

the study and they tend to report higher levels of anxiety and depression in general; c) the infection rate was high during the research period (Barzilay et al., 2020, p. 6).

For methodological concerns, a series of existing scales were adapted to measuring fear of the new coronavirus (Abhorsu et al., 2020, p.8).

A series of studies tried to identify predictors of fear of the new coronavirus. Mertens and colleagues identified health-related anxiety, frequent exposure to media, exposure to social media and the risk towards loved ones as being the main predictors of fear of the COVID-19 disease (Mertens et al., 2020, p. 1). Being female, living in an urban area and having had psychiatric problems in the past were likely to generate a higher level of risk of developing anxiety (Özdin & Özdin, 2020, p. 504). The tendency towards overstating the severity of contamination and physical concerns were associated with fear and with safety behaviours accordingly (Waqas, Hania & Hongbo, 2020, p. 1096). Associating fear with depression, one can retain that females, young persons between 18 and 29, students, the unemployed, those with psychiatric problems and those that reported a negative impact on their quality of life displayed a higher risk of an increased number of symptoms of depression (Solomou & Constantinidou, 2020, p. 1). Other studies gave special attention to racial profile as predictor of fear of the virus and the associated disease. Sneed and colleagues for instance noted that fear was higher in African-American communities (Sneed et al., 2020, p. 446).

Fear at social level, other specialists warn, may lead to sub-optimal behavioural reactions, like the overreacting at governance (policy maker) level, which during the pandemic may be triggered by panic or economic downfall. The absence of fear may be associated with an under-reaction that can lead to the spread of the disease and the collapse of the health system. Solution: „To cope with the pandemic, policy-makers need to know that both types of reactions exist within the population” (Erev, Plonski & Roth, 2020, p. 1095).

3. Materials and Methods

The working materials of our study, the primary data, were gathered through a questionnaire-based survey. The survey was administered in Romania between November 6th 2020 and January 26th, 2021. This was the period that saw the peak number of infections in Romania in 2020, over 10000 new cases a day. The survey was administered on-line, participants being contacted directly through Facebook or indirectly, with the help of our students and other collaborators. In the end, the non-probabilistic sample that answered was 1640 respondents. The structure of the sample has been extensively presented in our previous works (Pascaru, 2021a; Pascaru, 2021b; Pascaru, 2021c). As in other online research, the sample was marked by the higher share of women (60.6%) and those with higher education (65.2%).

In our current paper we will be focusing solely on the fear experienced by respondents in the context of the state of worry at the time when the questionnaire was administered. The level of fear was measured by the question: “Is there some fear in the state you are experiencing right now?”, with the following answer alternatives: Yes, very high; Yes, but moderate; No, I do not experience any fear; Don’t know/No answer.

4. Results

Regarding the state respondents experienced at the time of survey, the answers were as follows: of total insecurity - 252 respondents (15.4%); of somewhat insecure - 1207 (73.6%); of feeling totally secure - 141 (8.6%) and don't know/ no answer 40 (2.4%). One hundred and forty-four (8.8%) said that in their state they felt a very high level of fear, 1144 (69.8%) that they felt some, but moderate level of fear and 345 (21%) that they did not experience any fear whatsoever. Seven respondents (0.4%) did not know or did not answer. See Table 1 for the all results.

Fear and its levels

Table 1

Is there some fear in the state you are at this moment?		Frequency	Percent	Valid percent	Cumulative percent
Valid	Yes, very high	144	8.8	8.8	8.8
	Yes, but moderate	1144	69.8	70.1	78.9
	No, I do not experience any fear	345	21.0	21.1	100.0
	Total	1633	99.6	100.0	
Missing	Don't know/ No answer	7	0.4		
Total		1640	100.0		

At a later time, we will examine if there is some link between fear and the main sources of information about the pandemic. This is the reason why we insert here the answers in regard to these sources. When asked where do they take their main information about the pandemic from, the respondents answered as follows: from official sources on the internet – 727 respondents (44.3%); from radio and television – 531 respondents (32.4%); from social networks and blogs – 183 respondents (11.2%); from persons that got infected – 92 respondents (5.6%); from their own, personal experience with the infection – 261 respondents (3.7%); from people that got infected – 22 respondents (1.3%); didn't know / no answers 24 respondents or 1.5% [15].

Since at a later time we will be interested in the relationship between fear and attitudinal compliance to prevention measures, we will present next some results on respondents attitude towards some recommendations and prevention measures and in relation to the willingness to get vaccinated.

Regular hand washing as a disease prevention measure was approved by 1607 subjects (98%) and disapproved by 26 (1.6%); 7 respondents (0.4%) didn't know or didn't answer. The use of disinfectants was approved by 1444 respondents (88%) and rejected by 165 (10.1%); 31 or 1.9% didn't know or didn't answer. Holding a safe distance was a measure that was acceptable to 1392 respondents (84.9%) and not acceptable to 216 (13.2%), 32 subjects not answering. Mask wearing was approved by 1170 respondents (71.3%) and disapproved by 404 (24.6%); 66 respondents didn't know or didn't answer.

Restrictions to movements that were strictly necessary were acceptable to 1018 (62.1%) respondents and unacceptable to 562 (34.3%), 60 (3.7%) declaring they didn't know or didn't answer. The 14 day isolation at home measure was approved by 1061 respondents (64.7%) and disapproved by 455 (27.7%); 124 respondents (7.6%) didn't know or didn't answer. The quarantining of persons was acceptable to 1099 respondents (67%) and not acceptable to 419 (25.5%); 122 (7.4%) didn't know or didn't answer. The quarantining of villages, towns or cities was approved by 71 subjects (43.7%) and disapproved by 747 (47.2%); 149 (9.1%) didn't know or didn't answer (Pascaru, 2021a).

Should a vaccine become available in the following months, 162 respondents (or 9.9%) state a very high willingness, 278 (17%) a high willingness, 294 (17.9%) little willingness and 196 (12%) very little willingness to get vaccinated. A complete unwillingness to get vaccinated was stated by 529 (32.3%) of the respondents, and 181 or (11%) didn't know or didn't answer (Pascaru, 2021a).

Next, we will be reviewing behavioural features of some determinants of fear in times of pandemic as revealed by our results.

Women, more so than men, stated a very high level of fear (10.7% as opposed to 5.8%), only 15.4% showing no fear whatsoever as opposed to 30.1% of men. Age wise the 60 to 69 years old category showed the highest level of fear (19.1%), followed by the 50 to 59 years category at 12.4%. Interestingly enough, subjects over 70 stated in lower numbers the existence of fear (11.1%). The smallest amount of fear was noticeable at the 18 to 29 years (5.6%) and 30 to 39 (7.8%) categories of age. More than a quarter (25%) of the 18 to 29 years of age declared not experiencing any fear whatsoever.

When looked upon educational backgrounds, those with primary school only stated a very high level of fear (22.2%), followed at some distance by respondents with high school (11.8%). Subjects with college and university diplomas showed similar frequencies (7.8% and 7.4%, respectively). More than 25% of college and high school graduates stated no fear whatsoever.

Occupational background also revealed some interesting issues. Non-agricultural workers stated a very high level of fear. A very high level of fear was primarily stated by retired (pensioners) at 20.4% and the unemployed (16.7%). The smallest frequencies were recorded among students at 5% and the self-employed at 6.6%, closely followed by employed subjects at 8.6%. More than a third of the self-employed and the unemployed, and almost a quarter of the students stated no fear at all (38.5%, 30.6% and 24% respectively).

As far as the marital status, more widowers appeared to display high levels of fear (23.1%). The fewest subjects declaring a very high level of fear were among the unmarried (5.3%) and those in concubinage (7.3%). More than a quarter of the unmarried (27.9%) declared not experiencing any fear.

The type of area in which respondents lived during the pandemic showed significant differences in terms of fear. A very high level of fear was stated by 10.1% of those living in rural areas and by 8.5% of those living in urban ones. No fear at all was stated by 22.6% of subjects living in rural areas and 20.6% of those living in urban areas.

Having been infected with SARS-CoV-2 didn't seem to produce much differentiation in the high levels of fear, being stated by 9.5% of those that had been and 8.2% of those that had not been infected. At the opposite end of the spectrum 22.6% of those that had been infected and 20.7% of those that had not been infected stated no fear whatsoever. One should also retain that the highest number of those being fearful was among those subjects that did not know if they ever had been infected.

Having had family members infected did not induce any major differentiation either between those stating a very high level of fear and those not stating it, being 9.3% and 8.7% respectively. The difference was larger although not overly large in the case of a deceased family member due to COVID-19. Thus 10.3% of those having had deceased family members declared a very high level of fear as opposed to 8.7% of those that had not. Somewhat strange, almost a quarter of those having had a COVID-19-related death in the family (24.4%) declared no fear whatsoever. A similar behaviour had the variable "deceased among neighbours" except in this case, the frequency of those stating no fear was greater in the case of respondents that did not have neighbours deceased from COVID-19 (21.8% as opposed to 19.2%). The "deceased co-workers" variable introduced wider differences among those with a very high level of fear (13.3% of those that had deceased co-workers as opposed to 8.7% of those that hadn't). In this case also, the frequency of the "fear-less" was the highest among those that had deceased co-workers (26.7%) as opposed to those that hadn't (21%). See all results in Table 2.

Fear and deceased co-workers (N of valid cases =1605)

Table 2

		Is there some fear in the state you are experiencing right now?			Total
		Yes, very high	Yes, but moderate	No, I don't experience any fear	
Did you have any co-workers deceased?	Yes	8	36	16	60
		13.3%	60.0%	26.7%	100.0%
	No	134	1086	325	1545
		8.7%	70.3%	21.0%	100.0%

One of the more interesting results of our study we find it to be the relationship between fear experienced by respondents and the sources of information. Thus, a very high level of fear was declared by those subjects that got their main information from radio and television (12.6%), followed by social networks and blogs (10.9%) and from infected persons that they knew (10.9%). Under 10% very high level of fear experienced those that got their main information from official sources on the internet (5.3%), from persons they knew who got infected (4.5%), and own experience with infection (9.8%). No fear at all was experienced mainly by those that got their information from their own experience (29.5%), followed by those that got informed from other infected persons (28.3%) and those that got their information from social networks and blogs (23%).

Next, we'll be looking at the possible connections between fear and attitudinal compliance to disease control measures and public recommendations.

First thing to note is that fear did not seem to induce large differences as to regular hand washing as a preventive measure. A more noticeable difference appeared in the case of disinfectants where the approval rate was 89.5% among those experiencing very high level of fear and 77.8% among those experiencing no fear whatsoever. The difference was also visible in the case of holding a safe distance where the approval rate was 86.9% of those experiencing very high level of fear and 73.6% among those that did not experience any fear. An even wider difference was recorded in approval rates for mask wearing, which was 74.1% of those experiencing very high levels of fear and 55.5% among those not experiencing any fear whatsoever. A similar difference was recorded at the approval rates to restrictions of movement; 68.3% of those experiencing very high levels of fear and 44.5% of those experiencing no fear at all. A somewhat reduced divergence of approval rates appeared in the case of the 14 day home isolation whereby it was 70.1% of those experiencing very high level of fear and 55.5% of those experiencing no fear. The difference was also smaller in the case of quarantining of persons (71.9% v. 59%) and the quarantining of towns and villages (51.5% v. 35.6%). The most interesting results we found was that a moderate level of fear - rather than a high one - was more closely associated with higher approval rates for disease prevention measures in general. Fear was positively associated with the willingness to get vaccinated, another component of attitudinal compliance (Table 3).

Fear and the willingness to get vaccinated (N of valid cases = 1453)

Table 3

		If during the next few months, a vaccine becomes available, how willing are you to get vaccinated?					Total
		Very much	Much	Little	Very little	Not at all	
Is there some fear in the state you are experiencing right now?	Yes, very high	28	20	17	11	50	126
		22.2%	15.9%	13.5%	8.7%	39.7%	100.0%
	Yes, but moderate	113	215	239	146	288	1001
		11.3%	21.5%	23.9%	14.6%	28.8%	100.0%
	No, I don't experience any fear	20	40	38	39	189	326
		6.1%	12.3%	11.7%	12.0%	58.0%	100.0%

Thus, much and very much willing to get vaccinated were 38.1% of those experiencing a very high level of fear and 18.4% of those experiencing no fear at all. Unwilling to get vaccinated were 39.7% of those experiencing very high levels of fear and 58% of those experiencing no fear.

5. Discussion and Conclusions

In the introduction to our paper, we sketched the main directions of analysing the results of our study. These directions were put into practice in the section dedicated to the results. For the discussion that follows we should keep in mind as comparison references three observations: the suggestion that women are more fearful than men (Barzillay et al. 2020, p. 6), the conclusion that the use of social media is more closely

associated with higher levels of fear (Mertens et al., 2020, p.1),, and that living in an urban area is more closely associated with higher levels of fear (Özdin & Özdin, 2020, p. 504).

Briefly reviewing the main results mentioned in the previous section, we firstly notice the existence of a relatively high level of fear among the subjects since only a little more than a fifth stated no fear at all. On this background, the attitudinal compliance with its components of the approval of disease prevention measures and the willingness to get vaccinated, was not particularly high. In addition, there was a noticeable decrease from individual to collective prevention measures.

Before discussing fear and compliance further we will try to reveal some interesting aspects of the variables which seem to produce differentiation in levels of fear. One remembers that women declare higher levels of fear than men, which seems to confirm previous findings (Barzilay et al., 2020, p. 6). Older subjects display higher levels of fear than younger ones, with the exception of the over 70s, a fact that we will not attempt to explain without more in-depth research. Lower levels of fear were associated with higher level of education, one possible explanation being that the more educated subjects tend to be better informed and tend to display higher compliance with preventive measures, which gives them an increased feeling of safety. We appreciate being possible that fear is more closely associated with a lack of economic resources since the unemployed and the pensioners state more fear than the self-employed and the employed subjects. The level of fear tends to be smaller for unmarried persons who do not have the responsibility of a family, explanation which is consistent with the premise that people tend to be more worried about others than about themselves (Barzilay et al., 2020, p. 8), persons without official partners likely having weaker connection in the immediate social circle. Our results did not confirm the thesis of higher level of fear in the urban space (Özdin & Özdin, 2020, p. 504).

Personal exposure to COVID-19 did not result in higher levels of fear, a fact that can be explained by the feeling of safety acquired through immunity. It is also possible that the immunity achieved through contamination be a factor in the weak associations between the death of a family member and level of fear.

A look at the relationship between sources of information and fear confirmed to us findings of previous research according to which social networking was associated with higher levels of fear (Mertens et al., 2020, p. 1).

Generally, high levels of fear tend to associate positively with higher approval of disease prevention measures and the willingness to vaccinate, the most interesting finding we think being that moderate levels of fear can be more closely associated with higher compliance than higher ones.

The limits of our inquiry are in part set by the type of sampling that can be done in an on-line survey which developed to a great extent by itself, following the “snowball” principle. Under such circumstances there is always the risk of some categories in the real population being under-represented. This risk however can be mitigated by lowering the influence of some variables over the entire population and by comparing the frequencies to the total number of responses of a category and of the whole sample.

From practical, intervention purposes, fear can, in our opinion, be exploited towards the promotion of certain disease prevention measures or vaccination, but we would stress that it cannot be an instrument for the sustainability of such measures. This is also because the specialists already revealed a relatively high level of general anxiety and came up with some proposals for its diminution and strategies for mitigating its effects: the increase in the informational consumption, the increase in social support (Saltzman, Hansel & Bordnick, 2020) and psycho-education (Orrù, Ciacchini, Gemignani, & Conversano, 2020).

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