THE RELATION BETWEEN INFORMATION AND FEAR DURING THE COVID-19 PANDEMIC

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Fear is a primary emotion that has both positive effects on individual survival and negative psychological and social consequences. Beside the instinctual origin, fear is a cultural artefact too. The theoretical framework of the culture of fear affirmed that mass media have a central role in creating and spreading fear. Dramatic events tend to get disproportionate media coverage because they attract public attention. News reports give more space to highly dangerous events increasing the impression of vulnerability among the public. Covid-19 pandemic had an extraordinary attention from mass media and governments becoming the main topic in the political and media agenda of 2020. The aim of the present research was to investigate the relation between the consumption of information concerning the Covid-19 pandemic and the fear during the outbreak of the virus in Italy. The data of the present study were collected immediately after lockdown end on a sample of 644 adults (64.1% females; mean age 42.16, SD=14.84) through a self-report online survey. The consumption of news resulted by far the most related variable to both fear and concern caused by the pandemic, surpassing age too, that is highly correlated to Covid-19 mortality rates. Implications of the results for public health were discussed.

Keywords: Fear, Mass Media, Information, COVID-19, Path analysis

1.   Introduction

Fear is a primary emotion common to animals and humans. From an evolutionary point of view, it is a defensive response motivating the detection, escape, and avoidance of possible sources of danger (Öhman, 2000). In addition to this positive effect on individual survival, fear may have negative effects, blocking the capacity to cope with difficult situations and fostering anxiety and other negative psychological outcomes (Öhman, 2008; Rosen & Schulkin, 1998). Besides its instinctual origin, fear is a cultural artefact too. Historical research showed that objects and experiences associated with fear changed over time, even over brief periods of time (Bourke, 2005). Surprisingly, actual risk and fear are not necessarily linked. In the last century, when humanity reached the highest level of wellbeing and life expectancy of its history, it also reached the highest level of fear (Buckingham, 2008). Several scholars linked this fact to the transition to postmodern society. According to Beck (1992), the success of modern technology, that apparently may find a solution to every problem, implies the proliferation of risks. The scientific assessment of possible risks in several fields of human life has had the consequence of increasing the individuals' perception of being at risk. Postmodern society is characterised by uncertainty (Bauman, 2000): in this cultural context, science and technology, which should calm down individuals by controlling the possible risks, have the opposite effect, generating insecurity and fear (Lupton, 1999). On these grounds, fear is considered

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a sociocultural artefact and it is possible to refer to a *culture of fear* (Glassner, 1999) spread and reproduced by mass media and politics for various purposes.

2.   The culture of fear

One of the first source of fear studied by social scientists was crime. Contrary to early expectations, the fear of crime did not always seem to be linked to the actual risk of victimization. In many cases, higher values of fear of crime were reported in places where the crime rates were lower (Forde, 1993; Scarborough et al., 2010). Different explanations have been proposed for this paradox, one of these concerns the role of the mass media in influencing the perception of reality. Several studies showed that mass media consumption increases the fear of crime (Callanan, 2012; Eschholz et al., 2003; Weitzer & Kubrin, 2004). Similar results have been found concerning other sources of fear such as terrorism (Altheide, 2007), environmental concern (Wang, 2017), Ebola outbreak (Pulkkinen, 2017), political and economic crisis (Tartaglia et al., 2019). In all these cases, the mass media consumption, especially news consumption, has increased individuals' fear and perception of risk. Nevertheless, fear and concern may influence information seeking (Verneau et al., 2019) increasing mass media consumption. On these grounds, the interpretation of the relationship between information and fear in terms of direct causality is not supportable, while the hypothesis of a reciprocal influence is more likely.

The tradition of studies on fear of crime has distinguished between two psychological reactions to a potential danger, called fear and concern (Amerio & Roccato, 2007; Furstenberg, 1971; Tartaglia & Zaccone, 2012). Fear is the emotional reaction of anxiety for one's own safety whereas concern, called also abstract fear (Guedes et al., 2018), is a feeling regarding the safety and wellbeing of the community of belonging. A similar approach is applicable to other possible sources of fear, for instance the Covid-19 pandemic.

Altheide (2002) affirmed that the mass media have a central role in creating and spreading fear by means of news and entertainment. Dramatic events, such as crimes, natural disasters, or illnesses tend to get disproportionate media coverage because they attract public attention. In the mass media market, news competes with entertainment in reaching more readers and viewers. For this reason, news reports give more space to highly dangerous events, thereby increasing the impression of vulnerability among the public (Glassner, 1999). For example, news contains several problem-oriented reports anticipating the worst possible outcome, thus generating anxiety in the public (Furedi, 2006).

The relation between mass media consumption and the conception of the world as a scary place has been documented in literature (Altheide, 2007; Callanan, 2012; Tartaglia et al., 2019) but the nature of this relation is unclear. Individual and contextual variables may influence both the media consumption and the public response to media contents. Therefore, it is necessary to investigate the media effects by assessing other variables too (Valkenburg & Peter, 2013).

3.   Individual characteristics and fear

In many studies women resulted more insecure compared to men and assessed risks as higher (Breakwell, 2007; Gilchrist et al., 1998; Mueller & Roeder, 2014). It is possible that this result does not reflect a real difference between genders, but it is affected by cultural factors. Gender stereotypes prescribe to men not to show their emotions and their weakness in public. On the

contrary, culture allows women to express freely their emotions and weakness. The consequence of the content of gender stereotypes may be the fact that in surveys women describe themselves as more insecure than men do (Durik et al., 2006; Kring & Gordon, 1998; Plant et. al., 2000).

Many scholars consider fear as a reaction to perceived vulnerability: individuals perceiving themselves to be more vulnerable to some negative events are more scared. On this ground, gender and age affect fear of crime because women and the elderly feel less able to protect themselves physically when compared to men and young persons (Franklin et al., 2008; Hughes et al., 2003). In addition to crime, age may affect the perception of vulnerability to other negative events, such as illnesses that have higher incidence and mortality rates among the elderly, for example Covid-19.

Educational level also affects how people perceive their social context in terms of dangerousness. The lower the level of education, the higher is the perception of being exposed to different hazards (Rundmo & Nordfjærn, 2017). Less educated individuals may have inadequate cultural tools to comprehend the social world and consequently perceive the world to be more dangerous because they do not understand it (Tartaglia et al., 2019). Moreover, less educated people generally have fewer socioeconomic resources to cope with difficulties, feeling more vulnerable and more concerned about risks (Foster & Giles-Corti, 2008; Hale, 1996).

4. Covid-19

Flu pandemics are a recurring phenomenon in the history of humanity. According to the World Health Organization[1], after the devastating Spanish flu pandemic of 1918, there have been at least other three flu pandemics before the one caused by Covid-19, the so-called Asian of 1957, the Hong Kong flu of 1968, and the swine influence of 2009. Nevertheless, Covid-19 pandemic had an extraordinary attention from mass media and governments across the entire world, becoming the main topic of the political and media agenda of 2020 (de Rosa et al. 2021; Tejedor et al., 2020). Sensationalism in media reports fostered prejudice against groups and individuals considered responsible for the virus diffusion, threatening the mental health of the targets of prejudice (Pradana et al., 2020; Wen et al., 2020).

On the basis of the abovementioned literature, which considers fear to be a sociocultural construct and the mass media to play an important role in creating and spreading it, the aim of the present research was to investigate the relation between the consumption of information concerning the Covid-19 pandemic and the fear during the virus outbreak in Italy.

On the grounds of previously cited literature, we hypothesized that:

a. The amount of information consumption concerning the pandemic in the last month would be positively related to fear and concern caused by Covid-19 (Altheide, 2007; Callanan, 2012; Tartaglia et al., 2019; Wang, 2017).

b. Women would express higher level of fear and concern compared to men (Breakwell, 2007; Gilchrist et al., 1998; Mueller & Roeder, 2014).

c. Age would be positively related to fear and concern (Franklin et al., 2008; Hughes et al., 2003).

d. Years of education would be negatively related to fear and concern (Rundmo & Nordfjærn, 2017; Tartaglia et al., 2019).

e. Fear would relate to the avoidance of possible danger (Öhman, 2000), i.e., during the lockdown going out of home shopping as little as possible (buying necessary items was one of the few admitted reasons for leaving the house during the lockdown).

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[1] https://www.euro.who.int/en/health-topics/communicable-diseases/influenza/pandemic-influenza/past-pandemics

5. Method

5.1. The context of the study

The study was carried out in Turin, a city of 880,000 inhabitants located in the North-West of Italy. The official report of the first Covid-19 outbreak in Italy was announced on February 21. On March 11 the prime minister ordered the lockdown with the restriction of movement of people in all the country. On May 4 the so-called phase 2 of the emergency started, easing the restrictions on movement and the business closures. The data of the present study were collected during the month of May 2020, immediately after the lockdown restrictions were lifted.

5.2. Participants

Undergraduate students enrolled in two methodological seminars collected the data. Each student was required to contact 10 respondents. We asked students to recruit adults living in Turin from several social backgrounds and age groups. The individuals contacted voluntarily participated in the study and anonymity was guaranteed. They had the possibility to withdraw from the protocol at any time. The Italian Society of Community Psychology approved all procedures performed in this study involving human participants. The sample included 644 adults (64.1% females), their mean age was 42.16 (*SD*=14.84). Most participants were high school (40.1%) or college graduated (47.2), the others (12.7%) had a lower level of education. Concerning occupational status, 73.6% were working, 8.7% were student, 9.2% were retired, 5.7% were unemployed, and 2.8% were housewives. Of the workers, 54.4% during the lockdown worked at home, 25% did not work, and 20.8% worked outside home.

5.3. Measures

Data were collected through a self-report online survey. We used in the analyses the following indicators:
1.   Two items assessing the concern and the fear related to the Covid-19 pandemic, with both items rated on a 5-point Likert-type scale: "How serious do you think the current Covid-19 pandemic is for Italy?" (1= not serious at all, 5= extremely serious) and "How in danger do you personally feel for the current Covid-19 pandemic?" (1= not in danger at all, 5= extremely in danger).
2.   One item assessing the information concerning the pandemic during lockdown: "In the last month, how informed have you kept about the Covid-19 pandemic and its consequences?" rated on a 5-point Likert-type scale ranging from 1 (not informed at all) to 5 (I have kept very informed).
3.   A set of items measuring the use of different sources of information, namely the Internet, television, radio, and printed newspapers. These items were rated on a 5-point Likert-type scale ranging from 1 (never used) to 5 (used a lot).
4.   One closed-ended question asking the modality of shopping during lockdown. The respondents were requested to choose one of the following options: (a) "I did not shop personally", (b) "Exclusively or mainly using home delivery services", (c) "Both going to local shops and markets and using home delivery services", and (d) "Exclusively or mainly going to local shops and markets".
5.   A brief list of sociodemographic items.

5.4.   Analyses

We performed descriptive statistics, t test, ANOVA, and correlations using SPSS 26. We verified the hypothesized relationships among variables by means of a path analysis performed using AMOS 26.

6.   Results

6.1. Descriptive statistics

Participants considered Covid-19 pandemic a severe problem for Italy, evaluating its seriousness on average 4.44 (SD=0.76) on a scale ranging from 1 to 5. The low standard deviation shows that the majority of the sample agreed with this evaluation. On the contrary, the evaluation of personal dangerousness was not high, being the average response close to the middle point of the response scale ranging from 1 to 5 (M=3.21; SD=1.06). We compared concern and fear scores using the paired t test. The difference was significant (t = 30.12; $p < .01$) indicating a higher concern for the safety and wellbeing of the national community compared to the fear for one's own safety.

As for information consumption, overall participants reported they kept themselves informed (M=4.20; SD=0.86; Response scale range 1-5). Table 1 reports the use of different information sources: the most used was the Internet, followed by television.

During lockdown the majority of the participants (61%) shopped exclusively or mainly at local shops and markets. These individuals left home voluntarily with some regularity. 22.7% of the participants used both local shops and home delivery services, 5.1% used exclusively or mainly home delivery services, while 11.2% of the participants did not shop during lockdown because someone else did it for them.

We compared men and women scores across all the variables using t test. Compared to men, women had higher values of concern about Covid-19 (Female: M=4.49; Male M=4.34; t=-2.45, $p<.05$) and fear of Covid-19 (Female: M=3.31; Male M=3.04; t=-3.13, $p<.01$). Men used more frequently the Internet (Female: M=3.58; Male M=3.97; t=4.75, $p<.01$) and radio (Female: M=2.00; Male M=2.18; t=2.04, $p<.05$).

Table 1. Information sources. Response scale ranging from 1 (never used) to 5 (used a lot)

	Mean	Standard Deviation
Internet	3.72	1.00
Television	3.22	1.12
Radio	2.07	1.09
Printed newspapers	1.84	1.07

Table 2 shows the correlations among variables. The concern and fear related to the pandemic correlated positively. Both reactions correlated positively with the consumption of news and age. Fear of Covid-19 correlated negatively with years of education. Information correlated positively with the use of all the sources considered, and participants who kept more informed used more all of them. As for each single source, only the use of television correlated positively with Covid-19 concern and fear. The Internet was used more by the youth and the more educated participants, while television by the less educated individuals. Age and education were also positively correlated to a greater use of the radio and printed newspapers.

Table 2. Correlations among variables

	1	2	3	4	5	6	7	8
1.Concern about Covid-19								
2.Fear of Covid-19	.39**							
3.Age	.15**	.14**						
4.Years of education	-.01	-13**	.05					
5.Information	.25**	.25**	.19**	.03				
Information sources								
6.Internet	.04	-.06	-.33**	.09*	.18**			
7.Television	.17**	.20**	.06	-.10**	.33**	.18**		
8.Radio	.00	.02	.13**	.17**	.12**	.06	.09*	
9.Printed newspapers	.00	.03	.14**	.14**	.10**	-.02	.17**	.30**

** $p<.01$; * $p<.05$

6.2. Hypotheses verification

A model was tested assuming the following relations: (a) information consumption in the last month would increase both concern about Covid-19 and fear of Covid-19; (b) being female and (c) age also would increase both reactions; (d) Years of education would decrease both. We estimated the fitness and parameters of the path analysis through the maximum likelihood method. As usually suggested, we tested the model fit using different indexes (Hu & Bentler, 1998). All the indexes were acceptable indicating a good fit between the model and the observed data: χ^2 (5) = 9.46, p = .09; χ^2/df = 1.89; Comparative Fit Index (CFI) = .98; Tucker–Lewis Index (TLI) = .94; RMSEA = .037. Figure 1 shows the model in graphic form.
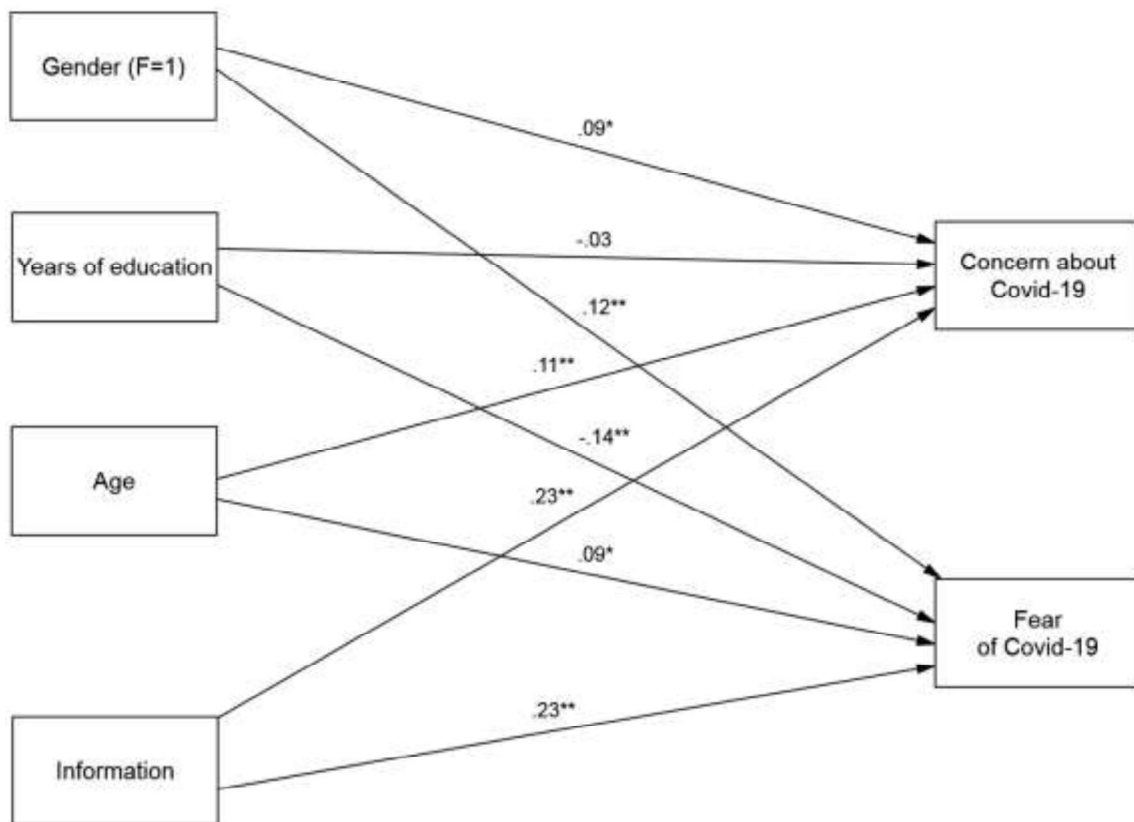
Figure 1. The model tested: standardized regression weights
** $p<.01$; * $p<.05$
Note. Errors and correlations are omitted from the figure for enhance viewing. Correlations: Years of education and Information ($r=.19**$); Concern about Covid-19 and Fear of Covid-19 ($r=.34**$).

We found the following significant relationships. Information increased both concern about Covid-19 (β =.23) and fear of Covid-19 (β =.23). Being female had a positive effect on concern (β =.09) and fear (β =.12). Age increased concern (β =.11) and fear (β =.09). Years of education had a negative effect on fear (β = -.14). The model explained the 8% of the variance of concern about Covid-19, and the 11% of that of fear of Covid-19.

Finally, we performed an ANOVA to compare the means of concern about Covid-19 and fear of Covid-19 among participants who mainly left home for shopping during lockdown, participants that shopped both going to local shops and markets and using home delivery services, and participants who used mainly home delivery services (participants who chose the option "I did not shop personally" were excluded from this analysis). ANOVA showed no differences among groups in concern about Covid-19, whereas in reference to fear of Covid-19 the test was significant (F=3.33; $p<.05$). The Bonferroni test post hoc showed a significant difference ($p<.05$) between participants who mainly left home for shopping during lockdown (M=3.14; SD=1.08) and the ones who used mainly home delivery services (M=3.61; SD=0.90).

7. Discussion

The participants of the present research, carried out immediately after the lockdown restriction were lifted, reported that they were very concerned for the safety and wellbeing of the national community of belonging. On average, they estimated the Covid-19 pandemic very serious for Italy.

As hypothesized, a strong relation between information and fear of the virus has been found. Participants who expressed higher levels of fear and concern were the ones who kept more informed about the pandemic during lockdown. Among the variables taken into account in the study, information resulted the one with the strongest relation with both fear and concern. This result confirms similar relationships found studying other sources of fear and concern (Callanan, 2012; Tartaglia et al., 2019; Wang, 2017). We may interpret this relation using the theoretical framework of the culture of fear (Glassner, 1999). Because dramatic events attract public attention, news gives a lot of space to this kind of events and tend to dramatize information about popular topics (Altheide, 2002). Actually, mass media dedicated great space to information about the Covid-19 outbreak, often recurring to emotional representations and sensationalism (Pradana et al., 2020; Tejedor et al., 2020; Wen et al., 2020). News may have increased among the public the impression of vulnerability to the new disease and negative emotional reactions like fear and concern.

The Internet was the most used medium to keep informed, but television was the only one correlated to fear and concern about the virus. Compared to television, in the web individuals may find a wider variety of opinions and news (including fake news), that may foster controversial reactions to the event. Television was the second most used medium to keep informed and the only one equally used by all ages; the Internet resulted more used by the youth, whereas radio and printed newspapers by the elderly.

As expected, women declared to be more scared and concerned by the pandemic compared to men. Similar results referring to different hazards, for example crime, were attributed to the higher vulnerability of women (Franklin et al., 2008). This interpretation is not valid for Covid-19 case, which is equally dangerous for women and men. We may think that women describe themselves as more scared and concerned than men because of gender stereotypes, which encourage them to voice their emotions and weakness, and men to conceal both. On the contrary, the hypothesis of perceived vulnerability is plausible for interpreting the relation between age and both reactions to the

pandemic. The elderly were more scared and concerned, and actually they were the ones more vulnerable to the negative consequences of the infection.

Years of education were negatively related to fear but not to concern. Previous studies showed that individuals with lower education have higher perception of being exposed to a variety of hazards (Rundmo & Nordfjærn, 2017; Tartaglia et al., 2019). This perception may lead to be more scared by new and difficult-to-understand phenomena like the spread of Covid-19. Furthermore, education is a proxy of the economic level of individuals. People with fewer socioeconomic resources may feel less able to cope with the negative consequences of the virus and thus perceive themselves more vulnerable and experience higher level of fear. Secondly, compared to middle class members, among which a great number are white-collar workers, lower classes members mainly have job that cannot be done at home (e.g., blue-collar workers, bus drivers, waiters, etc.). For these workers, lockdown meant stopping working, experiencing uncertainty for the future, or being exposed to potential risk by getting to work.

As expected, participants who mainly left home for shopping during lockdown had less fear compared to the ones who did not. Fear is a defensive response that motivates the avoidance of possible sources of danger (Öhman, 2000). Therefore, the most fearful participants seemed to avoid leaving home if not absolutely necessary. On the contrary, the concern for the country was not related to this personal behaviour.

The present study has some limitations that result in recommendations for future research. The research was based on correlational data, which weaken the evidence in support of the direction of the relationships between the variables. Longitudinal and experimental studies are needed to strengthen the interpretation of these results. One more limitation is the use of single item indicators for reactions to Covid-19; future research could benefit from the use of multiple indicators scales unavailable at the time the study was conducted. Furthermore, because of the nonprobability sampling technique used, it is important to exercise caution in interpreting the results. Finally, the study may be influenced by cultural factors of the Italian context, so that the results cannot be generalized to other contexts without some replication.

8.   Conclusions

This study confirmed the close connection between information and fear. As previously demonstrated with respect to other issues that had a lot of space in news, such as terrorism, crime, or economic crisis, for Covid-19 pandemic too the more participants kept informed the more were scared. The consumption of news resulted by far the most related variable to both fear and concern, surpassing age too, that is highly correlated to Covid-19 mortality rates. Although fear is adaptive for humans and animals, motivating the avoidance of possible dangers, it has several negative psychological and social consequences. The insecurity generated by the Covid-19 pandemic had a negative impact on the mental health of the general population (Pieh et al., 2020; Zhou, et al., 2020), fostered prejudice toward specific social groups (Pradana et al., 2020), and threatened social cohesion (Prosser et al., 2020). In democratic regimes, journalists have the great responsibility of a correct information of the public opinion, but they should be also aware of the great impact the mass media have on the viewers' and readers' emotions. When reporting potentially dangerous events it is important to avoid sensationalism and dramatization in order to limit the activation of exaggerated fear among the population. Politicians too should take care not to further this tendency of news, because of the well-known negative impact of fear appeals on public health (Stolow et al., 2020).

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