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Psychological factors predicting social distance during the COVID-19 pandemic: an empirical investigation

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Article info

Abstract

Numerous nations around the world are facing exceptional challenges in employing measures to stop the spread of COVID-19. Following the recommendations of the World Health Organization, a series of preventive measure have been adopted. However, individuals must comply with these rules and recommendations in order to make such measures effective. While COVID-19 was climaxing, it seemed of crucial importance to analyze which psychosocial factors contribute to the acceptance of preventive behavior, thus favoring the management of COVID-19 worldwide health crisis. In particular, the identification of aspects related to obstacles and facilitations of adherence to social distancing has been considered as crucial in the containment of the virus spread. We hypothesized social distance could be influenced by individual psychological differences and target's characteristics. Specifically, since the virus was firstly detected in China, we assumed Asian people could be considered a relevant outgroup targeted for exclusion.

260 participants participated in this research on a voluntary basis. They filled a survey designed to explore a series of COVID-19 measures (such as exposure to virus and fear of infection). Participants' state and trait anxiety was also assessed. The dependent variable was social distance, based on a measure of seating distance, designed ad hoc for the present study. Our hypothesis that participants could reports greater distance in response to Asian people was not confirmed. On the other hand, significantly lower distance in response to smiling compared to coughing targets was displayed. Finally, adopting a regression analysis model, we found that participants' social distance, in response to both coughing and smiling targets was predicted by fear of infection and by the perception COVID-19 could become a pandemic. Social distance in response to coughing target was also significantly and positively predicted by age and state anxiety. In summary, the present work has sought to identify a set of psychological variables, which may still be relevant in predicting social distancing.

Keywords: COVID-19; social distancing; health; preventive behaviors; risk of infection.

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Introduction

Rates of COVID-19 infections have rapidly risen worldwide reaching pandemic proportions, with more than 219 million people infected. Compared to the seasonal flu, COVID-19 was found to be highly contagious, with the average infected person spreading the virus to up to three other individuals.

During the last 18 months, communities around the globe have faced unusual challenges to effectively reduce the spread of SARS-CoV-2 virus. In fact, numerous governments have applied measures that severely hinder many daily activities (Anderson et al., 2020; Kraus et al., 2020). For instance, most authorities have required citizens to adopt behaviors, such as wearing a face mask, sanitize hands frequently and have forbidden gatherings of two or more individuals from different households (e.g., Ferguson et al., 2020).

In this scenario, social distancing has been immediately identified as one of the primary strategies to contain the COVID-19 transmission. In particular, the World Health Organization (2020) recommends social distancing to slow the spread of virus. Social distancing implies keeping physical distance from others, including family, friends and loved ones. Nonetheless, such paradigm is ineffective in impeding contagious spread if not adhered to (e.g., West et al., 2020).

Cleary, this seems an easy and rational method to contain the virus spread. Yet, such behavior opposes human tendencies when being threatened. As a matter of fact, in such situation, individuals ancestrally show a tendency to seek social contact and closeness to others (Dezecache et al., 2020; Mikulincer & Shaver, 2003).

Considering that social distancing imposes significant lifestyle changes and it may potentially still be required for a long time, it seems crucial to understand which factors facilitates or prevents adherence to such behavior. Besides perceived effectiveness, the role of perceived severity of the disease and perceived susceptibility is well documented in previous studies. For instance, during H1N1, perceived severity of the virus was related to intention to comply with recommended preventive measures (Bults et al., 2011). Similarly, perceived risk susceptibility was associated to H1N1 vaccination intention in a sample of pregnant women (Tucker Edmonds et al., 2011).

Considering COVID-19, numerous studies suggested that fear of infection can be one of the main predictors of social distancing (e.g., Harper et al., 2020). Furthermore, several cross-sectional works (e.g., Clark et al., 2020) have found a correlation between trust in governmental figures and compliance with preventive health behaviors. Accordingly, a reduction in geographical mobility, which can be considered an indicator of adherence with lockdown and social distancing measures, has also been observed in Europe regions with high pre-pandemic levels of trust in government and politicians (Bargain & Aminjonov, 2020).

COVID-19 global spread was also accompanied by a reported rise in the stigmatization of Asian-looking individuals (e.g., Devakumar et al., 2020; Gover et al., 2020; Ng, 2020). In this vein, people perceived to look Chinese have been stigmatized based on their appearance, increasing social exclusion and avoidance behaviors (e.g., O'Brien & Major, 2005).

Accordingly, since the beginning of the pandemic, 58% of Asian Americans have reported that expressions of anti-Asian sentiment have become more common (Ruiz et al., 2020) and 60% have reported witnessed someone blaming Chinese (or Asian) people for the virus (Ellerbeck, 2020). In a similar vein, a research (Ruiz et al., 2020) reported that over 40% of participants stated they would engage in discriminatory behaviors, at least one, toward Asian people (or individuals of Asian descent).

These data are corroborated by concrete facts. Asian American communities have experienced an increased rate of discrimination ranging from intimations to physical assaults. On a similar vein, a recent work (Jeung & Nham, 2020) reported around 1,500 cases of harassment against such community between March and April 2020.

At that time, narratives that place the blame for the virus spread on Chinese, or Asian people more broadly, were pervasive in Europe and in the U.S. (see Noel, 2020, for a review). Numerous studies have demonstrated how peoples' worries about COVID-19 might enhance prejudice toward such outgroup. For instance, an experimental work (Tabri et al., 2020) demonstrated that Americans being primed with thoughts of COVID-19 as an existential threat showed higher anxiety and arousal levels, which in turn increased anti-Asian bias. Similarly, a large survey revealed that Americans more concerned about the virus also manifested stronger anti-Asian sentiment (Reny & Barreto, 2020).

To the best of our knowledge, no empirical studies assessing prejudice towards Asian have been conducted within the Italian context. However, in a related vein, it has previously been found that Italian citizens who reported higher Ebola infection risk perception showed a tendency to express greater prejudice toward African immigrants (Prati & Peitrantoni, 2016). For the sake of clarity, Ebola epidemic took place in West Africa in 2014 and, overall, Italy reported only 2 Ebola cases.

Taking these findings into account, the main goal of the present study was to analyze the relative contribution of individual psychological factors to social distancing behavior during COVID-19 outbreak. Furthermore, this work aimed at analyzing whether social distancing could be greater for outgroups strongly associated with the disease (Chinese or Asian looking people).

Methods

260 participants (203 women) who ranged in age from 18 to 79 years (M = 37.16, SD = 12.62) completed a web-mediated survey on a voluntary basis. They did not receive any compensation in exchange for their participation. Data were collected between March 10 and March 30, 2020. Participants were informed about the research and consented to the use of their anonymized data.

The survey, firstly, consisted of several questions about socio-demographic data.

This was followed by a section concerning COVID-19 emergency measures. In particular, it was assessed exposure to the virus, knowledge of the virus and governmental performance in response to the pandemic. Fear of infection and feeling of insecurity were derived from a scale adopted to measure such feeling in response to the SARS (Ho et. al., 2005). Perceived chance of having a large-scale COVID-19

outbreak was measured to assess participants' perception of the magnitude of the virus spread. State and Trait Anxiety were assessed using the State-Trait Anxiety Inventory (STAI; Spielberger, 1983). The dependent variable was a measure of social distance designed ad hoc for the present work.

Measures

Exposure to the virus (e.g., "Have you had contacts with patients who exhibited symptoms related to COVID-19?") was measured via a 7-items scale, designed ad hoc to assess participants contact with the virus. The items required a "yes" or "no" answer.

Knowledge of the virus (e.g., "COVID-19 is caused by a kind of bacteria called streptococcus") was assessed with a 10-items instrument. These items were developed to investigate respondents' knowledge about COVID-19 and the answers option were: "Yes", "No" or "I don't know". A total score was calculated by summing all correct answers.

Governmental performance in response to the pandemic was assessed by 5 items, measuring respectively: timeliness of measures, effectiveness of implemented measures, clarity of explanations furnished to citizens, adequacy of hygienic measures and adequacy of isolation and quarantine procedures. Participants had to evaluate government performance on a scale ranging from 0 (*terrible*) to 5 (*excellent*). An average score was calculated for the 5 items. In this sample, Cronbach's α was .87.

Fear of infection (e.g., COVID-19 makes me... fear that I will be infected") and *feeling of insecurity* (e.g., "COVID-19 makes me... feel very unsafe about myself") were assessed via two three-items scales. Items were answered on a 5-point Likert scale ranging from 1 (*definitely false*) to 5 (*definitely true*). Cronbach's α were respectively .80 and .83.

Perceived chance of having a large-scale COVID-19 outbreak was measured via a three items scale designed to measure participants' perception of the likelihood there was going to be an increase of the virus spread (1) in their region, (2) in Italy and (3)

around the world. Items were answered on a scale ranging from 1 (*not at all*) to 5 (*extremely*). In this sample, Cronbach's α was .80.

State and trait anxiety were assessed using the well-known instrument (STAI) developed by Spielberger (1983). The STAI is based upon a theoretical conception of anxiety as having two different facets. Specifically, the trait scale was developed to measure a more enduring characteristic presence of anxiety, whereas the state scale was intended to assess a temporary state of arousal subjectively experienced as anxiety.

This instrument consists of two 20-item self-report measures specifically designed to assess both aspects and it has shown excellent psychometric properties. The Trait form consists of 20 statements (e.g., "Some unimportant thoughts run through my mind and bother me"), for each of them participants are asked to rate how they generally feel on a 4-point Likert scale ranging from 1 ("almost never") to 4 ("almost always"). The State form contains 20-items aimed at measuring how much tension, worry or apprehension the respondent experiences in the present circumstances. Items (e.g., "I feel nervous") emphasize the intensity of particular symptoms (ranging from 1 = "not at all" to 4 = "very much so"). Reliability for the two scales in this study was respectively .95 and .87.

Social distance was conceptually derived from the seating distance measure (previously used by Halim et al., 2017). Specifically, it involved participants' choice of seating next to a Caucasian *vs.* Asian, man *vs.* woman, smiling *vs.* coughing person. Using such procedure, we obtained participants answers in response to 8 different targets (represented using 8 distinct photos). The response format was a 4-point scale (1 = *seat next to the person*, 2 = *two seats from the person*, 3 = *three seats from the person*, 4 = *four seats from the person*).

Results

Correlations between variables are presented in Table 1.

To verify our hypotheses about the targets proposed, we run 2 T-tests. These analyses revealed no difference in response to the

Tab. 1. Inter-correlations among study variables and Cronbach alphas

	1	2	3	4	5	6	7	8	9	10	11	12
1. Timelapse	(-)											
2. Age	.133*	(-)										
3. Gender	-.052	-.033	(-)									
4. Education	.173**	.181**	-.066	(-)								
5. State anx.	.051	-.112	.123*	.026	(.87)							
6. Trait anx.	.010	-.279**	.103	-.119	.499**	(.95)						
7. Infection	-.033	-.215**	.080	.023	.361	.246**	(.80)					
8. Insecurity	.111	-.049	.062	.119	.569**	.392**	.409**	(.83)				
9. Outbreak	.079	-.049	-.026	.144*	.291**	.133*	.261**	.337**	(.80)			
10. Expo.	.107	.129*	.056	.013	.072	.030	-.015	.001	.080	(-)		
11. Know.	.050	-.020	-.185**	.115	-.006	.062	-.027	-.062	.060	.099	(-)	
12. Gov.	.097	.079	-.223**	.069	-.154*	-.172**	-.001	-.083	.008	.049	.093	(.80)

Note. N = 260; In bracket (Cronbach's Alpha). *p< .05; **p< .01. State anx. = State anxiety; Trait anx. = Trait anxiety; Expo. = Exposure; Know. = Knowledge; Gov. = Government performance.

ethnicity of the targets (Caucasian *vs.* Asian; see Figure 1), whereas a significant difference emerged, as it can be easily hypothesized, when the targets considered were people smiling *vs.* coughing. In such case, in fact, participants reported significantly greater distance in response to coughing targets (see Figure 2).

Fig. 1. Social distance as a function of participants answers in response to the ethnicity of the targets
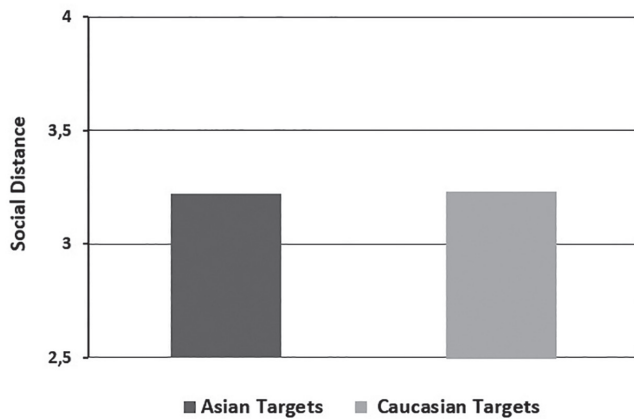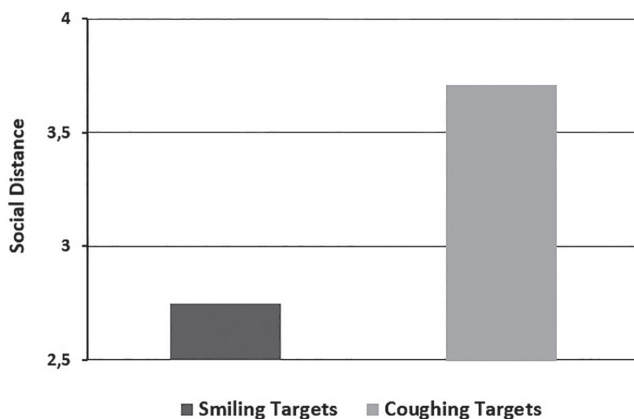

Fig. 2. Social distance as a function of participants answers in response to health condition of the targets

More importantly, adopting two regression analysis models (see Table 2), we tested the hypothesis that social distance in response to smiling or coughing targets could be predicted by individual psychological variables.

In the first regression model, we found that participants' reported social distance, in response to coughing targets, was significantly and positively predicted by age, with older people reporting greater distance ($b = .18$, $p = .004$), state anxiety ($b = .16$, $p = .041$), fear of infection ($b = .34$, $p < .001$) and by the perception COVID-19 could become a pandemic ($b = .13$, $p = .033$).

Surprisingly, however, exposure to COVID-19, insecurity caused by virus, knowledge of the virus and evaluation of the measures adopted by the government were not found to be predictive of participants' distance with regards to coughing people. None of the others controls variable (i.e., gender, education and timelapse between the submission) was significant.

In a second regression model (See Table 2), considering the same predictors, but smiling targets as dependent variable, social distance was positively and significantly predicted only by fear of infection ($b = .15$, $p = .029$) and by the perception COVID-19 could become a pandemic ($b = .19$, $p = .004$). None of the other variables was significant.

Tab. 2. Summary of final regression model with coughing or smiling targets as outcome

	Coughing targets		Smiling targets	
	Beta	p	Beta	p
Gender	.10	.094	.04	.532
Age	.18	**.004**	.13	.057
Education	-.10	.080	-.01	.931
Timelapse	.07	.256	-.06	.318
State anxiety	.16	**.041**	-.02	.794
Trait anxiety	-.11	.124	-.07	.358
Infection	.34	**.000**	.15	**.029**
Insecurity	-.09	.241	.05	.574
Outbreak	.13	**.033**	.19	**.004**
Exposure	-.08	.178	.05	.469
Knowledge	.07	.219	.03	.624
Government performance	.07	.269	-.01	.845
R²	.202		.094	

Note. N = 260.

Discussion

Since the beginning of the pandemic, social distancing has been an effective preventative policy that has been enforced by governments worldwide. However, substantial differences have been observed in adherence to such measure across individuals and countries. Many citizens have adhered to the limitations from early on, but there was a significant variance in acceptance.

In line with these notions, recognizing the main psychological factors implicated in people adherence to social distancing throughout the pandemic health crisis was highly crucial.

The results of our study suggest that individuals, during the first phase of the pandemic, were more incline, as it might be expected, to seat next to a smiling person compared to a coughing one. In this sense, people were clearly more prone to keep social distance in response to individual showing symptoms related to the COVID-19 (i.e., coughing). Nonetheless, we should consider that, even when approaching individuals who seem healthy, one should respect social distancing to reduce the risk of transmission (Koo et al., 2020). That is because individuals can also spread the virus unknowingly. For this reason, keeping social distance is deemed one of the most effective measures to decrease infection rate during COVID-19 pandemic.

On the other hand, since the virus was firstly detected in Wuhan, China, we tested the hypothesis that participants could report greater distance in response to Asian people. However, our results did not support such idea. As mentioned, this hypothesis was related to the fact that, during the first phase of the virus spread, Asian were considered by the media as the main vehicle. However, at least in the Italian scenario, it seems that social distancing, already during the first COVID-19 wave, was not influenced by the ethnicity of target individuals.

These results are consistent with the ones (Koller et al., 2021) obtained in another European nation (i.e., Germany). In fact, this work reported no evidence for an increase in the stigmatization of Chinese and Asian-looking people. In particular, worry about shaking hands with a Chinese looking individual did not increase rising threat levels and was significantly lower than worry about shaking hands with a person who has recently travelled to China. Additionally, another study (Sorokowski et al., 2020) showed that greater exposure to COVID-19-related news was linked to more negative attitudes towards Italians, but not towards Chinese or other nationalities.

According to these results, it has been found (Xu et al., 2021) how stigmatization of different geographic target groups seems to be function of COVID-19 prevalence. Thus, it seems plausible to affirm that the specificity of such results may be due to the concurrent epidemiological situation. In this vein, it is important to specify that, at the time of the study, Italy was already severely affected by the virus.

The present research also had the goal to shed light on the relative contribution of individual factors (e.g., fear of infection) to social distancing during the pandemic. In this vein, it has been found that individuals, at least in the first phase of the virus spread, were more willing to respect social distance if they were afraid of being infected and if they believed the virus could spread worldwide. Coherently, the first studies on such topic have demonstrated risk of infection may be positively and significantly associated with the respect of preventive behaviors. For instance, it has been found (Lunn et al., 2020) that messages highlighting the risk of infecting large numbers of people as the risk of infecting vulnerable people may lead to higher intentions to engage in social distancing, increasing acceptability of such behaviors.

Looking at sociodemographic variables, such as, age, gender and education, we found that older individual reported a higher tendency to seat further from other individuals. This effect was stronger for coughing target, whereas for smiling target it was only trending toward significance. These results are coherent with the fact that mortality from and severity of COVID-19 is higher among older individuals (Iaccarino et al., 2020).

Surprisingly, knowledge of the virus did not significantly predict social distancing. In contrast, it should be noted that previous works (e.g., Al-Hasan et al., 2020) have found that a greater COVID-19 knowledge positively predicted social distancing adherence.

Finally, it is important to underline that state anxiety, which has generally a negative connotation due to its association with depression, somatic problems, and general psychopathology (e.g., Gotlib, 1984), may in such case represent an important protective factor.

Limitation

Of course, there are several factors limiting the generalizability of these results. Specifically, first criticisms are related to the use of a convenience sample (i.e., recruited on social media) and to the imbalance of the sample (i.e., 78% female). The present work relies on self-report answers and social desirability must be taken into account when examining sensitive issues.

Then, it should be recognized that these data are limited to responses from white, Italian citizens during a specific moment of the COVID-19 pandemic.

On the other hand, the cross-sectional nature of the study allowed for testing of relations between predictor and outcomes at one point in time, but longitudinal assumption cannot be made. It should be acknowledged that many aspects of life in Italy have changed since the early days of the virus outbreak. In this vein, we could not be sure to observe a similar pattern of results nowadays. At the time of data collection, in fact, approximately 10.000 Italians were reported to have died of COVID-19. At the time of writing (September 2021), more than 130.000 people in Italy have died of COVID-19 (Ministry of Health, 2021).

Moreover, social distancing measure has been adapted from previous works having different goals and its psychometric properties are currently unknown. Lastly, the choice of the targets could not cover a complete range of people that participants might encounter in their real life.

Conclusion

In conclusion, despite the massive diffusion of the COVID-19 vaccines, social distancing is still one of the main effective instruments for containing the pandemic. In this vein, the present work has identified a set of psychological variables, which may still be predictive of behaviors (such as keeping social distance) oriented to the prevention of the COVID-19 diffusion.

Nonetheless, future studies should investigate whether associations between intensity perception of disease outbreak and adherence to preventive behaviors shift or remain stable across the lifespan of a pandemic, particularly in light of people's proximity and exposure to disease changes.

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