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Cleanliness and prejudice in times of pandemic

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## **Abstract**

The COVID-19 pandemic has led to restrictions in our contact with others and the introduction of social distancing barriers. These rules can enhance the psychological mechanisms resulting from fear of contamination and may lead to exacerbating prejudiced attitudes towards certain social groups seen as possible carriers of infection. Fear of infection and ideas about cleanliness and dirtiness have indeed historically and culturally influenced the way we interact with other people, both on an interpersonal and an intergroup level. The aim of the present research is to analyse whether the concern about COVID-19 is linked to prejudices towards other social groups and whether this relationship is mediated by individual representations of cleanliness. Results on 251 Italian citizens showed that concerns about COVID-19 are positively related to prejudicial attitudes towards immigrants and that such a relation is indeed mediated by so-called cultural representations of cleanliness. Specifically, the so-called cultural representations of hygiene – by which people and groups are categorised as being more or less civilised on the basis of their cleaning practices – was a significant mediator.

**Keywords:** COVID-19; prejudice; cleanliness; contamination

## **Cleanliness and Prejudice in times of Pandemic**

The health emergency caused by the COVID-19 virus pandemic, which is thought to have first started in China and then spread to Europe and especially Italy in February 2020, has introduced some specific words in our daily discourse given the constant media spotlight (see Emiliani et al., 2020). People have begun to discuss the spread of the infection, disinfection, health rules, hygiene, germs, and of course viruses. Moreover, the precautionary measures implemented by the various governments to curb the contagion and fight the pandemic, by way of forced isolation and distancing, has changed the way we relate to others (Ellena et al., 2020). The consequences could affect relationships between people for many years to come (Onochie & Jallow, 2020). Italy, which is traditionally a land of embraces and handshakes, soon discovered a sense of suspicion and a cold distancing between people.

As a matter of fact, the fear of contagion and ideas about cleanliness and dirtiness are not new and have always historically and culturally influenced the way we interact with other people, both on an interpersonal and intergroup level. As various studies (for a review, see Duschinsky et al., 2017; Speltini & Passini, 2014, 2016) have shown, prejudice itself sinks some of its cultural roots in the ideas of dirtiness and cleanliness attributed to various social groups. For instance, the Roma people are considered by the other groups as particularly dirty and “impure,” while the same belief is shared by the Roma people about the non-Roma groups (Piasere, 2004). The risk stemming from the pandemic we are experiencing is that it will not only affect our daily relationship with cleanliness, but that it will also support and make explicit prejudices against foreign groups considered to be contagious and infected. Although since the beginning of the first cases of infection spread and death there has been a gradual increase in general concern for the pandemic situation in progress, inter-individual differences can be recognized regarding the concern about COVID-19. According to iXE Institute (2020), in October 2020 one third of Italians declared they were seriously concerned, showing a definite increase compared to the summer, but still showing some individual variability. From a psychological point of view, people can indeed react differently

to a pandemic situation, as already shown by studies related to past pandemics (see Green et al., 2010) and also to the one being experienced today (e.g. Meleady et al., 2021). As Green and colleagues (2010) have pointed out, disease-avoidant psychological responses vary across people. This variation may have a different impact on psychological distancing from certain social groups. In the present research, the aim is to analyse whether concern for COVID-19 is linked to prejudices towards other social groups – in the terms that the greater the concern, the greater the discriminatory attitudes toward minorities – and whether this relationship is explained by individual representations of cleanliness.

### **Contamination, Concern for COVID-19 and Prejudice**

In accordance with Rachman (2004, p. 1229), “contamination is an intense and persisting feeling of having been polluted or infected or endangered as a result of contact, direct or indirect, with a person/place/object that is perceived to be soiled, impure, infectious or harmful.” This author argues that the fear of contamination is powerful, complex, intense, variable in content, and probably universal. Long before COVID-19, Markel (2004), a physician and medical historian, stated that the human struggle against germs is endless and the epidemics have plagued humanity since ancient times. If this is so, then the problem of contamination has very ancient roots in human societies. In accordance with Rozin and colleagues (2008), the response to contamination is a distancing behaviour from the perceived source of contagion and this universally appears in adults and different cultures. That being the case, such a fear can also lead to a social distancing from certain social groups. As a matter of fact, the history of epidemic diseases has shown that immigrants have often been designated as carriers of the infections and very often “immigrants have been stigmatized as the etiology of a wide variety of physical and societal ills” (Markel & Stern, 2002, pag. 757). In their studies on epidemics in the USA, Markel and Stern pointed out that the idea of *diseased* immigrants, as carriers of viruses and germs, allowed the use of medical labels of exclusion, which became widespread in public discourse.

Several studies in social psychology (e.g. Faulkner et al., 2004) have indeed shown that concerns about collective health threats can lead to the expression of discriminatory attitudes towards certain outgroup members. For instance, in the context of a potential avian influenza pandemic, Green and colleagues (2010) found a relationship between the perceived disease threat and discriminatory attitudes against immigrants. Similarly, recent studies (e.g. Meleady et al., 2021; Reny & Barreto, 2020) revealed that in the current pandemic context, individual differences in concerns for COVID-19 and perceived vulnerability to disease explained variability in outgroup prejudice (see Esses & Hamilton, 2021 for a comment).

As a matter of fact, looking at various historical episodes, health emergencies have always been associated with some groups and contexts, to the point of naming the disease itself after a country, albeit erroneously (e.g. “Spanish flu,” Demirtaş-Madran, 2020). Even during the recent pandemic, we are still struggling to overcome what has often been referred to as the “Chinese ‘flu,’” or the “Wuhan virus,” owing to its source. This labelling has led to a rise in attitudes and episodes of discrimination against people of Asian origin, simply because of their group affiliation (see He et al., 2020). Albeit to a lesser extent, such incidents of prejudice have also affected other minority groups, such as Africans in China or Muslims in India (Demirtaş-Madran, 2020).

In view of the specific threat of a virus pandemic like the current one, the literature (e.g. Faulkner et al., 2004; Meleady et al., 2021) has also considered the influence of the emotion of disgust and of categorising certain social groups as dirtier and more impure in explaining discriminatory attitudes towards members of such groups. Therefore, in explaining prejudice stemming from a pandemic, our representations of cleanliness should have an impact on our relations with other people and groups. Some studies have indeed shown a connection between disgust and prejudice in this COVID-19 period. For instance, Meleady and colleagues (2021) have found an influence of disgust sensitivity on outgroup distancing especially in situations of high pathogen concerns. Similarly, Luca and colleagues (2021) found an effect of disgust sensitivity on outgroup bias in the context of an elevated health threat, such as the COVID-19 pandemic. Both the

emotion of disgust and the fear of contamination are rooted in the representations of the antinomies dirty/clean, pure/impure. These representations signal the need to order and separate the familiar from the non-familiar which every society must come to terms with for its symbolic foundation (Douglas, 1966). The period of pandemic caused by COVID-19 has indeed emphasized some underlying issues in human societies. The rules of social distancing, recommended by the national health service during the COVID-19 epidemic, amplify the “natural” characteristics of the fear of contamination, namely by distinguishing, dividing, and distancing. There is, therefore, a sort of common thread that connects contamination, disgust, the antinomies cleanliness/dirtiness, purity/impurity, and social avoidance and discriminatory attitudes towards others.

Schnall (2011) argues that cleanliness is not just a matter of individual hygiene. Indeed, it has important repercussions on group cohesion and shared worldviews as well, as it also marks the boundaries between “us” and “others,” between fellow citizens and foreigners. Starting from an examination of the conceptions of clean/dirty and pure/impure that have emerged in historical, anthropological and religious contexts, Speltini and colleagues (2010, 2018) have identified some commonly shared representations of cleanliness. Specifically, in their last study (Speltini et al., 2018), the authors identified three distinct representations: a rigid conception of hygiene, which comprises all the rituals of frequent cleaning, washing, and disinfection; a conception (defined “cultural”) that emphasises the existence of categorisations that see people labelled as more or less civilised on the basis of washing practices; finally, a so-called soft representation that includes a less rigid and more flexible view of hygiene practices. This study has shown significant connections between respondents’ conceptions of cleanliness, prejudice and political orientation. Specifically, results identified people with rigid cultural representations of cleanliness as those individuals who attach more importance to discriminatory attitudes and share more right-wing political positions. Similarly, Inbar and colleagues (2009) found that the sensitivity to cleanliness and purity is connected to conservative opinions and attitudes.

## **Hypotheses**

The aim of the present research is to analyse the effect of concerns consequent to the COVID-19 pandemic on prejudicial attitudes towards immigrants and the mediation effects of representations of cleanliness on this relationship. Indeed, we expected that the concern for COVID-19 experienced during the lockdown phase could lead to a distancing from other cultures, and that would be explained by having representations of cleanliness marked by a certain rigidity and especially by a certain hygienic ethnocentrism (i.e., cultural representation). Specifically, we hypothesized that concern for COVID-19 is positively associated with prejudice (Hypothesis 1), and that strict and cultural hygienical representations mediate this relationship (Hypothesis 2).

## **Methods**

### **Participants**

The participants were contacted online, using an Internet questionnaire constructed using Limesurvey, a survey-generating tool (<http://www.limesurvey.org>). The participants were recruited by means of a *snowballing* procedure. Students involved in the study were asked to recruit adult individuals. Respondents were advised that their participation was voluntary and that their responses would remain anonymous and confidential. No fee was offered. The questionnaire was drafted in Italian. The subject's IP address was monitored in order to check and, if need be, prevent anyone from re-entering the survey site. The data were collected in March 2020.

A total of 251 Italian participants (59.8% women) responded by accessing the website and filling out the questionnaire. Participant ages ranged from 18 to 63 years ( $M = 30.62$ ,  $SD = 10.73$ ). As regards their level of education, 11% declared they had completed middle school, 46.1% declared they had earned a high school diploma, 38.8% had a Bachelor's degree and 4.1% a Master's or Ph.D. qualification. Job-wise, 35.1% stated they were white-collar workers, 32.6% university students, 13.2% self-employed, 9.9% factory workers/artisans, 5% teachers, 2.1% unemployed, 0.4% retired, and, finally, 1.7% chose *other*.

### **Measures**

All the measures employed a seven-point response scale (ranging from 1 = *not at all* to 7 =

*very much*).

**Concern for COVID-19.** Participants were asked to answer three questions related to their concerns about the COVID-19 pandemic: “How worried are you about the coronavirus?” “How worried are you about your relatives and loved ones as regards the risk of contagion?” and “How often do you think about the coronavirus?” These three items were not related to specific concerns (such as health, economic problems, travel or freedom problems, etc.), but to a general concern. Indeed, it was considered relevant, in understanding how the current pandemic affected relationships with others, that the concern arising from COVID-19 could be generated from multiple sources. A concern for COVID-19 index was computed ( $\alpha = .77$ ).

**Cleanliness representations.** This construct was measured by an Italian scale constructed and validated by Speltini and colleagues (2018). For the purpose of this research, two dimensions were used (see Table 1 for the items), as in the original work the soft hygiene dimension was not related to any discriminatory attitudes: *strict hygiene* (7 items) that identifies a representation of cleanliness based on a strict conception with respect to the current standards of cleanliness ( $\alpha = .67$ ); *cultural hygiene* (9 items) that describes representations of cleanliness based on the idea of a connection between hygiene and the cultural level of a community or society ( $\alpha = .78$ ). This structure was upheld by a confirmatory factor analysis (CFA) computed with Mplus 7.1 (Muthen & Muthen, 2012). The two-factor model fitted the data well (see Table 1):  $\chi^2(49) = 133.07$ ,  $CFI = 0.95$ ,  $TLI = 0.95$ ,  $RMSEA = .03$ ,  $SRMR = .05$ .

**Prejudice.** The 10 subtle-blatant prejudice scale by Pettigrew and Meertens (1995) was used in its Italian version (Arcuri & Boca, 1996) with reference to immigrants. As discussed by some scholars (Leone et al., 2006), the division between subtle and manifest is subject to various theoretical and methodological limitations. The unidimensionality of the construct was confirmed by means of a principal component analysis (Eigenvalue distribution: 4.76, 0.99, 0.93, 0.69, ...). A general prejudice index was then computed ( $\alpha = .83$ ). Some sample items of the scale are:



“Immigrants have jobs that the Italian should have” and “it is just a matter of some people not trying hard enough. If immigrants would only try harder, they could be as well off as the Italians.”

**Political orientation.** Participants indicated their political orientation (from 1 = *extreme left* to 10 = *extreme right*).

## Results

Participants declared they were very worried about the COVID-19 pandemic (see Table 2). They attached high scores to strict hygiene and low ones to a cultural one, and they were politically positioned in the centre. Bivariate correlations showed that concern for COVID-19 was positively correlated with strict and cultural hygiene, and political orientation. As a confirmation of H1, prejudice was correlated with concern for COVID-19. Statistical power analysis supported the current sample size to detect  $r > |0.20|$ : power = 0.89.

-----INSERT TABLE 2 ABOUT HERE-----

To test Hypothesis 2, a two parallel mediators analysis was conducted by using Hayes' (2013) PROCESS procedure for SPSS based on 10,000 bootstrap samples. The model was controlled for sex, age, and political orientation. Statistical power was estimated through Monte Carlo power analysis for indirect effect tool (Schoemann et al., 2017). Mediation was estimated using the joint-significance test (see Yzerbyt et al., 2018), by which an indirect effect can be claimed when both the effect of the predictor on the mediator and that of the mediator on the outcome were simultaneously significant. As can be seen in Figure 1, results showed that the indirect effect of strict hygiene cannot be claimed as this variable had no significant effect on prejudice. Indeed, as a partial confirmation of H2, results showed that the total effect of concern for COVID-19 on prejudice ( $\beta = .13, p = .02$ ) was just mediated by cultural hygiene (indirect effect  $\beta = .08$ , LLCI = .03, ULCI = .14, sobel test  $z = 2.64, p = .01$ , statistical power = .87), but not significantly by strict hygiene (indirect effect  $\beta = .01$ , LLCI = -.01, ULCI = .04, sobel test  $z = 0.72, p = .47$ , statistical

power = .16), leaving a non-significant direct effect of  $\beta = .07^1$ . As concerns control variables (see Figure 1), age had no significant effects on the other variables, while sex was positively related to cultural hygiene and prejudice, and political orientation to both cleanliness representations and prejudice.

-----INSERT FIGURE 1 ABOUT HERE-----

Given the cross-sectional nature of the data, plausible alternative mediation models were tested to strengthen the confidence in the hypothesized model. Specifically, two models with the two cleanliness representations as independent variables, concern for COVID-19 as mediator and prejudice as dependent variable were tested. Joint-significance test suggested for no indirect effects as concern for COVID-19 had no significant effect on prejudice ( $\beta = .10, p = .08$ ;  $\beta = .06, p = .29$ , respectively). In both cases, the total effect of strict ( $\beta = .20, p < .001$ ) and cultural ( $\beta = .43, p < .001$ ) hygiene was not significantly mediated by concern for COVID-19 (indirect effects:  $\beta = .02, z = 1.36, p = .17$ ;  $\beta = .01, z = 0.95, p = .34$ , respectively), leaving a significant direct effect of  $\beta = .19 (p < .001)$  and  $\beta = .42 (p < .001)$ , respectively.

## Discussion

The aim of this research was to study the links between concern for COVID-19 and prejudice, considering the representations of cleanliness as intervening factors. The distinctive value of this study is to have studied these variables during a global pandemic that has influenced the way we relate to others and our own ideas *vis-à-vis* cleanliness and contact.

As hypothesized, concerns for the COVID-19 pandemic is positively related to prejudicial attitudes towards immigrants. It would seem, then, that the worries triggered by an external factor that cannot be controlled, such as a disease and a virus, are connected with our feelings of hostility towards out-groups, instead that with our behaviours of solidarity. This relationship between

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<sup>1</sup>A similar result was found by using a dimension of cultural hygiene without the two items explicitly referred to immigrants (i.e. “being close to an immigrant...” and “it is unpleasant to enter...,” see Table 1). Prejudice was mediated by cultural hygiene (indirect effect  $\beta = .07$ , LLCI = .02, ULCI = .12, sobel test  $z = 2.54, p = .01$ ), but not significantly by strict hygiene (indirect effect  $\beta = .01$ , LLCI = .00, ULCI = .05, sobel test  $z = 1.08, p = .28$ ), leaving a non-significant direct effect of  $\beta = .06, p = .28$ .

concerns and social distance towards certain groups is mediated by our representations of cleanliness. In line with the historical analyses on cleanliness and studies on the fear of contamination seen in the Introduction, the relationship between concern for COVID-19 and prejudice is explained by our ideas regarding the concepts of dirty, clean, pure and impure. It is worth noting that the mediation was only significant with respect to the so-called cultural representations of hygiene, while the rigid ones had no effect (although there is a significantly positive correlation). The latter is thus not a potential mechanism underlying the link between concern for COVID-19 and prejudice. We can presume that the explanation could be related to a general raising of our barriers to dirt and a global tightening of our level of hygiene, starting from strict government regulations consequent to the rise of the pandemic. As a matter of fact, some of the items included in this sub-scale highlight some prescriptions that all of us have been asked, or practically obliged, to follow (e.g. frequent hand-washing). Rigidity on matters of hygiene has become a shared daily practice. In this sense, this representation may have lost some of its connection with attitudes of prejudice, at least in this particular pandemic period.

Instead, representations that consider hygiene as a way to differentiate between cleaner and dirtier countries and cultures, with an alleged superiority of one's own group, have an effect in explaining the links between concern for COVID-19 and prejudice towards immigrants. This would affect seeing some people as possible vehicles of contagion only because of their group membership. After all, attitudes and behaviours of prejudice and discrimination are linked historically and on a daily basis to the reference to cleanliness (e.g. ethnic cleansing) and dehumanising the other. For instance, dehumanisation is achieved through the use of terms like dirt or animal references considered to be vehicles of infection (ticks, fleas, etc., see Hodson & Costello, 2007). This happened in the case of the genocides of the 20th century, but regrettably it is also common practice in the wars and intergroup violence of this century. It is no coincidence that, at least in some Italian hospitals, there is the discriminatory practice of referring to COVID-19

patients with the term “dirty,” to distinguish them from the other “clean” patients<sup>2</sup>. Finally, as far as political orientation (in Left vs. Right terms) is concerned, the results of this research confirm the existence of a connection between rigid and cultural representations of cleanliness and a more Right-wing ideology.

This research has some limitations. First of all, because the data are correlational, causality can only be inferred. However, the theoretical rationale proposed as well as the results of previous studies (e.g. Carriere, 2019; Duckitt, 2013) support the direction of the model (from concern for COVID-19 to prejudicial attitudes). Secondly, a limitation is related to our measure on the concern for COVID-19. The generic nature of the index indeed leaves unclear what sort of concern participants express, as this may be related to fear of being infected as well as concerns over economic hardship and loneliness. In a future study, it would be interesting to see how these different specific aspects of concerns about this pandemic are related to the variables in question. Nevertheless, we think that the fear of contamination in contemporary times combines various elements, such as bodily anxieties and concerns about the economic and social future. Thirdly, the dependent variable related to prejudice refers to a generic concept and does not specifically refer to the risk of contagion. Future studies should study this more specific attitude of discrimination. Fourthly, the scale of cleanliness representations is rather new and, even if it has been used in other studies, it should be confirmed through future research. Finally, data collection during the pandemic may have been a strength but also a limitation of the research. Indeed, the results found may not necessarily apply in the same way in a situation that is more “normal.” Certainly, considering how this pandemic will affect our lives over the years to come, it will probably be difficult to revert to less strict hygiene representations. Future studies could confirm this hypothesis.

Notwithstanding these limitations, the results presented in this article help us to better understand the situation we are experiencing. Specifically, they suggest how to prevent the

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<sup>2</sup> See <https://www.emergency-live.com/it/salute-e-sicurezza/covid-19-pronto-soccorso-pulito-e-sporco-case-report-sul-triage-allospedale-maggiore-di-bologna/>

pandemic from turning into more distance and distrust between social groups by becoming an apology for destructive and ethnocentric ideologies. Indeed, it would be important if the rules of hygiene and distancing, which are helping us to overcome the current emergency, were accompanied by a toolkit of reflections and information. This should help to dismantle the array of hygiene stereotypes that corroborate the idea of certain groups as being vehicles of contagion and others as being hygienically superior. If it is true, as shown by many authors, that hygienic representations have been historically and culturally differentiated, the use that has been made of such supposed differences over time in support of intergroup violence and conflicts is an equally real and dangerous threat.

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Table 1.

*Confirmatory Factor Analysis on the Scale of Cleanliness Representations*

Item	Strict	Cultu.
Using public toilets exposes you to possible infections.	.58	
It is unhealthy to drink in a people' glass even if you know them.	.52	
Only disinfection ensures the cleanliness of an object or place.	.51	
You should always wash your hands after touching a pet.	.51	
Rather than eating in conditions of poor hygiene, it is better to starve.	.50	
When you visit a sick person, you should wash your hands well afterwards.	.39	
You should shower at least once a day.	.33	
You cannot trust a person who does not care about personal hygiene.		.73
Usually the elderly have unclean homes.		.63
Being close to an immigrant person can create problems because of their poor hygiene.		.62
In our western societies the cleanliness of cities is a sign of the civilization achieved.		.53
Poor neighborhoods are dirtier than rich neighborhoods.		.52
The dirtiness of less developed countries is a sign of their backwardness.		.48
It is unpleasant to enter the dentist's office after a black person has left.		.48
Messy places are certainly dirty too.		.41
If a house is clean it means that its inhabitants are decent people.		.40

*Note.* Cultu. = Cultural. All saturations were significant with  $p < .001$ .

Table 2.

*Means, Standard Deviations and Pearson Correlation Coefficients.*

Measures	<i>M</i>	<i>SD</i>	1	2	3	4
1. Concern for COVID-19	5.12	1.17	—			
2. Strict Hygiene	4.18	1.07	.22***	—		
3. Cultural Hygiene	2.83	0.92	.19**	.44***	—	—
4. Prejudice	2.67	1.01	.18**	.31***	.58***	—
5. Political Orientation	4.76	1.93	.21***	.28***	.41***	.51***

*Note.* All the variables extended from 1 to 7 except for political orientation (from 1 to 10).

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

### Figure Caption

*Figure 1.* Mediation model with control variables. *Note.* Parameter coefficients are standardized; total effect is indicated in parentheses. Path and coefficients of control variables are in gray color. Sex is coded as 0 = female, 1 = male.

