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Psychological well-being and lockdown: a study on an Italian sample during the first COVID-19 wave

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Article info

Abstract

In February and March 2020, the Italian government decided to provide guidelines in order to counter the spreading of Coronavirus disease (COVID-19). Several studies have shown that the first Lockdown deeply affected the psychological well-being of the individuals, but the role of possible protective variables is currently not known. In the present study we aimed to investigate the impact of several psychological variables on individuals' mental states and emotions experienced during the first Lockdown in Italy. Participants were 172 Italian adults and they were asked to answer several questions regarding the intensity of mental states and emotions experienced, the perceived usefulness of lockdown, the feeling of living a normal life, and the coping strategies implemented to face the pandemic. Results showed that, during the first wave of COVID-19 in Italy, only the perceived usefulness of lockdown positively affected people's emotions. This result suggests that a better communication of the experimental findings supporting the political decisions made, and behavioral measures shaped to increase people's commitment to the proposed rules are crucial in order to enhance people's wellbeing. While this result is limited to the first wave and the first lockdown, future research should assess the role of rule acceptance and coping strategies in subsequent waves of COVID-19, and consequent partial or total lockdowns.

Keywords: COVID-19; emotions; perceived usefulness; psychological well-being.

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Introduction

On February 17th, 2020, the first Italian citizen infected by the Coronavirus disease (SARS-CoV-2 or COVID-19) was discovered in Codogno, Lombardy. After the emergence of several cases in the following days across the whole Italian territory, the government decided on March 9th to forbid unnecessary and unmotivated travels, to close schools and universities and to suspend all the in-person events in order to limit social contact. This period, generally labeled as the first Lockdown or the first wave of COVID-19, lasted approximately three months, until the end of May 2020. Similar decisions have been made across a large number of Western countries to prevent the spread of the infection. This period of time deeply affected the psychological well-being of the population, as it interfered with their daily functioning (Groarke et al., 2020) for months, in addition to impacting the physical health for those who contracted the virus.

A very large number of studies have been conducted around the world on the impact of lockdown, because of its potential major impact on many everyday life aspects and activities, from the effects on the economy to the potential negative influence on social and psychological well-being. Starting from the first lockdown measures, the literature recorded a general increase in stress, depression, anxiety and obsessive behaviors, and a worsening of sleep quality in individuals who felt the burden of worry about infecting and being infected by COVID-19 (Abba-Aji et al., 2020; Asmundson & Taylor, 2020).

Fear and anxiety about COVID-19 became a major problem, to the point of being considered a form of Post Traumatic Stress Disorder (PTSD) (Torales et al., 2020; Tagliabue et al., 2020). Interestingly, Tambelli et al (2021) looked at the role of psychological variables that can mediate the severity of pandemic-related PTSD symptomatology, confirming how fear of infection directly affects the symptoms.

Emotional dysregulation has been observed in the population, with both externalizing (e.g., irritability, inability to relax) and internalizing (e.g., sense of loneliness, boredom, poor concentration) behavior disorders and symptoms in children, as well as an increase in anxiety disorders in teenagers (Orgilés et al., 2020). In addition, Shigemura and colleagues (2020) found that in adults the fear of the unknown lead to the development of mental disorders such as stress, anxiety, depression and increased alcohol and tobacco addiction. Finally, other studies highlighted the elements that can lead to specific distress, such as: prolonged separation from those we love, loss of freedom, uncertainty about the progress of the pandemic, and feeling of worthlessness (Cao et al., 2020; Li et al., 2020).

The need to reduce social contacts to prevent the spread of COVID-19 and to preserve physical health, has deeply affected basic social needs. Besides the high level of stress and increase of mental disorders related to the pandemic, a more general poorer psychological well-being has been associated with social isolation and the poor quality of the relationships, in addition to the need to adapt to daily changes. A poor network of social contacts was found to exacerbate the effect of COVID-19 on psychological well-being (Birditt et al., 2021). Indeed, Brooks and colleagues (2020) described the current pandemic as a new, complex and multifaceted form of psychosocial stressor and found that this extended period of social distancing interfered with experiencing empathy towards others, increasing the depersonalization of relationships or forced virtual empathy (Saladino et al., 2020).

However, recent evidence has highlighted that several protective factors have allowed the development of coping strategies to face psychological stress, such as social support, humor, sport, and sharing thoughts and feelings about COVID-19 with others, (Armour et al., 2020; Golemis et al., 2021). Moreover, it is interesting to note that the use of social media was also fundamental in helping to deal with the problems created by lockdown, as shown by the increase in favorable attitudes and opinions (Cecalupo et al., 2020) following the press conferences in which new guidelines or restrictions were decreed to decrease the development of COVID-19.

Coping strategies aiming to reduce the level of stress are widely studied in literature, but their application in a pandemic scenario is still poorly understood (Ornell et al., 2020) even if their role might be crucial.

Here, we aimed to investigate the impact of several psychological variables, such as the perceived usefulness of lockdown, the feeling of living a normal life, and various coping strategies implemented to face the pandemic, on individuals' mental states and emotions experienced during the first Lockdown in Italy. The main goal of this study was thus to extend the research on the effect of COVID-19 pandemic on elements that might protect people's psychological health (i.e., mental states and emotions experienced during this period).

Methods

Participants

The present research was conducted on a group of 172 Italian adults (55M). 72 were under 25 years of age, 30 were between 26 and 35 years, 41 were between 36 and 50 years and 29 were over 51, Table 1 shows the distribution of the individuals by gender and age groups. Table 2 represents the distribution of level of education. Forty five percent of the sample were students, six percent were unemployed, five percent were retired, and forty-two percent were actively employed. The participants' distribution across different parts of the country was as follows: 16,3% were from Northern Italy, 62,8% from Central Italy, and 20,9% from Southern Italy.

Tab. 1. Distribution of participants by age group and gender

		Age				Total
		<25	26-35	36-50	>51	
Gender	Women	52	22	26	17	117
	Men	20	8	15	12	55
Total		72	30	41	29	172

Tab. 2. Distribution of participants by education (N =172)

Education	n (%)
Until Middle School	11 (6,4)
High School	49 (27,3)
Bachelor degree	51 (29,7)
Master degree	54 (31,4)
PhD	7 (4,1)

Procedure

Participants were contacted and tested during the first Italian lockdown between March and May 2020. The survey was developed on Google Forms and the recruitment was conducted through social media. After providing informed consent and demographic information, participants were asked to answer several questions regarding: i) the intensity of the mental states and the emotions experienced, ii) the perceived usefulness of lockdown, iii) the feeling of living a normal life, and iv) the coping strategies implemented to face the pandemic.

Instruments

The questionnaire measuring the intensity of the mental states and the emotions experienced was based on two existing scales, the Brief Mood Introspection Scale (BMIS; Mayer & Gaschke, 1988) and the Brunel Mood Scale (BRUMS; Terry et al., 2003).

The *BMIS* is a mood scale consisting of 16 mood-adjectives to which a person responds (e.g., Are you happy?). The scale can provide measures of overall pleasant-unpleasant mood (Cronbach's α = .83), arousal-calm mood (Cronbach's α = .58), and it can also be scored according to positive-tired (Cronbach's α = .77) and negative-calm mood (Cronbach's α = .76). The 16 items are: Happy, Lively, Drowsy, Grouchy, Sad, Peppy, Tired, Nervous, Caring, Calm, Content, Loving, Gloomy, Fed up, Jittery, Active.

The *BRUMS* is composed by 24 items presenting 24 mood adjectives. The items are arranged into six subscales: a) Anger: annoyed, bitter, angry, bad-tempered (Cronbach's α = .72); b) Confusion: confused, muddled, mixed-up, uncertain (Cronbach's α = .77); c) Depression: depressed, downhearted, unhappy, miserable (Cronbach's α = .74); d) Fatigue: worn out, exhausted, sleepy, tired (Cronbach's α = .70); e) Tension: panicky, anxious, worried, nervous (Cronbach's α = .71); f) Vigor: lively, energetic, active, alert (Cronbach's α = .70). Each adjective represents the answer to a question such as "How do you feel now?", "How have you been feeling in the past week, including today?", or "How have you been feeling?". The participant has to select the intensity of mood (through items/adjectives) selecting an option from a rating scale from 0 to 4 (0 = Not at all, 4 = Extremely). The BRUMS has demonstrated satisfactory predictive, concurrent, criterion, and factorial

validity as well as appropriate test-retest reliability (Terry et al., 1999; 2003). The results of the Italian validation indicated very good internal consistency of the factors and excellent factorial validity (Quartiroli et al., 2017).

In the questionnaire, the intensity of the mental states and the emotions experienced was investigated asking participants their mood by rating the intensity of twenty-seven emotions taken from the BMIS and the BRUMS scales (see below Data analysis and results for the complete list of emotions). The answers were provided on a 4-level Likert scale, ranging from 0 to 3 (0 = Never, 3 = Always).

The perceived usefulness of lockdown was measured by asking participants the following questions: "Is staying at home useful for you?", "Are you experiencing something new?". The answers were on a 5-level Likert scale, they ranged from 0 to 4 (0 = Not at all, 4 = Extremely).

The feeling of living a normal life was investigated asking participants the following questions: "Can you stay focused?", "Do you study/work easily?" "Is it easy to keep old social relationships?", "Is it easy to develop new social relationships?", "Do you feel deprived of your freedom?". The answers were on a 5-level Likert scale, ranging from 0 to 4 (0 = Not at all, 4 = Extremely).

Finally, the coping strategies implemented were investigated by asking participants to indicate which of the following coping strategies they put into practice to face the pandemic: "talking with friends", "playing on electronics", "singing/playing instruments", "doing physical activities/sports", "reading", "watching television/movies", "cooking/baking". The answers were on a 5-level Likert scale, they ranged from 0 = Never, 4 = Always).

Data analysis and results

All the analyses were performed using *R*-Studio (RStudio Team, 2015). Data were analyzed through a mixed-effects approach, which incorporates both fixed-effects and random-effects (associated to participants and task stimuli) and allows for the specification of predictors at both participants and/or item level. Cumulative link mixed models (CLMMs) were run using the *ordinal* package (Christensen, 2019).

Our main dependent variable was the intensity of the mental states and the emotions experienced by the participants. The three continuous predictors in our statistical model were i) perceived usefulness of lockdown, ii) feeling of living a normal life iii) coping strategies implemented to face the pandemic.

Firstly, we performed an exploratory factor analysis to investigate how the twenty-seven selected emotions aggregated. Extraction method was set as minimum residuals and rotation was set as oblimin, the number of factors was based on parallel analysis and the threshold for factor loadings was set as .40 (Stevens, 1992). Using these parameters we identified four factors, specifically:

- A negative-external one, comprising: Lack of affection, Feeling withdrawn, Disgust, Detachment, Contempt, Disregard, Oppression, Hostility, Anger, Vengeance.
- A negative-internal one, comprising: Isolation, Vulnerability, Fear, Anxiety, Loneliness.

- A positive-internal one, comprising: Optimism, Hope, Resilience, Determination.
- A positive-external one, comprising: Compassion, Curiosity, Empathy, Sense of justice.

While the following emotions were found not to belong to a specified factor: Acceptance, Pride, Solidarity, Surprise.

For each of the four factors we estimated a CLMM including all possible interactions between fixed effects. Participants and type of emotion were set as random intercepts.

For each of the four models, we then performed a model selection using the *MuMIn R* package, with the *dredge* function (Bartoń, 2020). This procedure selects the best fitting model (i.e., the one with lowest Akaike information criterion, which returns an estimation of the quality of the model, AIC, Akaike, 1973) fitting all possible combinations of the fixed effects included.

For the factors: negative-external, negative-internal and positive-external, the model selection dropped all the fixed effects predictors, as the random-effect models were the ones with the lowest AIC.

Conversely, for the positive-internal factor, the best model identified by the model selection included the effect of the perceived usefulness of lockdown and the effect of the coping strategies implemented to face the pandemic. The best model outperformed the random-effect model of 6 AIC points, $p = .005$, *McFadden's Pseudo-R^2* = .06.

Specifically, the effects of both predictors were significant, $z = 2.14$, $p = .03$, $b = .48$, and, $z = 2.42$, $p = .01$, $b = .62$, respectively, meaning that for both predictors the higher their value, the higher participants' positive-internal emotions intensity (Figure 1).

For emotions belonging to the positive-internal factor (i.e., Optimism, Hope, Resilience, Determination), the higher participants' perceived usefulness of lockdown and coping strategies, the higher their intensity. Please note that for graphical reasons, in the plot we reported only the slopes of high intensity responses, the full plot is reported as Supplementary Material.

Discussion

In the present study we investigated in an Italian sample how several psychological variables affected the intensity of the mental states and the emotions experienced by participants during the first Lockdown. Using a model selection procedure, we identified the best model explaining the data collected; the best model included the perceived usefulness of lockdown (e.g., "Is staying at home useful for you?", "Are you experiencing something new?"), as well as the presence of coping strategies, while all other potential predictors were excluded. More specifically, it was found that the higher the participants' perceived usefulness of lockdown, the higher the perceived intensity of emotions with positive valence. Similarly, a greater the engagement in activities that helped maintain social contact (speaking with friends), physical exercise, or play (both socially and individually) predicted more intense positive internal emotions.

The first finding suggests that perceiving the lockdown as a necessary and correct measure to counter the spread of the infection can serve as a protective psychological factor during stressful times. Consistent with this, previous findings showed that the belief that taking health precautions is effective for avoiding COVID-19 positively predicted voluntary health compliance behavior (Clark et al., 2020).

These findings extend the results of recent studies reported in literature, which focused on the adherence to quarantine restrictions and recommendations. Carlucci, D'Ambrosio and Balsamo (2020), for example, found that a large sample of Italian quarantined adults showed very high rates of adherence to the measures proposed by the government, and that their trust in such measures was a crucial factor for adhering to the rules. Conversely, Bicchieri, Dimant and Gächter (2020), showed that a strong predictor of compliance was the degree of trust in science shown by participants, while the trust in decisions taken by the government was not relevant. In this regard, on the political and medical sides, the result of Bicchieri and colleagues (2020) can be explained considering that many contrasting views about the effectiveness of the use of face masks, gloves, and social distance were provided by the media and by the government, possibly affecting people's

Fig. 1. Results of the model selection
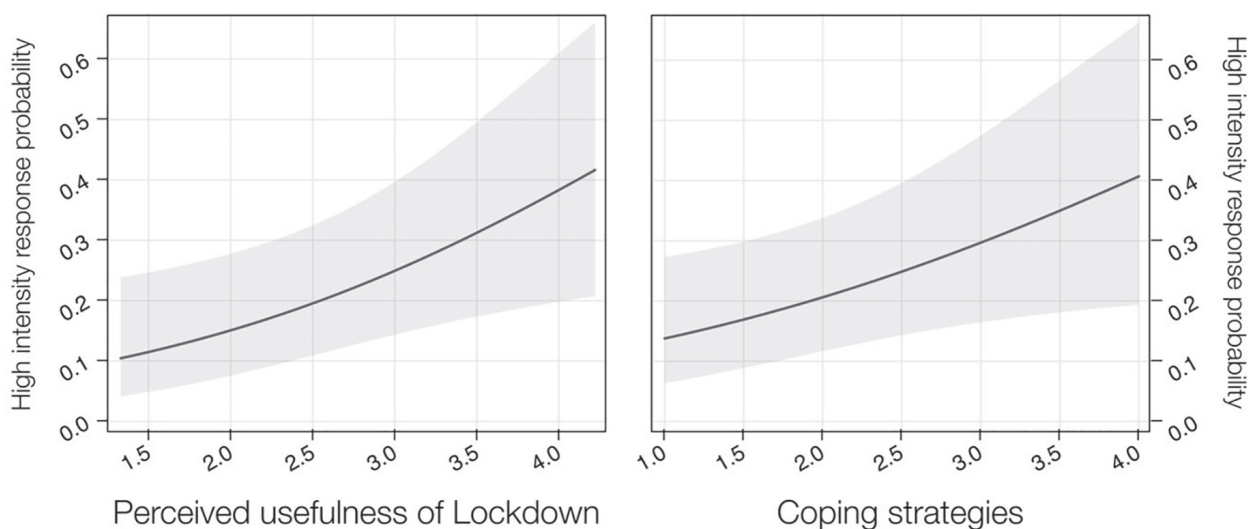
perception of the effectiveness of the interventions and the rules established. None of these studies, however, examined the impact of government regulations on participants' emotions.

A recent study by Pezzuti, Figus and Lauriola (2021) showed that the most effective coping strategies to face the pandemic were Avoidance Strategies and Orientation to the Problem. Our results integrate these data, showing that people can cope with a stressful situation also without avoidance-focused coping strategies, and highlight mechanisms which are rather focused on acceptance and positive responses. Lockdown measures and the inability to leave the house has led also to the attribution of new values and meanings to the space people live in, since the house is configured as a multifunctional space in which people can experience new "ways to move" (Primi & Marchioro, 2021). Digital technologies also offered many opportunities to remain involved in economic, cultural and social interactions and relations, creating a growing compensation and integration between real and virtual spaces (Primi & Marchioro, 2021). The help of technology has been essential to maintain the perception of ordinary life, and the possibility to enjoy a long period spent at home in a functional way. Complementary with this, our study shows that the perceived usefulness of lockdown can positively affect people's emotions.

Our findings not only integrate previous results, but they also point to the possibility that trusting the decisions made by the government represents a protective factor against stress, anxiety, and other types of negative emotions, even if this does not remove the need for a clearer and more transparent scientific information supporting political decisions (Gross, 2020; Mahase, 2020; Skegg et al., 2021). It has been argued that to cope with COVID-19 governments cannot just *follow the science*, but they must take responsibility for their decisions, "rather than relying on science as if it were an apolitical and indisputable tablet of stone" (Stevens, 2020, p.560). Indeed, science end-users are typically not familiar with the probabilistic approach in science, or the scientific process of understanding and reaching conclusions by disconfirming hypotheses (e.g., Popper, 1962). Consistent with this, recently it has been argued that the relationship between scientists and science end-users should be improved in order to reach a broader popular acceptance of scientific evidence (Toe, 2021). Greater understanding and acceptance of scientific evidence might enhance the respect of the health rules proposed by the government, a topic which is increasingly important during the current vaccination campaign (Moscadelli et al., 2020).

Italy faced two other COVID-19 waves between October 2020 and April 2021, both characterized by different approaches on the political and medical sides, and possibly by different psychological reactions in the population (e.g., Kohút et al., 2021). Here we examined the role of rule acceptance and effectiveness of positive coping strategies on emotional states in the first wave of the pandemic in Italy. Other waves of the pandemic might have different characteristics and elicit different emotions and different coping strategies. Trust in governmental decisions might also differ from one wave to the next, suggesting that the variables affecting participants emotions might depend on the characteristic of each single wave of the pandemic. This topic can be very promising for future research, especially in the case of the occurrence of other COVID-19 waves.

Conclusion

The present study shows that during the first wave of COVID-19 in Italy, between March and May 2020, the perceived usefulness of lockdown and the active engagement in positive activities positively affected peoples' emotions. These findings highlight two major aspects. One is the need to have clear guidelines from the governments, possibly supported by a better communication of the scientific findings on which political decisions are taken and behavioral measures shaped to increase people's commitment to the proposed rules. The second is the availability of activities that help maintain a normal level of physical and enjoyable mental activity.

Author Contributions

The authors contributed equally to this manuscript.

Compliance with Ethical Standards

Conflict of interest

The authors declare that they have no competing interests.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

Ethical approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. The study was approved by the Department Ethics Committee of La Sapienza University of Rome.

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