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# The role of maladaptive personality traits on psychological stress the mediating effects of COVID-19-related worries and emotional dysregulation

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## A B S T R A C T

There is increasing evidence that dysfunctional personality traits, related to psychological maladjustment and psychopathology, can play an important role in a person's ability to cope with major stressful events. Relatively little is known about the specific effect of the emotional component on the relationship between maladaptive personality traits and psychological stress. Therefore, the aim of the present study was to investigate the relationship between the maladaptive personality traits of psychoticism, detachment, and negative affect, and psychological stress, considering the effects of COVID-19-related worries and emotional dysregulation. An online survey was administered to 1172 adult participants. A series of path analysis models showed that maladaptive personality traits (psychoticism, detachment, and negative affect) are related to psychological stress. COVID-19-related worries and emotional dysregulation partially explained this association. The results suggest that in the early months of 2022, during the reduction of government restrictions, although the world population was no longer in nationwide lockdown, the COVID-19-related emotional component could still explain, at least in part, the association between maladaptive personality traits and psychological stress.

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## 1. Introduction

The enormous threat of infection risk by COVID-19 played an important role in determining immediate and long-term severe consequences for individuals' well-being. In the early months of 2020, several nations proposed specific restriction measures to reduce the spread and severity of COVID-19. Among these, social isolation has certainly produced significant effects in terms of containing the pandemic, but at the same time it has had profound implications for mental health. Several studies have highlighted the effects of the quarantine period on mental health (Hardin et al., 2021; Mazza et al., 2020; Twenge & Joiner, 2020), showing that these effects are probably not the same for all. Indeed, differences in stress response are explained by individual factors (Han et al., 2021; Sica, Lutzman, et al., 2021; Sica, Perkins, et al., 2021). How people respond and process information regarding COVID-19 infection risk differs from person to person (Mazza et al., 2020). The best way to understand those differences might be to examine their personality traits (Brito-Costa et al., 2022).

### 1.1. Personality traits

Personality traits can be interpreted as the behavioral manifestation of the individual's emotional, cognitive, and perceptual functioning (Fleeson, 2001). In particular, personality traits represent generalized behavioral models actively reacting to the context through the implementation of specific patterns (Allport, 1937; Brown & Moskowitz, 1998; Coppola et al., 2020). As a reaction to the pandemic context, these traits have been investigated as a possible predictor of psychological stress (Khosravi, 2020; Qiu et al., 2020; Sica, Lutzman, et al., 2021). Sica et al. (2021) showed that during the COVID-19 lockdown in Italy, maladaptive personality traits represented a general risk for psychological stress. The results revealed that detachment, negative affect, and psychoticism were the strongest predictors of psychological stress, suggesting that these maladaptive personality domains represent a general risk for psychological stress in a pandemic context. In addition, the results demonstrated that individual variation in one's approach to coping plays an important role in psychological stress.

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Brito-Costa et al. (2022) examined the role of emotional stability and negative affect, as personality traits, in attitudes related to COVID-19. People high in negative affect were more worried, anxious, depressed, and stressed. Conversely, people high in emotional stability were more oriented to place their trust in external systems such as medicine in general, scientists, or government intervention. Indeed, a stronger fear of infection by COVID-19 was associated with less emotional stability and more negative affect. Pilch et al. (2021) also found that among the different personality traits evaluated, only neuroticism, characterized by negative affect and low emotional stability, predicted preventive behavior. In sum, these studies showed a clear association between maladaptive personality traits and psychological stress in the pandemic period (Brito-Costa et al., 2022; Pilch et al., 2021). Nevertheless, the effect of COVID-19-related worries in the relationship between maladaptive personality traits and psychological stress is not yet clear.

### 1.2. Individual differences in personality traits

Individual differences in personality traits are linked to worries when facing a threatening situation (Cassibba et al., 2013; Oathes et al., 2010). Worry plays a crucial role in protecting the self (Sortheix et al., 2019). This mechanism can have micro (self-directed protection) and macro (society and the environment) effects (Schwartz et al., 2000), and seems to be functional to well-being if triggered by a healthy and adaptive personality, while having dysfunctional effects in the presence of maladaptive personality traits (Bastianoni et al., 2012; Soto & John, 2017). As for COVID-19-related worries, the involvement of maladaptive personality traits is still debated (Lee et al., 2021; Shokrkon & Nicoladis, 2021). On the one hand, Lee et al. (2021) showed that higher levels of worry related to COVID-19 infection were associated with higher levels of anxiety and depressive symptoms and maladaptive personality traits (i.e., neuroticism). Other studies argued that in individuals with high levels of negative affect, the impact of COVID-19-related worries can trigger a mechanism of anxiety and worry typical of this maladaptive personality trait, with related complications in work aspects (Brooks et al., 2020; Hardin et al., 2021; Kroencke et al., 2020). Notably, restrictions adopted (i.e., hygiene measures) are also linked with reduced levels of subjective well-being (Modersitzki et al., 2021). Finally, perceived well-being in an emergency context could be further compromised by difficulties in regulating one's emotions (Hofmann et al., 2012).

### 1.3. Emotional dysregulation

Awareness of environmental events and the ability to regulate one's emotions and behavior are fundamental to adaptive coping (Neumann et al., 2010). Emotional dysregulation can be defined as "difficulties in several areas, including the ability to monitor and evaluate emotional experiences, modulate their intensity or duration, and adaptively manage emotional reactions in order to satisfy situational demands" (Gratz & Roemer, 2004, p. 41). Emotional dysregulation is a multidimensional construct characterized by a lack of awareness, clarity, or acceptance of emotions. These difficulties manifest in impulsive behaviors and engaging in situationally appropriate and flexible strategies to modulate emotional experiences in pursuit of goal-directed behavior when experiencing negative emotions (Gratz & Roemer, 2004). The research examining emotional dysregulation in psychopathology is generally based on Gross (1998)'s seminal process model of emotion regulation, which focuses on the use of specific emotion regulation strategies and their consequences. According to this model, individuals with psychological disorders show lower frequency of adaptive emotion regulation strategies and/or higher frequency of maladaptive strategies (Abdi & Pak, 2019; Gross & Jazaieri, 2014, for a review, see Cludius et al., 2020).

Some modalities of emotional dysregulation contribute more than others to explain psychopathological forms and psychological stress

(Grattagliano et al., 2012; Panayiotou et al., 2015). For example, nonacceptance of emotional responses, lack of emotional awareness, blaming oneself or others, and ruminating thoughts all contribute to psychopathological states (Aldao et al., 2010). Dysregulation was also identified as a risk factor for loneliness in the COVID-19 pandemic period (Groarke et al., 2020, 2021). For example, social distancing, which was needed to contain the spread of the infection, was linked to a decline in social relations, with a profound negative impact on the health and well-being of the individual (Donovan & Blazer, 2020). A recent study by Groarke et al. (2020) also showed that higher emotional dysregulation scores were associated with lower sleep quality and a higher perception of loneliness. In a subsequent longitudinal study using a crossed lagged model, the results indicated a bidirectional association between depressive symptoms and loneliness, but, unexpectedly, emotional dysregulation did not mediate this relationship: emotional dysregulation and depressive symptoms were reciprocally related (Groarke et al., 2021).

### 1.4. The current study

Considering the literature on the relationship between maladaptive personality traits and psychological stress, some aspects have been amply demonstrated (Flesia et al., 2020; Xiong et al., 2021); others, however, remain in doubt, particularly with respect to the role of COVID-19-related worries and emotional dysregulation in a pandemic context (Groarke et al., 2021). The novelty of our research was to highlight a specific moment in the COVID-19 emergency in Italy, generally referred as phase 3, which was the final phase. During this period, people in Italy experienced a phase of progressive "return to normality". Indeed, one month after the end of our surveys (March 2022), "the end of the emergency" was declared in Italy. The innovative contribution of the current report was to consider the way in which COVID-19-related worries, were associated with psychological stress, in individuals with maladaptive personality traits. In fact, even if the risk of contagion was probably reduced, individuals with maladaptive personality traits might still presents with COVID-19-related worries, which in turn continue to play an important role in psychological stress. Although some previous evidence underline the relevance of the emotional component of psychological stress (Sica, Latzman, et al., 2021; Yan, Xu, et al., 2021), there are no empirical findings, to our knowledge, that have explored the joint effects of factors such as maladaptive personality traits, COVID-19-related worries, and emotional dysregulation on psychological stress.

The present study was aimed at exploring the relationship between maladaptive personality traits and psychological stress. We decided to investigate maladaptive personality traits in order to provide a better understanding on the main characteristics of the personality domains and their role in the pandemic context. It can in fact been argued that psychoticism traits were relevant in the pandemic context, considering the role of eccentric, bizarre beliefs and excessive worries, such as paranoid thoughts, related to the effects of the virus and the risk of contamination. Indeed, the climate of uncertainty could lead to alternative explanations for the events related to the pandemic, such as conspiracy theories (Douglas et al., 2017). These alternative theories correlate with maladaptive personality traits like psychoticism (Darwin et al., 2011). With respect to detachment, the crucial aspect was social isolation. The pandemic context could exacerbate avoidance and social phobia behaviors and these approaches could reinforce the propensity for introversion and social withdrawal (Grattagliano et al., 2018; Oltmanns et al., 2002; Preti et al., 2020). It is plausible to expect that individuals with this maladaptive personality trait significantly reduce their social contacts during pandemic emergencies and have great difficulty restoring these contacts when quarantine measures are lifted. As to negative affect, certainly anger, anxiety, and emotional lability are associated with higher levels of stress and with difficulties resuming daily life behaviors at the end of the lockdown (Sica et al., 2021). For all

these reasons, we believed that it would have been probably useful to include these traits as they seem to be particularly relevant in the emergency context.

Considering that dispositional traits represent a mode of behavioral, emotional, and cognitive response to stress, we expected to find an association with psychological stress. Firstly, we decided to concentrate on negative affectivity, psychoticism, and detachment as poorly explored by the current literature. In line with results from other studies, we also expected all maladaptive personality traits to be associated with COVID-19-related worries and emotional dysregulation. Finally, the effects of the emotional component (COVID-19-related worries and emotional dysregulation) on psychological stress were also explored.

For this reason, the aim of the present study was to investigate the joint role of the maladaptive personality traits of psychoticism, detachment, and negative affect, and emotional components in the form of COVID-19-related worries and emotional dysregulation, on psychological stress. Several models were tested in which psychological stress have been included as outcome, while emotional dysregulation and Covid-19 related worries as mediator. In these models, indirect effects and direct effects were tested. We hypothesize the presence of both direct and indirect effects on psychological stress.

## 2. Methods

### 2.1. Participants and procedure

During the period from 1 December 2021 to 15 February 2022, a total of 1173 Italian participants (female = 786, male = 387), 18 to 75 years of age ( $M = 35.3$ ,  $DS = 15.2$ ) were invited to answer an online battery of self-reported questionnaires administered through social media platforms (Facebook, Instagram, and WhatsApp). All participants were informed of the objectives of the study and provided informed consent before completing the investigation. The study had the prior approval of the Local Ethics Committee (code: ET-22-14) in accordance with the principles of the Declaration of Helsinki.

### 2.2. Measures

#### 2.2.1. Maladaptive personality traits

The Personality Inventory for DSM-5 Personality Disorders (PID-5; [Bottesi et al., 2018](#)) was administered to participants to screen for dimensional maladaptive personality traits. For the purposes of the study, three subscales were selected: psychoticism, detachment, and negative affect. The test confirmed its good psychometric properties (psychoticism, Cronbach's  $\alpha = 0.89$ ; detachment, Cronbach's  $\alpha = 0.87$ ; negative affect, Cronbach's  $\alpha = 0.89$ ).

#### 2.2.2. Psychological stress

The Depression Anxiety Stress Scale-21 (DASS-21; [Lovibond & Lovibond, 1995](#)) is a short self-report questionnaire that aims to provide a measure of psychological stress, especially in nonclinical samples. The test confirmed its good psychometric properties (Cronbach's  $\alpha = 0.95$ ).

#### 2.2.3. Emotional dysregulation

The Difficulties in Emotion Regulation Scale (DERS; [Gratz & Roemer, 2004](#)) is an instrument to assess in a comprehensive manner difficulties regulating emotions, without merely emphasizing a single aspect of the construct (e.g., control of expression or modulation of emotion). The test confirmed its good psychometric properties (Cronbach's  $\alpha = 0.89$ ).

#### 2.2.4. COVID-19-related worries

Participants were asked to complete nine ad hoc questions to investigate COVID-19-related worries. Each research participant was asked to express on a Likert scale ranging from 1 to 5 how intense the above concerns had been in the past two weeks. The test confirmed its good psychometric properties (Cronbach's  $\alpha = 0.81$ ).

## 3. Results

Descriptive statistics for each measure and bivariate correlations are presented in [Table 1](#).

The associations between psychoticism, detachment, and psychological stress were of medium size ( $r = 0.45$ ,  $r = 0.44$ , all  $p < .001$ ), whereas the association between negative affect and psychological stress was large ( $r = 0.70$ ,  $p < .001$ ). In turn, emotional dysregulation and COVID-19-related worries were related to psychological stress at large size ( $r = 0.61$ ,  $r = 0.59$ ,  $p < .001$ ). Next, guided both by theory and observed bivariate correlations, the lavaan package (Version 0.6–5) of the R statistical environment (version 3.6.3; [R Core Team, 2022](#)) was fitted three just identified path models, meaning that degrees of freedom are 0 and fit indices are perfect by definition. We tested the association between maladaptive personality (psychoticism, detachment and negative affect) and psychological stress, we considered the effects of COVID-19-related worries and emotional dysregulation in the explanation of this relationship.

The model with psychoticism explained 43 % of the variance on psychological stress ([Fig. 1](#)). There was a significant direct effect to psychological stress from psychoticism and there were two direct effects to psychological stress from COVID-19-related worries and emotional dysregulation. Indirect effects of COVID-19-related worries ( $\beta = 0.13$ ,  $p < .001$ ) and emotional dysregulation ( $\beta = 0.18$ ,  $p < .001$ ) were statistically significant.

The model with detachment explained 43 % of the variance on psychological stress ([Fig. 2](#)). There was a significant direct effect to psychological stress from detachment, and there were two direct effects to psychological stress from COVID-19-related worries and emotional dysregulation. Indirect effects of COVID-19-related worries ( $\beta = 0.13$ ,  $p < .001$ ) and emotional dysregulation ( $\beta = 0.16$ ,  $p < .001$ ) were statistically significant.

The model with negative affect explained 47 % of the variance on psychological stress ([Fig. 3](#)). There was a significant direct effect to psychological stress from negative affect, and there were two direct effects to psychological stress from COVID-19-related worries and emotional dysregulation. Indirect effects of COVID-19-related worries ( $\beta = 0.15$ ,  $p < .001$ ) and emotional dysregulation ( $\beta = 0.14$ ,  $p < .001$ ) were statistically significant.

## 4. Discussion

A few years after the pandemic emergency, governments have started to lessen the restrictive measures taken to contain the infection. Governmental choices have been also linked to a reduction of concerns of individuals towards the risk of infection, allowing better adaptation to the environment, lower levels of psychological stress, and better perceived well-being ([Flesia et al., 2020](#); [Yan, Gan, et al., 2021](#)). Nevertheless, there are large individual differences, and personality traits and the emotional component of COVID-19-related worries are probably associated with individuals' responses to psychological stress.

In accordance with a body of evidence ([Xiong et al., 2021](#)), our results confirmed a strong association (with a medium to strong effect size) between maladaptive personality traits and psychological stress. Indeed, individuals with a maladaptive personality trait such as negative affect were particularly challenged by the pandemic period; restrictions and social isolation were probably also linked with greater levels of anxiety, depression, loneliness, and inability to cope with the demands of the environment, and a consequent increase in levels of psychological stress ([Groarke et al., 2021](#); [Mazza et al., 2020](#); [Sica et al., 2021](#); [Somma et al., 2020](#)).

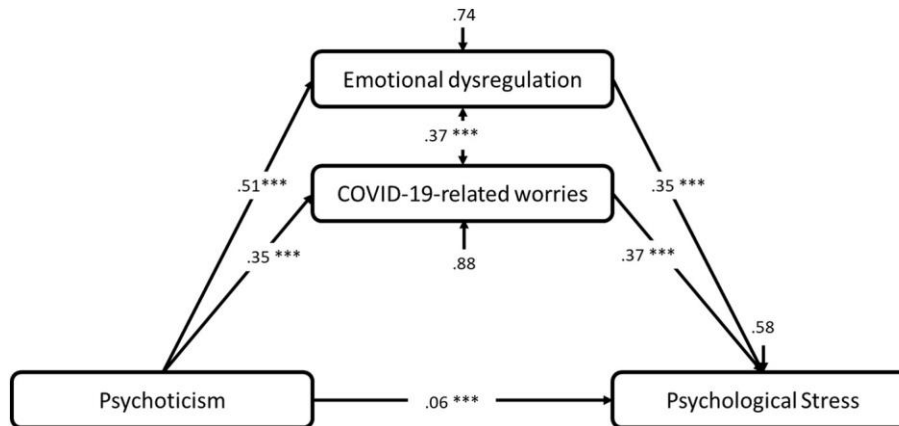
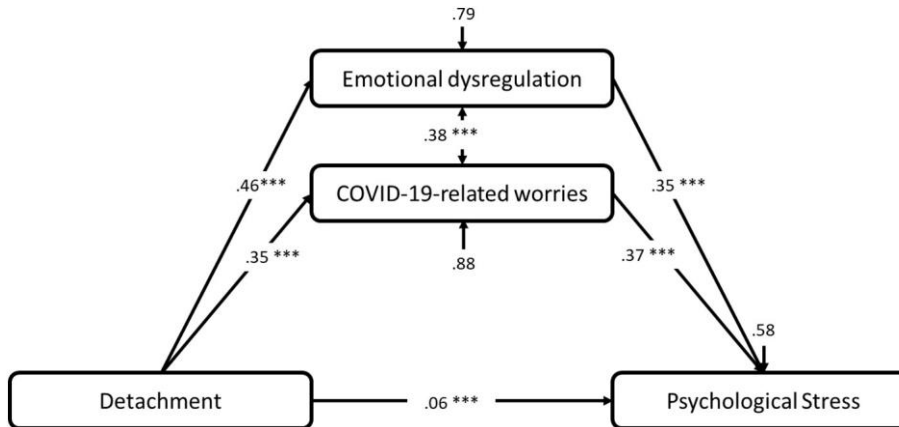
Other maladaptive personality traits such as psychoticism and detachment were also associated with higher levels of stress and explained a large share of the variance (over 50 %). This result foster a reflection on the importance of considering patterns such as disconnection from the real world, high sensitivity to anxiety or depression,

**Table 1**

Descriptive statistics for each variable and bivariate correlations.

	Mean	SD	PID-5 psychoticism	PID-5 detachment	PID-5 negative affect	COVID-19-related worries	Emotional dysregulation
PID-5 Psychoticism	17.1	15.4	–				
PID-5 Detachment	19.5	9.38	0.52***	–			
PID-5 Negative affect	24.3	14.2	0.61***	0.52***	–		
COVID-19-related worries	2.54	0.80	0.35***	0.35***	0.52***	–	
Emotional dysregulation	2.64	0.58	0.51***	0.46***	0.67***	0.48***	–
Psychological stress	10.1	5.58	0.37***	0.36***	0.63***	0.56***	0.56***

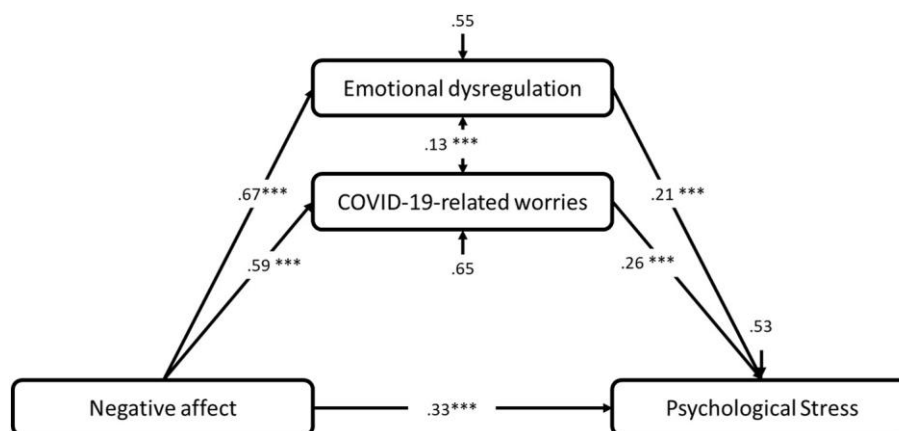
Note.

\*\*\*  $p < .001$ .**Fig. 1.** Path model with direct and indirect effects on general psychological distress for psychoticism.Note. \*\*\*  $p < .001$ .**Fig. 2.** Path model with direct and indirect effects on general psychological distress for detachment.Note. \*\*\*  $p < .001$ .

and internalizing psychopathological symptomatology, as they were linked with higher levels of psychological stress in the pandemic context (Liu et al., 2021). Indeed, internalizing symptomatology could be solicited by the condition of social isolation (Gratz et al., 2019; Pollock et al., 2020). This is particularly important because an increased risk of suicide for maladaptive personality traits (i.e., psychoticism and detachment) in the quarantine condition, due to the increase in catastrophic beliefs and the vulnerability of depressive symptoms, was also found (Hong & Tan, 2021).

With respect to the emotional component, the results of our study showed an association between COVID-19-related worries and emotional dysregulation and the mediating effects in the relationship between maladaptive personality traits and psychological stress. It is therefore crucial to consider whether COVID-19-related worries can

represent a risk factor in a condition of emotional dysregulation. The need to regulate one's emotional response in the face of a stressful event with a large impact, such as COVID-19, proves to be extremely relevant (Fisher et al., 2021). On the other hand, an anomaly in the management of one's emotions risks causing a significant increase in the individual's psychological stress levels, and this is particularly explained by the association with specific concerns about COVID infection (Taylor et al., 2020). Also, the proposed models explain in an integrated way the role of maladaptive personality traits and the emotional component (COVID-19-related worries and emotional dysregulation) in psychological stress. Certainly, maladaptive personality traits are directly associated with a condition of psychological stress, but it is not possible to neglect the role played by the emotional component, which contributes to increasing the psychopathological condition.



**Fig. 3.** Path model with direct and indirect effects on general psychological distress for negative affect.  
Note. \*\*\*  $p < .001$ .

It is also worth noting that our study has some limitations. The sample exclusively comprised Italian participants and no measures of antagonism and disinhibition were available; this could reduce the generalizability of results. Also, these are concurrent surveys, so they do not allow us to comment on causal links. Finally, the data were collected online: therefore people who did not have an internet connection could not participate in this study. It is also noteworthy that the prevalence of females in the study might somehow weigh the study, and this should be considered in future studies.

In this paper we highlighted a specific moment in the COVID-19 emergency in Italy, in which people experienced a phase of return to normality. Specifically, we considered the way in which COVID-19-related worries were associated with psychological stress, in individuals with maladaptive personality traits, which was not previously highlighted by the current literature. Our results showed that even when the risk of contagion was reduced, individuals with maladaptive personality traits presented with COVID-19-related worries, which in turn played an important role in psychological stress. We believe that these results can make an important and novel contribution to the field and should be further investigated by the current literature.

### Ethics statement

The study had the prior approval (code: ET-22-14) of the Local Ethics Committee of the Department of Education, Psychology, Communication at the University of Bari “Aldo Moro”. All the parents provided written informed consent on behalf of their children prior to their participation in the study.

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### CRediT authorship contribution statement

Cristina Semeraro provided conception and design of this study, collected data and wrote the first draft of the manuscript. David Giofrè performed and interpreted the data analyses and drafted and revised the article. Gabrielle Coppola revised the article and proposed important suggestions for modification. Veronica Verri e Morena Bottalico collected data and revised the article. Rosalinda Cassibba revised the article and proposed important suggestions for modification. Alessandro Taurino provided conception of this study, revised the article critically for important intellectual content.

### Declaration of competing interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

### Data availability

Data will be made available on request.

### Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.paid.2023.112270>.

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