Original Research Article

Impact of COVID-19 Pandemic on Mental Health and Quality of Life. An Exploratory Study During the First Outbreak in Italy

Psychological Reports
2022, Vol. 0(0) 1–22

DOI: 10.1177/00332941211066259
journals.sagepub.com/home/prx
SAGE

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Abstract

The coronavirus pandemic has been sweeping the world for more than a year. As physical health begins to stabilize in the western world, an increasing concern is related to the impact of the virus and its containment measures on people's mental health. This work aimed to explore the effect of demographic factors (age, gender, level of education, and socioeconomic status) and variables such as fear of COVID-19 and social support in predicting the quality of life and mental health of adults during the first wave of the pandemic in Italy. Through an online survey with 1087 Italian adults (M = 39.7, SD = 16.39; 74.4% women), gender and socioeconomic status emerged as crucial factors in determining differences regarding people's responses and reactions to the pandemic. In addition, the results highlighted the importance of perceived social support and a moderate fear of COVID-19 in predicting people's quality of life and mental health. The study suggests important guidelines for the development of interventions to support the population's well-being and mental health.

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Keywords
mental health, anxiety, well-being, risk perception, social perceptions, coping strategies, employment psychology and marketing

Introduction

The novel coronavirus disease (COVID-19), first identified in December 2019, was classified by the World Health Organization (WHO) as a pandemic on March 11, 2020, due to its contagiousness and worldwide impact (Wang & Wang, 2020). To date (June 10, 2021), more than 174 million COVID-19 cases have been reported to the WHO, with more than 3.7 million deaths (World Health Organization (WHO), 2021). Italy has reported around four million cases in the same days, with more than 126 thousand deaths (Ministry of Health, 2020). Like other epidemics in history, the COVID-19 disease initially affected public health and was quickly followed by a cascading effect on all aspects of people's daily lives (work, economy, and freedom). Intending to reduce the spread of the virus, decision-makers at the international, national, regional, and local levels introduced various containment measures, such as lockdowns, travel restrictions, and curfews (Cowling & Aiello, 2020; Wilder-Smith & Freedman, 2020). Millions of individuals have been forced to remain in their homes, unable to work or move from their residence except to fulfil approved essential needs. Social gatherings and visits to relatives and friends were forbidden for long periods, and all services, non-essential stores, and all levels of schooling were closed. In Italy, the first case was found in Codogno (Lombardy, northern Italy) on February 20, 2020, and a few days later, the Italian government implemented heavy containment measures, first locally and then throughout the country (March 9, 2020), putting the entire Italian population in lockdown for almost 2 months.

These containment measures, intended to reduce the infection and protect the population, brought radical changes to everyone's lives, highlighting how a public health emergency can have a powerful impact on the mental health and well-being of the population (Brooks et al., 2020; Fusar-Poli et al., 2020; Lee & Neimeyer, 2020; Rodríguez-Hidalgo et al., 2020; Zhang & Ma, 2020). The World Health Organization has expressed concern for the impact of the pandemic on mental health and related psychosocial consequences, which may be detrimental and long-term (WHO, 2021). During the past year, several studies have begun documenting the psychological consequences of the pandemic and its containment measures (Duan & Zhu, 2020; Ravens-Sieberer et al., 2021; Wang et al., 2020a). Indeed, several psychological and psychiatric manifestations were reported in different locations around the world, such as high levels of psychological stress, anxiety, and depression, highlighting how experiencing a life-threatening situation increases the risk of developing symptoms of anxiety and depression (Harper et al., 2020; Pakpour & Griffiths, 2020; Taylor et al., 2020; Wang et al., 2020b; Yıldırım et al., 2020). The evidence showed an increase in unhealthy behaviors (excessive alcohol and substance use), manifestations of extreme fear (*coronaphobia*), problems with insomnia, irritability, distress, and emotional

exhaustion (Asmundson & Taylor, 2020; Belen, 2021; Bhuiyan et al., 2020; Brooks et al., 2020; Murphy & Moret-Tatay, 2021; Pfefferbaum & North, 2020; Reznik et al., 2020; Satici et al., 2020a).

Quality of Life, Social Support, and Fear as a Buffer for Psychological Functioning

Quality of Life (QoL) theories refer to how individuals rate their functioning and satisfaction within multiple domains of their life. These domains include a sense of emotional control on one life, social networking, satisfaction with one's socioeconomic status and life fulfilment (Diener et al., 1999). Theories reported the importance of socioeconomic factors as antecedents of QoL (Lodhi et al., 2021). Furthermore, social networking, connectedness, and social support were crucial factors in promoting QoL (Brown et al., 2012).

Social support, intended as the degree to which one perceives emotional and instrumental support in personal relationships, has been studied as a protective factor from stress and potentially traumatic experiences as well as an activator of QoL (Ozbay et al., 2007; Xu & Ou, 2014; Özmete & Pak, 2020). Meta-analysis highlighted the strict association between social support and QoL and its capability to promote mental well-being in different populations such as cancer patients, stroke survivors, adults, and young children (Chu et al., 2010; Kruithof et al., 2013; Luszczynska et al., 2013; Sajadi et al., 2017). A recent investigation on healthcare professionals during the COVID-19 outbreak found how social support is positively correlated with QoL, contrasting with the social isolation and quarantine of the pandemic (Vafaei et al., 2020).

Fear as a factor affecting individuals' QoL has been studied among the elderly population as closely tied to social isolation and loss of social support (Greve, 1998). Even in normal times, fear itself may affect a person's daily life, preventing them from moving freely, going out of their home, and meeting other people (Jakobsson & Hallberg, 2005). The extended parallel process model (EPPM) is a theory that helps predict how fear can mobilise either adaptive, self-protective actions or maladaptive, self-defeating actions (Witte, 1992, 1998; Witte et al., 2001). It is an approach close to the health belief model (Janz & Becker, 1984; Rosenstock, 1974), suggesting that the more people perceive their lives as effective and functioning, the more they will be prone to take action for their health-related QoL and seek out social support and networking (Chen et al., 2019; Cho & Witte, 2005). During the COVID-19 crisis, the fear of perceived threat was more relevant than perceived efficacy in affecting individuals' actions according to age, gender, and socioeconomic status (Lin & Chen, 2021H. C. Lin & Chen, 2021). In the next section, we analyzed the factors such as changes in mental well-being and QoL that can have increased sense of fear during the pandemic first outbreak in Italy.

Factors Associated with Mental Health and Quality of Life During COVID-19

People's quality of life and mental health has been and still is profoundly challenged by the pandemic and subsequent restrictive measures (Brooks et al., 2020; Garfin et al.,

2020; Veronese et al., 2021). Being at risk of infection, the fear of dying, or the fear of infecting another, has strongly affected individuals' well-being (Khan et al., 2020; Rajkumar, 2020). Fear and stress related to COVID-19 can act as triggers to psychological impairments, such as anxiety and depression, undermining the degree of satisfaction with one's life (Asmundson & Taylor, 2020; Bao et al., 2020; Fitzpatrick et al., 2020; Yıldırım et al., 2021). Although a moderate fear of COVID-19 is functional in prompting people to implement preventive and protective behaviors, it also appears to be linked to a wide range of mental health-related problems (Huarcaya-Victoria et al., 2020; Khan et al., 2020; Rajkumar, 2020). Fear and anxiety around infection have been documented as solid predictors of high-stress levels and depressive symptoms (Bakioğlu et al., 2020; Mahmud et al., 2020; Rodríguez-Hidalgo et al., 2020; Wang et al., 2020a). Furthermore, by exploring the studies available so far, there is evidence that high levels of anxiety, stress, and depression related to fear of the epidemic are linked to a decline in mental health and a decreased perception of quality of life (Belen, 2021; Garfin et al., 2020; Satici et al., 2020a, 2020b; Solomou & Constantinidou, 2020).

In addition, social distancing has prevented people from benefiting from their social and family relationships, a foundational part of life satisfaction (Kafetsios & Sideridis, 2006; Lan et al., 2015; Yilmaz et al., 2017). Understanding social support to be the extent to which people perceive others close to them as available and attentive to their needs (Zysberg & Zisberg, 2020) has been identified as a crucial resource for mitigating fear, symptoms of anxiety, stress, and depression (Bruine de Bruin et al., 2020; Dinicola et al., 2013; Kafetsios & Sideridis, 2006; Thoits, 1986; Ye et al., 2008). An expanded social and family network of frequent interactions has been linked to greater well-being and mental health (Amati et al., 2018; Appau et al., 2019; Bruine de Bruin et al., 2020). During the pandemic, social relationships were disrupted, distanced, and challenged, preventing them from acting as a buffer from ongoing stressful events for many people worldwide (Bruine de Bruin et al., 2020; Macdonald & Hülür, 2021).

These factors have had a significant impact on the mental health and quality of life of entire populations. The severity of this impact appears to depend on the specific characteristics of each population. Few studies relate the consequences of the pandemic to the demographic characteristics of exposed individuals. For instance, some highlighted that older people suffered more from the lack of social involvement (Zysberg & Zisberg, 2020). As a group that is commonly more vulnerable and lonelier than the general population, older people appear to have experienced confinement with more difficulty, showing more significant sleep disturbance, depression, and an increased risk of suicide (Hwang et al., 2020).

On the other hand, some studies have highlighted how younger age was correlated with more pandemic-related psychological effects, significantly greater anxiety and depression (Taylor et al., 2008; Wang et al., 2020b). Along with age, gender also plays an essential role in responding to the pandemic threat. A greater fear of COVID-19, as well as higher symptoms of stress, anxiety, and depression, have been documented in females more than males, with worse outcomes for women's quality of life (Bakioğlu et al., 2020; Broche-Pérez et al., 2020; Rossi et al., 2020; Wang et al., 2020b). Finally, in

exploring risk or protective factors concerning mental health and well-being, it appears that there is also a correlation in people's level of education and socioeconomic status (education is associated with higher income in most countries in the Western world) (Ross & Van Willigen, 1997; Yarnold, 2019). What emerges is that people with higher education levels and higher income reported fewer anxiety symptoms and higher quality of life (Kharshiing et al., 2021; Nguyen et al., 2020; Solomou & Constantinidou, 2020).

These studies suggest the need to examine the mental health of populations exposed to COVID-19 and investigate which factors can mitigate the impact of the pandemic, preserving their mental health and quality of life. Therefore, this work aimed to unravel whether age, gender, educational level, socioeconomic status, fear, and social support played a role in predicting mental health and quality of life in Italian adults' during the first wave of the pandemic. The study aims to elucidate which factors are associated with people's mental health and quality of life during the pandemic and to test the different hypotheses. Firstly, we expected participants to report significantly different quality of life, mental health, perceived social support, and fear of COVID-19 concerning their demographic characteristics. More specifically, we expected that female, younger, less educated, and lower-income people would have significantly lower scores for quality of life and mental health (***H1)***. Secondly, we supposed that poor mental health outcomes would be significant and inversely correlated with participants' quality of life and directly correlated with their fear of COVID-19 (***H2***). Finally, we expected that participants' fear of COVID-19 and social support would significantly predict their mental health, over and above the demographic variables. Similarly, we expected that participants' quality of mental health would significantly predict their quality of life (***H3***).

Method

A cross-sectional web-based survey was adopted. Data were collected through an online survey and a snowball sampling strategy focused on recruiting the general adult population living in Italy (over 18 years old). The questionnaire was developed using Google Forms free software, it was first disseminated to university students, and they were encouraged to pass it on to others. Participants were fully informed about the research aims, their participation was entirely voluntary, and they could withdraw at any time. In addition, people were free not to answer any questions (including the demographics one) if they did not wish to. Questionnaires were anonymous, data confidentiality and information were ensured, and consent was obtained from each participant. Data were collected in April 2020, when lockdown measures in Italy were being implemented. In April 2020, the total COVID-19 cases reported in Italy were around 200 thousand, with about 21,000 people hospitalized with syndromes, 83,000 in-home isolation, and more than 27 thousand deaths (Ministry of Health, 2020). The inclusion criteria were being resident in Italy and being over 18 years. The research was conducted following the American Psychiatric Association's ethical principles and

code of conduct (American Psychological Association, 2020) and approved by Milano-Bicocca Institutional Review Board.

Instrument and Procedures

After a few questions to collect demographic information (i.e., age, gender, place of residence, socioeconomic status, and education level), the protocol administered consisted of a series of validated questionnaires designed to explore several aspects of participants' quality of life, their mental health status, the presence of social support, and their fear of COVID-19.

WHOQOL-BREF. The instrument adopted to assess individual facets relating to the quality of life was the World Health Organization Quality of Life assessment (WHOQOL Group, 1998), which provides a measure of an individual's quality of life, validated in various cultural settings, including Italy. We administered the abbreviated version (WHOQOL-BREF) composed of 26 items exploring four domains related to people's quality of life: physical health (e.g., "to what extent do you feel that physical pain prevents you from doing what you need to?"), psychological health (e.g., "how satisfied are you with yourself?"), social relationships (e.g., "how satisfied are you with the support you get from your friends?"), and environment (e.g., "how satisfied are you with the conditions of your living place?"). It also includes one facet covering overall quality of life and general health. The items are rated on a 5-point Likert scale. The present study considered the total score of the instrument into consideration, where higher scores indicate better quality of life. The Italian version was adopted for this study.

DASS-21. Participants' mental health status was measured using the Depression, Anxiety, and Stress Scale (DASS-21; Henry & Crawford, 2005). The DASS-21 is a self-administered questionnaire, and it has been validated for the Italian population (Bottesi et al., 2015). Participants were asked to indicate to what degree each statement applied to them considering the previous week on a 4-point Likert scale. It allows the detection of three dimensions: depression (e.g., "I felt I had nothing to look forward to"), anxiety (e.g., "I felt close to a panic attack"), and stress (e.g., "I found it difficult to relax"). It has been used previously in research related to SARS and COVID-10 (McAlonan et al., 2007; Wang et al., 2020a).

FCV. The participants' fear of the coronavirus disease was measured with the Fear of COVID-19 Scale, a self-administered questionnaire recently developed by Ahorsu and colleagues (Ahorsu et al., 2020). In its 7-items version (e.g., "I am most afraid of COVID-19") was rated on a 3-point Likert scale, ranging from 0 (very unlikely) to 2 (very likely) (minimum score is 0 and maximum is 14). This measure is the only widely used scale that has specifically assessed the fear of COVID-19, and it has been translated and validated in over 15 languages, showing excellent psychometric properties (Pakpour & Griffiths, 2020; Ransing et al., 2020). The FCV has already been used and validated in the Italian context (Soraci et al., 2020).

Table 1. Main descriptive statistics.

Measure		Mean	SD	Min	Max	Kurtosis	Skewness	α
WHOQoL	*Quality of Life*	91.53	11.15	44.00	119.0	.330	−.425	.87
DASS-21	*Stress Scale*	6.47	3.9	.00	21.0	.167	.528	.85
	Anxiety scale	2.26	2.53	.00	12.0	1.60	1.41	.76
	Depression Scale	5.02	3.93	.00	21.0	.594	.925	.86
BSSS	*Social Support*	50.3	8.12	24.0	68.0	−.07	−.265	.89
FCV	*Fear of COVID*	2.87	2.59	.00	14.0	.987	1.12	.78

BSSS. Finally, the presence and perception of social support were measured through the Berlin Social Support Scale (BSSS; Schwarzer & Schulz, 2003). It is a self-administered tool assessing various social support aspects (perceived social support; the need for support; support seeking; currently received support; provided support and protective buffering scale). In the present study, we did not administer the last two subscales as these are thought to be completed by persons providing support and not by the person themself. Therefore, the adopted BSSS version includes 17 items (Roomaney et al., 2020) (e.g., "there are some people who truly like me"; "when I am worried, there is someone who helps me") is rated on a four-point Likert scale. The items of the original version were translated using the back translation method. The present study considered the total score of the instrument into consideration, where higher scores indicate higher social support.

Findings

All data were processed using SPSS (version 25). Descriptive statistics were used to explore each participant's demographics and characteristics and summarize their features on the study variables. Cases with more than 10% missing were excluded from the analysis. An analysis of covariance was run to determine the effect of gender, income, education, and living contexts on each variable (controlled for age). Then, Pearson correlation was used to explore the relationships between the variable under study. Finally, we performed two regression analyses to assess the effect of basic demographics variables, social support, and fear of COVID-19 on participants' mental health and assess their mental health on their quality of life.

Participants—Sociodemographic Variables

The sample included 1087 Italian participants ranging from 18 to 85 years old (M=39.7 ±16.39 years). As seen in Table 1, most participants identified as female (812 females, 74.4% and 274 males, 25.2%) and one non-binary (0.1%). Moreover, the questionnaire administered included several items designed to collect sample characteristics, such as educational and socioeconomic statuses. Of the people reached, 51 (4.7%) reported having completed secondary school, 37 (3.4%) completed a professional institute, and

412 (37.9%) had a high school diploma. In addition, 216 (19.9%) had a bachelor's degree, 323 (29.7%) had a master's degree, and 47 (4.3%) had a doctoral degree or other subsequent specialization. For what concerns the participants' socioeconomic status, 517 (47.6%) of the participants reported having a sufficient income (i.e., *income exceeding expenses*), 484 (44.5%) had a sufficient income (i.e., *income equal to expenses*). In comparison, 7.9% of the participants (86) stated that their income was insufficient for their needs.

Main Descriptive Statistics

SPSS-25 was used to assess variables' reliability using Cronbach's internal consistency. Table 1 offers a summary of the main descriptive statistics for all the variables included in the study (WHOQOL, DASS-21, BSSS, FCV). All variables were first checked by computing Mahalanobis distances ($p < .001$) to identify and skip multivariate outliers. None of the variables displayed kurtosis or skewness values exceeding the recommended limits [-2; +2].

Effect of Sociodemographic Characteristics on the Study Variables

To assess the differences in participants' demographic characteristics (***H1***), an analysis of covariance (ANCOVA) was run after testing all assumptions and controlling for age. Statistically significant differences were found in participants' gender, socioeconomic status, and area of residence. Identifying the impact of gender revealed that there was a statistically significant difference in WHOQOL between the male and female group, which was higher for males (M =93.7, SE = .67) compared to the females (M =90.8, SE = .39), with a mean difference of 2.814, 95% CI [0.936, 4.692], $p < .001$, with small effect size (partial $\eta 2 = 0.014$). Moreover, females reported significantly higher scores in all the three subscales related to mental health and a greater fear of COVID-19. More specifically, there was a statistically significant difference in the stress scale [$F(2, 1083) = 12.86$, $p < .001$, with small effect size (partial $\eta 2 = .023$)], in the anxiety scale [$F(2, 1083) = 9.12$, $p < .001$, partial $\eta 2 = .017$], in the depression scale [$F(2, 1083) = 8.39$, $p < .001$, partial $\eta 2 = .015$], and in the FCV scale [$F(2, 1083) = 26.24$, $p < .001$, with small effect size (partial $\eta 2 = .046$)]. Finally, there was a statistically significant difference in the BSSS scale, which was higher for females (M=50.9, SE= .28) compared to the male group (M=48.5, SE= .48), with a mean difference of 2.449, 95% CI [1.119, 3.778], $p < .001$, with moderate effect size (partial $\eta 2 = .067$).

Regarding differences related to socioeconomic status, the results showed that participants with higher income reported a higher quality of life, while individuals with lower incomes reported higher levels of COVID-19 fear. There was a statistically significant difference in the WHOQOL scale, which was higher among high-income participants compared to both the low-income participants (mean difference of 5.512, 95% CI [2.445, 8.577], $p < .001$, with small effect size [partial $\eta 2 = .034$], and the middle-income participants (mean difference of 3.711, 95% CI [2.046, 5.376], $p < .001$,

Table 2. Correlation coefficients of the study variables.

Variable	1	2	3	4	5	6	7	8	9
Gender *(1)*	1								
Age *(2)*	−.139**	1							
Education level *(3)*	−.014	.143**	1						
Quality of life *(4)*	−.106**	−.027	.075*	1					
Stress scale *(5)*	.180**	−.260**	−.064*	−.469**	1				
Anxiety scale *(6)*	.153**	−.210**	−.104*	−.424**	.702**	1			
Depression scale *(7)*	.146**	−.182**	−.079**	−.605**	.694**	.613**	1		
Social support scale *(8)*	.156**	−.222*	−.014	.260**	.000	−.014	−.091**	1	
Fear of COVID-19 *(9)*	.215**	−.029	−.053	−.243**	.310**	.369**	.283**	.101**	1

Note. *$p < .05$; ** $p < .001$.

partial η2 = .034). In contrast, no difference was found among middle- and low-income participants. Similarly, the mean difference in FCV among lower-income and middle- and high-income was significant (.743, 95% CI [.018, 1.468], $p < .05$, partial η2 = .031; .801, 95% CI [.079, 1.522], $p < .05$, partial η2 = .031, respectively).

Correlation—Factors relating to Mental Health and Quality of Life

Person's correlation values were calculated to determine the associations between the study variables (*H2*), and they are presented in Table 2.

Stress, depression, and anxiety were negatively and significantly correlated with people's quality of life and social support, while they were directly correlated with the fear of COVID-19 [r = .310, $p < .001$ (small effect size, $r^2 = .10$); r = .369, $p < .001$ (small effect size, $r^2 = .14$); r = .283, $p < .001$ ($r^2 = .10$), respectively]. No significant correlation was found between quality of life and age; however, younger people tended to report higher levels of stress [r = −.260, $p < .001$, ($r^2 = -.10$)], anxiety [r= −.210, $p <$ .001, (small effect size, $r^2 =$- .04)], and depression [r = −.222, $p < .001$ (small effect size, $r^2 = .05$)]. Moreover, females tended to report higher levels of stress, anxiety, and depression, whereas participants' level of education was negatively correlated to all DASS subscales [r= −.064, $p < .05$ ($r^2 = -.01$); r = −.104, $p < .05$ ($r^2 = -.01$); r = −.079, $p < .001$ ($r^2 = -.01$), respectively]. Finally, a negative and significant

correlation was found between the BSSS scale and the depression scale ($r = -.091$, $p < .001$, $r^2 = -.01$), while a positive one was detected among BSS and quality of life ($r = .260$, $p < .001$, $r^2 = -.05$).

Effect of Social Support and Fear on Mental Health

Linear regression was conducted to investigate whether social support and fear of COVID-19 were associated with participants' mental health. Hierarchical regression was run to determine how much each set of variables uniquely adds to the prediction of our dependent variable (DASS). Thus, age, gender, education, and socioeconomic levels were entered in the first step to control the effect of demographic variables; the BSS and FCV were entered in the second and third steps to examine the effect of both variables on people's mental health in the COVID-19 pandemic.

The regression model was found to be significant [$F(1, 1080) = 148.7$, $p < .001$, $R^2 = .21$ with a large effect size (Cohen's $f^2 = .27$)]. The hierarchical regression (model 1) showed that gender, age, education, and socioeconomical levels were significant predictors of people's mental health, explaining 8.6% of its variance. At Step 2 (model 2), the overall model explained 10% of the variance of the dependent variable, thanks to the contributions of social support. Finally, the overall model in step 3 (model 3) explained the 21% of participants' mental health variance. Essentially, the models get better at predicting the dependent variable when adding people's fear of COVID-19. Indeed, the addition of FCV to the prediction of DASS led to a statistically significant increase of R^2 of .11 (with moderate effect size, Cohen's $f^2 = .12$) $(6, 1080) = 47.54$, $p < .001$ *(H3)*. Looking at the final model, age and BSS predicted DASS negatively ($\beta = -.24$, $p < .001$; $\beta = -.15$, $p < .001$, respectively), gender and FCV positively ($\beta = .10$, $p < .001$; $\beta = .34$, $p < .001$), while participants' education and socioeconomic level were not significant (see Table 3).

Effect of Included Variables on the Quality of Life

As the last step, another hierarchical regression analysis was carried out to clarify whether participants' mental health was a significant predictor of quality of life. The perception of quality of life was set as a dependent variable. Age, gender, level of education, socioeconomic status, anxiety, stress, and depression were independent variables.

The analysis resulted in a statistically significant model $F(1,1079) = 231.3$, $p < .001$, with R^2 of 0.399, with a large effect size (Cohen's $f^2 = .66$). All variables were significant predictors of our dependent variable. The hierarchical regression showed that in Model 1, gender, age, education, and socioeconomic level were significant predictors of people's quality of life, explaining 2% of its variance. Then, in adding the contribution of the three subscales to assess participants' mental health, the models better predict their quality of life, explaining 40% of its variance. Considering the final model, DASS increased R^2 by .379 (Cohen's $f^2 = .61$)]. Taking the contributions of the

Table 3. Hierarchical multiple regression predicting DASS from demographic variables, social support and fear of COVID.

	Model 1		Model 2		Model 3	
Variable	B	β	B	β	B	β
Constant	18.07**		25.41**		24.03**	
Gender	3.19**	.15**	3.51**	.17**	2.03**	.10**
Age	−.11**	−.20**	−.13**	−.24**	−.14**	−.24**
Socioeconomic level	−.44	−.03	−.25	−.02	−.20	−.02
Education level	−.43	−.06	−.42	−.05	−.28	−.04
Social support			−.14**	−.12**	−.168**	−.15**
Fear of COVID					1.21**	.34**
R^2	.086		.10		.21	
F	25.48**		24.02**		47.54**	
ΔR^2	.086		.014		.11	
F	25.4**		16.7**		148.71**	

Note. *$p < .05$; ** $p < .001$.

three subscales separately, we see how the stress and depression scales significantly improve the understanding of QoL (R^2 increased by .230 and by .131, respectively). Thus, in the overall model, the age and DASS scales emerged as significant predictors of QoL. Although education, socioeconomic level, and gender were not significant predictors, and age-predicted QoL negatively (β= −.17, $p < .001$). Similarly, the stress and the depression subscales negatively predicted participants quality of life (β = −.103, $p < .001$; β = −.52, $p < .001$, respectively) (see Table 4).

Discussion

Concern over the impact of the pandemic on people's mental health quickly became a central issue around the world, bringing to light several studies that documented different risk and protective factors. This paper investigated some of the factors associated with mental health and quality of life in Italy during the first wave of the COVID-19 pandemic. To do so, we conducted a nationwide survey involving 1087 Italian citizens and explored their mental health status and perceptions concerning their quality of life during the onset of the outbreak. COVID-19 was tragically plaguing the country at the time of the survey, forcing a national and very restrictive lockdown of nearly 2 months.

Our study first emerged that demographic characteristics seem to have a predictive role in the development of psychological impairments and a person's quality of life. In agreement with other studies, gender emerged as crucial in delineating differences concerning people's response to the pandemic and its consequences. In our sample, males reported higher average values of satisfaction with their quality of life, while

Table 4. Hierarchical multiple regression predicting WHOQOL from demographic variables and participants' mental health.

	Model 1		Model 2		Model 3		Model 4	
Variable	B	β	B	β	B	β	B	β
Constant	92.04**		103.86**		103.83**		104.57**	
Gender	−2.95**	−.12**	−1.07	−.04	−.947	−.037	−.668	−.026
Age	−.061*	−.09*	−.148**	−.217**	−.150**	−.22**	−.117**	−.172**
Socio-economic level	.910	.05	1.12	.067	1.11	.067	.026	.002
Education level	.751*	.08*	.616*	.066*	.518*	.056*	.419	.223
Stress			−.143**	−.504**	−1.07**	−.38**	−.293*	−.103*
Anxiety					−.828**	−.19**	−.267	−.060
Depression							−1.48**	−.52**
R^2	.021		.253		.270		.399	
F	5.86**		73.04**		66.63**		102.34**	
ΔR^2	.021		.23		.018		.131	
F	5.86**		334.5**		26.11**		231.3**	

Note. *$p < .05$; ** $p < .001$

women scored higher levels of anxiety, stress, and depression, thus showing lower levels of overall mental health. This difference appears to be related to the fact that women reported higher levels of COVID-19 fear.

These results are not particularly surprising. Many studies to date show lower levels of mental health in the female population (Korkmaz et al., 2020; Solomou & Constantinidou, 2020, among others) and higher scores of coronavirus-fear (Bakioğlu et al., 2020; Broche-Pérez et al., 2020; Wang et al., 2020b). Indeed, data show that women are one of the groups most affected by the pandemic (Fisher & Ryan, 2021), not in terms of physical health (men are twice as likely to be infected by the virus), but in all other areas of life. Globally, women tend to earn less and have less stability in the working world (United Nations, 2020), and this instability heavily increased during the pandemic (Collins et al., 2021). Far more women lost their jobs during the outbreak (Azcona et al., 2020). In Italy, the percentage of women who lost their jobs is almost double that of men (Osservatorio Diritti, 2020). Additionally, even though an increased percentage of working women (U.N., 2020), the responsibility for household and childcare remains typically a female burden. During the pandemic, following the closure of schools and all family-supporting activities (e.g., recreation centers and sports activities), women reported an increase in household and care work that was highly disproportionate to men (Alon et al., 2020; Carlson et al., 2020). All these factors increased anxiety and concern, substantially impacting their well-being and quality of life.

In addition, the "stay-at-home" order has led to a significant increase in violence against women and cases of domestic abuse (Bradbury-Jones & Isham, 2020; Usher et al., 2020). The ability to have outside support (social and family) was drastically

reduced during the pandemic, and people were less likely to seek assistance from hospitals due to the fear of being infected (Usher et al., 2020). Finally, another aspect related to the difference between genders may be related to pre-existing gender norms, where it is more acceptable for women to express their feelings of anxiety and distress than men (Hennekam & Shymko, 2020).

Another crucial demographic characteristic related to the impact of the pandemic on participants' quality of life and mental health was their socioeconomic status (in agreement with other studies, Nguyen et al., 2020; Kharshiing et al., 2021, among others). The policies that restricted movement created an unprecedented impact on the average household income, exacerbating pre-existing economic inequalities (Clark et al., 2021). Our results highlight that participants with higher incomes also reported greater satisfaction with their quality of life. In contrast, people with lower incomes were overall more concerned about the pandemic. These findings are in line with the global trend in which the populations that are most threatened and most at risk during the pandemic are those with lower incomes and less education (correlated aspects especially in Western countries), compared to those who could stay at home in better housing conditions, and continuing working (Deaton, 2021; Elgar et al., 2020; Solomou & Constantinidou, 2020; Takian et al., 2020). Moreover, correlations between state-level income inequality and COVID-19 cases and deaths have been shown in several countries, including Italy and the United States (Fountoulakis et al., 2020; Mollalo et al., 2021; Oronce et al., 2020).

Finally, our results highlight the importance of fear, social support, and the above-mentioned demographic components in predicting the quality of people's mental health (Ahorsu et al., 2020; Broche-Pérez et al., 2020; Lee, 2020; Mamun & Griffiths, 2020). If education did not seem predictive for mental health, age and social support emerged as important factors for its improvement (Macdonald & Hülür, 2021; Solomou & Constantinidou, 2020). Correlations confirm previous studies concerning the protective function of social support in the face of depressive symptoms and a strong association with a higher quality of life (Solomou & Constantinidou, 2020). Additionally, having a social network appears to reduce the adverse effects of public health emergencies on people's mental health (Liu et al., 2021; Veronese et al., 2021; Yu et al., 2020). In contrast, gender emerges as a risk factor regarding both the development of psychological distress and COVID-19 fear (Rossi et al., 2020; Wang et al., 2020a). Similarly, participants' mental health was shown to be a strong predictor of their quality of life. In agreement with other studies, the fear of COVID-19 appears to have a robust predictive effect for developing anxiety, stress, and depressive symptoms, which harms the quality of life (Ahorsu et al., 2020; Bakioglu et al., 2020).

Nonetheless, some limitations need to be considered. First, the sample is small and was selected through convenience sampling and not random; thus, it cannot be considered a representative sample. In addition, there are significantly more female than male participants; therefore, results could vary with a sample exhibiting a more equitable gender balance. Furthermore, this study was a web-based survey and participants were limited to internet users, potentially excluding those who do not have easy access to the internet. Finally, this is a cross-sectional study, which does not allow us to

conceive any causal relationships. Additional longitudinal studies in this field are essential in the future.

Conclusion

Despite the limitations mentioned above, we believe that our findings expand the still limited knowledge about the impact of the pandemic on people's mental health and quality of life. Therefore, this study may be informative for policymakers. Given the persistence of the pandemic, the fact that virus variations prevent any certainty concerning vaccine value, and that a large proportion of the world has not yet had access to vaccination, our results suggest guidelines to develop interventions that support the population's well-being mental health. On the one hand, we believe that identifying the most at-risk groups through sociodemographic information might help create preventative interventions that support people both psychologically and in other domains. Our study demonstrates that identifying as female, being younger, and having a low-income or middle-income, were significant risk factors concerning mental health during the pandemic. On the other hand, we highlighted the importance of social support as a buffer for psychological impairments and the influence of coronavirus-fear as a risk factor, which can help guide future protective measurements and improvements in the communication of pandemic information. We believe that this study may assist health professionals and policymakers better understanding the links between demographic factors and mental health outcomes and help develop strategies to promote psychological resources and protect people's quality of life in a difficult situation, such as a pandemic.

Declaration of Conflicting Interests

All authors have authorized the submission of their manuscript and approved any statements or declarations.

Funding

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

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