

**UNIVERSITY OF CATANIA**

DEPARTMENT OF EDUCATIONAL SCIENCES

PHD COURSE IN  
EDUCATIONAL PROCESSES, THEORETICAL-TRANSFORMATIVE MODELS AND  
RESEARCH METHODS APPLIED TO THE TERRITORY

XXXV Cycle

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DEVELOPMENTAL CHALLENGES,  
VULNERABILITY AND RESILIENCE  
DURING THE COVID-19 PANDEMIC:  
STUDIES ON PSYCHOLOGICAL EFFECTS  
FROM ADOLESCENCE TO ADULTHOOD

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PHD DISSERTATION  
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Academic Year 2021/2022

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# Introduction

The COVID-19 pandemic was an unpredictable event that disrupted people's everyday life and sociality worldwide. The research was also entirely revolutionized by the pandemic event and began to question and work on its effects at both the clinical and psychosocial levels.

Recent studies on this topic suggested that the COVID-19 pandemic - especially its unpredictability, the lockdowns, and the severe economic consequences of the restrictive measures - had a considerable impact on the mental health and psychological well-being of the population. Undoubtedly, the feelings of isolation and loneliness caused by the COVID-19 containment measures are one of the leading causes of the negative psychological consequences of the pandemic, including but not limited to anxiety, depression, and post-traumatic stress.

However, there is still limited literature on the psychological consequences of the pandemic from a developmental perspective. In particular, it would be interesting to study the pandemic event from a lifespan perspective that considers the development of the individual as a dynamic process that lasts a lifetime and is influenced by multiple biological, psychological and social factors. In this theoretical framework, the pandemic represents a nonnormative event, as it is unexpected and unpredictable in its outcomes, which may impact the individual differently based on the developmental stage they are going through.

Therefore, the aim of this PhD dissertation, which brings together the results of a research project that was carried out over three years, is to fill this gap in the

literature by exploring the different psychosocial impacts of COVID-19 in the lifespan, considering the specificity of the different developmental stages of the individual. We specifically chose some of the developmental stages of the individual that the literature has shown to be among the most vulnerable to the psychological consequences of the COVID-19 pandemic: adolescents, young adults attending university, women in the postpartum period, families. In addition, the studies presented in this dissertation investigated the effects of the pandemic, taking into account the specificity of the Italian context, characterized by different measures of restriction compared to other countries as well as by different socio-cultural influences.

Chapter 1 provides a theoretical introduction to the psychological consequences of the pandemic from a lifespan perspective. Specifically, this chapter reviews the most recent evidence on the psychological impact of the pandemic both in the general population and at specific developmental stages, chosen for their crucial importance in the individual's development (adolescence, young adulthood, pregnancy and postpartum, family).

According to the literature, the COVID-19 pandemic had a powerful impact on adolescents going through a developmental stage in which social and emotional support is paramount for psychological well-being. Chapter 2 presents the results of a prospective observational study conducted between April 22 and May 25, 2020, during the first COVID-19 lockdown, on a sample of 1,017 Italian adolescents. The study aimed to explore the effects of the COVID-19 pandemic on adolescent well-being, learning, and social needs.

For many young people, the university experience represents a critical stage in the transition to adulthood and may be characterized by stress and feelings of uncertainty. Chapter 3 explores the psychological experiences of Italian university students during the first two waves of the COVID-19 pandemic. Specifically, our study investigated the impact of the pandemic and the transition to distance learning on university students in Italy and the differences between the first and second waves.

Pregnancy and childbirth are other critical stages in individual development for both parents and couples. Considering the vulnerability that characterizes this stage of development, Chapter 4 analyzed the consequences of COVID-19 and related restrictions on the psychological well-being of women who gave birth during the pandemic. In particular, we investigated the role of partner's presence and social support received in pregnancy and postpartum.

Finally, Chapter 5 investigated the psychosocial impact of the COVID-19 pandemic on the functioning and quality of life of Italian families, with a specific focus on the interconnection between individual and family well-being. Indeed, the literature has widely underlined how the quality of family relationships influences individual well-being and how the latter significantly impacts the family structure and quality of life. From a lifespan perspective, the family helps support the individuals in their development but at the same time has its life cycle characterized by specific stages and coping and resilience mechanisms to face stressful events. For this reason, investigating how individuals perceive the quality of their family relationships and how these affect their well-being in times of COVID-19 is



essential for further exploring the pandemic event's implications from a developmental perspective.

Overall, the results of the studies presented in this thesis confirm that the COVID-19 pandemic, especially the feelings of loneliness and isolation caused by the lockdown periods imposed by the need to contain the spread of the virus, certainly had a significant impact at different stages of the individual's development.

Future research should focus on the challenges that need to be addressed to enable an adequate elaboration of the pandemic event within the individual's life cycle. In particular, it will be necessary for institutions to take into account not only the economic but also the psychosocial consequences of the pandemic in order to plan long-term intervention plans for the most at-risk groups such as youth and families to mitigate the negative impact of periods of lockdown and isolation on the psychological well-being and developmental processes of the population.

# CHAPTER 1

## **The COVID-19 Pandemic: Psychological Effects in the Lifespan**

### *1.1. The COVID-19 Pandemic in a Lifespan Perspective*

Most modern theories of developmental psychology consider the development of the individual to be a *dynamic system*, i.e., a lifelong process from conception to death that is influenced by a complex network of psychological, environmental, and social factors (Berk, 2007; Lerner et al., 2005).

According to the lifespan perspective, development is lifelong, multidimensional, multidirectional, highly plastic, and influenced by multiple interacting factors (Berk, 2007; Smith & Baltes, 1999; Staudinger & Lindenberger, 2003). Furthermore, no one age has a more significant impact on development throughout the life cycle than the others. Instead, events occurring at each age can have an equally significant impact on the individual's future development (Berk, 2007).

Every developmental stage is characterized by evolutionary tasks and opportunities that are similar for all individuals. For example, during adolescence, the individual is required to define his or her personal values and goals and to become autonomous from the family. Young people instead should leave home,

complete their education, and start working (Berk, 2007). Nevertheless, throughout life, each individual may be faced with events and challenges that are different in timing and patterns and require different adaptation processes (Staudinger & Lindenberger, 2003). In this sense, development is *lifelong* (Berk, 2007).

Development is *multidimensional* because it is influenced by the interaction of multiple biological, psychological, and social factors (Berk, 2007). Furthermore, it is *multidirectional* since every stage of life involves both growth and decline. Although growth is more evident in the early stages of development and decline in the final stages, people of all ages can improve current skills and develop new ones, including skills to compensate for energy and resources that deteriorate in the course of development (Freund & Baltes, 2000).

Furthermore, development is *plastic* since it is a process of continuous growth and transformation even during adulthood and old age. Obviously, developmental plasticity decreases over the years due to the lack of opportunities for change and growth. Furthermore, plasticity varies from individual to individual as each person is faced with the most diverse life circumstances and adapts more or less positively to changes (Berk, 2007; Lemme, 2006).

Finally, according to the lifespan perspective, several interacting factors can influence the development of the individual. First, it is conditioned by age as there are events that are closely related to age and therefore predictable. Such events are typical of developmental stages such as childhood and adolescence in which biological changes are very rapid and society imposes a series of age-related experiences to ensure that young people acquire the skills they need to be part of society - i.e., high school graduation, driving license, voting rights, etc. (Berk,

2007). Development is also influenced by events characterizing a particular historical period such as wars, epidemics, economic crises. Finally, there are unpredictable events whose influence on development is non-normative, i.e., differs from individual to individual and enhances the multidirectionality of development (Berk, 2007).

Based on these considerations, the lifespan perspective underlines that there is no single line of development but different pathways and outcomes, depending on the contexts that influence the individual's life course (Berk, 2007). Furthermore, borrowing the concept of *psychosocial crises* from Erik Erikson's theory of human development (Erikson, 1982), each developmental phase is characterized by crisis events that require the individual to mobilize resources and skills that allow him to solve them in order to move on to the next stage.

The COVID-19 pandemic is certainly an unprecedented event whose impact on the life cycle needs to be investigated. In fact, the pandemic can be considered both as an event related to a specific historical period and therefore normative, but at the same time as a non-normative event since its effects on individuals are completely unpredictable. Such a crisis event, therefore, draws different developmental trajectories for both the individual and his or her environment (*multidirectionality*), and outcomes may differ depending on the resources of each individual and the influences of his or her context (*plasticity*).

Furthermore, several biological, psychological, and social factors play an important role in influencing the impact of the pandemic on the well-being in the lifespan. Therefore, it is essential to investigate vulnerability and resilience factors at each developmental stage in relation to the pandemic event in order to plan the

most effective intervention strategies to reduce risk conditions and promote psycho-physical well-being throughout the life cycle.

In the following paragraphs, an overview will be given of the psychological implications of the COVID-19 pandemic on the general population and on some of the major developmental stages of the individual across the lifespan: adolescence, young adulthood, pregnancy and motherhood, and family.

### *1.2. Mental Health and Psychological Effects of COVID-19*

COVID-19 is the name of an acute respiratory syndrome caused by the novel SARS-CoV-2 coronavirus (Zheng, 2020). This new virus appeared for the first time in Wuhan, China, in December 2019, and the World Health Organization declared COVID-19 a pandemic on March 11, 2020 (Cucinotta & Vanelli, 2020). Since then, the disease has rapidly spread worldwide (World Health Organization, 2020a, 2020b) with about 580 million people infected with COVID-19 and 6.4 million deaths (Statista, 2022c).

The most frequent COVID-19 symptoms are fever, cough, dyspnea, tachypnea, and fatigue, and the disease can present with varying levels of severity, including asymptomatic infection, mild, moderate, severe, and critical illness (Gao et al., 2021; National Institutes of Health, 2021).

The long-term consequences of COVID-19 are still little known (Huang et al., 2021; Righi et al., 2022). The most frequently reported symptoms after recovery from COVID-19 include chronic fatigue, diffuse myalgia, dyspnea, headache, loss

of taste and smell, and concentration difficulties (Aiyegbusi et al., 2021; Carfi et al., 2020; Righi et al., 2022), which can result in significant impairment of physical, cognitive, and psychosocial health (Righi et al., 2022; Thye et al., 2022).

The spread of the coronavirus in Italy, the context of the research reported in this doctoral dissertation, started in February 2020. Italy was the first European country to be hard hit by the COVID-19 pandemic. Some 20.4 million Italians have been affected by COVID-19, and about 170,000 died. As of July 20, 2022, the number of subjects currently positive for COVID-19 infection in Italy was approximately 1.45 million (Statista, 2022b). Most people who contracted COVID-19 have recovered. To date, the number of individuals who recovered from coronavirus in Italy exceeded 19 million (Statista, 2022a).

From early 2020 until the introduction of COVID-19 vaccines, several restrictive measures were adopted worldwide to contain the contagion, including physical distancing, lockdown, mask-wearing, test-and-trace and isolation, together with a reorganization of healthcare systems and emergency plans to deal with the pandemic's economic consequences (World Health Organization, 2020c). Therefore, millions of people were forced to remain isolated at home, and their usual routines were drastically modified (Bivia-Roig et al., 2020).

In Italy, the first "red zone" was created in Lombardy and Veneto after the first case of COVID-19 in an Italian patient registered in Codogno (Lombardy) on February 20, 2020: people living in these regions had to stay at home and were not allowed to leave, and no one was allowed to enter the area (Micheli et al., 2020; Romagnani et al., 2020). On March 9, 2020, the Italian Government adopted more severe restrictive measures to contain the COVID-19 spread, and entire Italy

became a "red zone" (Italian Ministry of Health, 2020). As a result, people can leave their homes only for essential activities such as shopping for food or for serious health reasons; furthermore, most workers were forced to work from home in "smart working" mode (Cancello et al., 2020). Schools and universities were also closed due to the lockdown, dramatically impacting children, adolescents, and young people's lives (UNESCO, 2020b).

The gradual containment of the spread of the disease thanks to the social distancing and the introduction of vaccination against COVID-19 have allowed the lockdown measures to be relaxed. Currently, people's lives around the world have resumed in an almost usual way, as in pre-pandemic times.

However, the unpredictability of the COVID-19 pandemic, the lockdowns and other containment strategies, and the severe economic consequences of the pandemic have had a considerable impact on the mental health of the population, even though the psychological implications of the pandemic are still greatly underestimated (Moreno et al., 2020; Passavanti et al., 2021). It has been amply demonstrated that many consequences of the COVID-19 spreading, such as social isolation, uncertainty, physical discomfort, medication side effects, and fear of virus transmission to others, have been associated with adverse mental health outcomes, including but not limited to anxiety, depression, insomnia, and post-traumatic stress symptoms (Bo et al., 2021; Gramaglia et al., 2021; Xiang et al., 2020). Furthermore, as already reported in studies of previous pandemics such as SARS (Chatterjee & Chauhan, 2020), high suicide rates were also reported during the COVID-19 pandemic, both among quarantined people and health care professionals involved in treating the disease (Rana & Govender, 2022; Thakur & Jain, 2020).

Undoubtedly, the isolation caused by COVID-19 containment measures is one of the leading causes of the negative psychological consequences of the pandemic. Indeed, extensive literature points out that humans have a fundamental need for connection, closeness, and intimacy (Coplan et al., 2021; Rana & Govender, 2022; Rohde et al., 2015; Smith & Victor, 2018) and that a good network of interpersonal relationships is essential for mental and emotional well-being and good quality of life (Coplan et al., 2021).

As reported by several authors, the more a person lives in a state of confinement or isolation, the greater the risk of developing psychological problems (Cacioppo et al., 2015; Usher et al., 2020): specifically, isolation and loneliness are found to be significantly correlated with depression, anxiety, impaired executive functioning, reduced cognitive performance, and reduced immune functioning (Beller & Wagner, 2018; Cacioppo & Hawkley, 2009).

In recent years, lockdown measures have been taken to contain the spread of other pandemics such as severe acute respiratory syndrome (SARS) or H1N1 flu. Many studies reported adverse psychological effects of these measures, including post-traumatic stress symptoms, confusion, and anger (Brooks et al., 2020; Hawryluck et al., 2004; Liu et al., 2012). More specifically, a lengthy quarantine duration, fear of being infected, frustration, boredom, inadequate information, financial loss, and stigma are relevant stressors that can exacerbate the negative psychological impact of confinement measures (Brooks et al., 2020). However, quarantine to contain SARS or H1N1 flu did not affect such many people and in such a radical way as that adopted for the containment of COVID-19.



Consequently, it is essential to analyze the specific psychological experiences related to this experience.

However, although the risk for psychological disorders related to changes in life caused by a pandemic is widely documented, there is evidence that several socio-demographic and psychological variables influence the emotional responses to this event (Hawryluck et al., 2004). In this regard, several studies identified the main risk factors for psychological distress during the COVID-19 pandemic. First, age is a significant risk factor because the prevalence of anxiety and depressive symptoms during the pandemic seems higher in the young than in the elderly. In particular, young people, health care workers and people who spend much time thinking about the pandemic are more likely to develop mental illness or suffer psychological problems (Huang & Zhao, 2020). Sun et al. (2021) reported that women and people with poor sleep quality are at higher risk of developing symptoms of post-traumatic stress disorder (PTSD). Similar results showed that maintaining good sleep quality in individuals at increased risk of infection helps prevent post-traumatic stress (Zhang et al., 2020). Qiu et al. (2020) reported that the peritraumatic stress related to COVID-19 was significantly associated with gender, age, education level, occupation and province of residence. Psychological distress was also significantly higher in women than in men. Individuals under 18 years old reported lower psychological distress scores, while those between 18 and 30 and over 60 reported the highest scores (Qiu et al., 2020). According to Liu et al. (2020), young people, divorcees and people in poor physical condition are more likely to develop acute stress symptoms.

The COVID-19 pandemic and lockdown are also associated with an increased risk of addictive behaviors, such as alcohol consumption and online gambling. In this regard, recent studies showed an increase in alcohol consumption during the COVID-19 pandemic compared with the pre-pandemic period (La Rosa et al., 2021; Rodriguez et al., 2020). Similarly, other studies reported a significant increase in hours spent on the Internet, smartphones, online and offline gaming, and video viewing during the lockdown and a consequent increased risk of developing addictive behaviors (Higuchi et al., 2020; King et al., 2020; La Rosa et al., 2021; Price, 2020).

Another critical aspect concerns the psychological consequences of COVID-19 in patients who recovered from the disease (Moreno et al., 2020; Poyraz et al., 2021; Rajkumar, 2020; Tsamakidis et al., 2021). Specifically, the impact of COVID-19 on psychological outcomes could be related to the severity of the illness. In this regard, rates of PTSD symptoms are exceptionally high among patients with more severe COVID-19-related symptoms (Chamberlain et al., 2021; Greenberg & Rafferty, 2021). Specifically, patients who require admission to Intensive Care Units to treat acute COVID-19 are at increased risk of developing post-traumatic symptoms (Carenzo et al., 2021; Herridge et al., 2011). Indeed, it is known that traumatic experiences confronting the individual unexpectedly with death, a danger to life, or a threat to physical and mental integrity, may cause difficulty in regulating emotional states and tolerating negative emotions (La Rosa et al., 2021). In particular, hospitalization is generally recognized as a risk factor for developing PTSD (Sareen, 2014). A recent study by Craparo et al. (2022) revealed that high levels of alexithymia, dissociation, anxiety, and depression statistically

significantly predicted the three main clusters of PTSD symptoms (i.e., avoidance, intrusion, and hyperarousal) in individuals who have recovered from COVID-19. Furthermore, dysfunctional personality traits, such as negative affectivity and psychoticism, increase the risk of developing post-traumatic symptoms after COVID-19 (Craparo et al., 2022).

Finally, the pandemic had a significant psychological impact on people with pre-existing mental disorders who reported increased symptoms and more difficult access to mental health services since the onset of the COVID-19 pandemic (Hao et al., 2020; Moreno et al., 2020). More specifically, people with pre-existing mental health problems reported increased anxiety, depression, post-traumatic stress disorder, and insomnia due to the lockdown (Hao et al., 2020). Furthermore, increased symptoms have been reported during the COVID-19 pandemic in people with eating disorders (Fernández-Aranda et al., 2020), autism spectrum disorder (Narzisi, 2020), dementia (H. Wang et al., 2020), and intellectual and developmental disabilities (Cortese et al., 2020; Theis et al., 2021).

From a lifespan perspective, the psychological impact of COVID-19 at different stages of life can take on different and distinctive characteristics. Specifically, some developmental stages are at greater risk of experiencing more significant psychological relapses due to isolation and pandemic. Therefore, in the following paragraphs and the research conducted for this thesis, the primary psychological implications of the pandemic from adolescence to adulthood will be presented.

### *1.3. The Psychological Impact of the Pandemic on Adolescents*

As seen in the previous paragraph, the measures taken by governments worldwide to contain the spread of the COVID-19 pandemic have created a state of generalized isolation that has significantly impacted people's mental health (Brooks et al., 2020; Passavanti et al., 2021).

Although the psychological impact of these restrictions has been significant in all age groups, this impact was undoubtedly more intense at some developmental stages. One such case is that of adolescents who especially need peer support for their emotional and social development (Ellis & Zarbatany, 2017; Magson et al., 2021).

Although adolescents are generally affected to a lesser extent by COVID-19 than other segments of the population, such as the elderly, school closures and restrictions on social life, have dramatically impacted their daily lives (Keijsers & Bülow, 2021). Specifically, to better understand the psychological consequences of the pandemic and related restrictive measures on adolescents' mental health and psychological well-being, it is essential to reflect on the specific characteristics of this stage of the individual's development.

According to the official definition of the World Health Organization, adolescence is the phase of life between childhood and adulthood, from ages 10 to 19 (World Health Organization, 2022). It is a critical period in the development of an individual during which it is possible to acquire a series of skills and resources that allow a balanced growth process even in the later stages of life (Lerner & Steinberg, 2009). During this developmental stage, the

adolescent faces great physical, cognitive, and socio-emotional transformations that affect relationships with family and friends, academic adjustment, and psychological well-being (Steinberg, 2005).

Adolescence has often been described as a period of psychosocial turmoil and discontinuity (Bandura, 2006; Casey et al., 2010; Collins & Steinberg, 2007), probably due to physical and chemical changes involving the brain during adolescence resulting in a "neural mismatch" whereby the expression of emotionality is more heightened in response to real and/or perceived stressors (Bailen et al., 2018). Nevertheless, ample evidence exists to prove that most adolescents go through this particular stage of development without any particular discord or trauma (Bacchini & Magliulo, 2003; Bandura, 2006).

One of the fundamental tasks during adolescence is to develop a sense of oneself as an autonomous individual (Harter, 2015). More specifically, the adolescent has to move from the egocentric perspective typical of childhood to the ability to understand, predict and respond to others' feelings and attitudes (Brizio et al., 2015; Romund et al., 2017).

As any other human being, adolescents have a fundamental need to form and maintain high-quality, intimate, and stable relationships with others (Keijsers & Bülow, 2021). In this sense, relationships with peers gradually assume central importance in the adolescent's life (De Goede et al., 2009). Indeed, on the one hand, adolescents become progressively more independent from their parents, and on the other hand, they spend more and more time with peers. Therefore, for the first time, friends rather than parents become the primary source of interaction and influence (Meuwese et al., 2017).

Positive peer relationships during adolescence are essential not only because they provide emotional and social support but also because they allow the adolescent to learn how to cope with stress, maintain relationships, and form the basis for future growth and maturation (Keijsers & Bülow, 2021). Conversely, negative relationships with peers can be a cause of conflict and interpersonal stress (Somerville, 2013) and can lead to poor self-concept, a low sense of self-efficacy and self-esteem, and a consequent increase in symptoms of anxiety and depression (La Greca & Harrison, 2005).

Despite the progressive search for autonomy from the family during adolescence, the relationship with parents is also of fundamental importance in the adolescent's developmental process. Indeed, parents play a crucial role in helping the adolescent become a resilient adult who can handle stress appropriately (Keijsers & Bülow, 2021).

During adolescence, parents have to deal with conflicts arising from the teenager's growing need to make their own decisions (Keijsers & Bülow, 2021). Proper management of the conflict that is normal at this stage of the family life cycle makes it possible to move from an asymmetrical parents-adolescent relationship in which the parents have the final say on decisions to be made to a more symmetrical relationship in which decision-making is more democratic (Branje et al., 2011). Therefore, positive adolescent development occurs when parents exercise less control and show confidence in their child's ability to make good decisions autonomously (Keijsers & Bülow, 2021; Keijsers & Poulin, 2013).

Finally, developmental psychology has pointed out that adolescence is a

particularly high-risk stage for various disorders such as generalized anxiety, eating disorders, depression, and social anxiety, which typically onset right between the ages of 13 and 19. The causes of this vulnerability in adolescence are to be found in increased interpersonal stress, difficulty in regulating emotions, and heightened emotional reactivity (Cooper et al., 2021; Sander et al., 2021).

In light of these general considerations about adolescent development, it seems clear that the restrictions relating to the COVID-19 pandemic strongly affected all the adolescents' domains of life.

Measures to contain the spread of the COVID-19 virus have resulted in school closures and have reduced the opportunities to meet with friends and peers outside the family sphere. As a result, adolescents' social contacts have been drastically decreased, and this contributed to heightened experiences of loneliness and psychological distress.

It has been reported that loneliness affected adolescents more than any other age group during the pandemic. In this regard, a rapid systematic review highlighted that 30–50% of the adolescents were lonely during the COVID-19 lockdown (Loades et al. 2020). In addition, school and extracurricular activities, as well as relationships with peers, have moved online, dramatically increasing the time spent by adolescents on the Internet. In this regard, technology overload is a problem that needs attention as it has resulted in increasing technological addiction during the pandemic among adolescents (Williamson et al., 2020). Although adolescents could compensate for the lack of face-to-face contact with online communication during the lockdown, there is no doubt that

they were deprived of significant opportunities for emotional and social support from peers, precisely at a stage of life when they particularly need it.

Regarding relationships with parents, it was pointed out that during the lockdown, parents of adolescents exercised more control, mainly to reinforce rules of hygiene and social distancing, such as not being allowed to see friends (Keijsers & Bülow, 2021). A more authoritarian and repressive parenting style during lockdown is associated with increased conflict between parents and children and the onset of internalizing problems such as anxiety and depression. However, studies have also reported that the increased hours spent together in many families allowed for stronger relationships between teens and parents and improved communication (Evans et al., 2020).

Finally, regarding vulnerability to psychological disorders that we have seen to be typical of adolescents, it has been demonstrated that the impact of COVID-19 on adolescents' mental health is considerable. Specifically, anxiety, depression, disturbances in sleep and appetite, as well as impairment in social interactions are the most frequently reported problems by adolescents during the pandemic. Magson et al. (2021) investigated the impact of the COVID-19 pandemic on 248 Australian adolescents' mental health and the factors most associated with psychological distress. Adolescents in the sample were assessed 12 months before the pandemic outbreak (T1) and two months after the lockdown measures and the transition to online education took effect (T2). The results confirmed that adolescents experienced significant increases in depressive symptoms and anxiety and a significant decrease in quality of life during the pandemic. These differences were more significant in girls than in



boys. Furthermore, COVID-19-related worries, online learning difficulties, and increased conflict with parents predicted increases in mental health problems from T1 to T2, whereas adherence to stay-at-home orders and feeling socially connected during the COVID-19 lockdown protected against poor mental health (Magson et al., 2021).

Another interesting study by Cooper et al. (2021) on a sample of 894 British adolescents investigated the effect of loneliness, social contact, and parent relationships on mental health during the lockdown in the U.K. According to the results, adolescents who reported higher loneliness had significantly higher symptoms of mental health difficulties during the lockdown. Furthermore, closer relationships with parents were associated with less severe psychological symptoms and lower levels of loneliness. Finally, adolescents who spent more time texting others reported higher symptoms of mental health difficulties.

Other studies confirmed that COVID-19 was a significant risk factor for the onset of mental health problems in adolescents and was particularly associated with depression and anxiety, while Oosterhoff et al. (2020) showed that adolescents who preferred to stay at home during the pandemic reported less anxiety and depressive symptoms.

In conclusion, the COVID-19 pandemic is likely to have more negative long-term consequences for adolescent than adult mental health. For this reason, it is essential to monitor the psychological impact of the pandemic on such a vulnerable developmental stage as adolescence to promote appropriate resilience and stress management skills.

Chapter 2 will report the results of research conducted on the psychological

well-being of a large sample of Italian adolescents during the first COVID-19 lockdown.

#### *1.4. Psychological Experiences of University Students During the Pandemic*

As shown extensively in the previous paragraphs, the COVID-19 pandemic has caused profound disruption in the daily lives of people worldwide, resulting in profound psychological distress (Rana & Govender, 2022). However, vulnerability to the psychological consequences of the pandemic changes in the different segments of the population and is based on various socio-demographic factors, such as age, gender, and level of education (Passavanti et al., 2021; Xiong et al., 2020). It is widely documented that although older people are more at risk for COVID-19-related complications, the prevalence of psychological disorders is higher in younger people (Bruine de Bruin & Isaacowitz, 2021). Consequently, it becomes essential to investigate the psychological impact of the COVID-19 pandemic on young adults.

Within this age group, university students represent a particularly at-risk group who need special attention during this pandemic.

For many young people the university experience represents an important stage in the transition to adulthood (Montgomery & Côté, 2006). Indeed, university coincides with a critical developmental period during which young people leave their family home whilst their brain develops rapidly and show

increased sensitivity to stress (Worsley et al., 2021).

Furthermore, university is a fundamental moment of socialization and personal growth in which students aspire to broaden their prospects, both personal and professional (Montgomery & Côté, 2006). Thus, positive transition to university enables students to develop a sense of belonging, which can improve students' well-being and academic performance (Worsley et al., 2021). However, university experience can be also stressful and characterized by feelings of uncertainty and fear for the future (Matar Boumosleh & Jaalouk, 2017; Milenković et al., 2018), which can be exacerbated by unforeseen events that threaten the regularity of the academic career and lead in many cases to withdrawal from the university (Worsley et al., 2021).

In this sense, the COVID-19 pandemic may significantly affect the experience of university students worldwide. Indeed, universities have been closed worldwide to contain the spread of the virus, and students have had to face a radical change in their academic life (UNESCO, 2020b).

Italian university students were the first in Europe to confront the lockdown with the closure of universities and the transition to distance learning. In contrast, students from other countries were potentially already informed about the lockdown experience. In Italy, universities were first closed on March 6, 2020, and all academic activities, such as lessons, exams, degrees, and administrative management, have adapted to online modalities. These activities include holding classic face-to-face classes via the web, using learning platforms, and sharing files using slides and study notes (D'Addio & Endrizzi, 2020). Therefore, the lockdown significantly impacted university students'

work and life due to the switch to online activities, closed libraries, new ways of communicating with professors and administrative staff, and online exams with different evaluation criteria than traditional in-person exams (Aristovnik et al., 2020; Browning et al., 2021). In addition, the social life of college students has also undergone profound changes due to the impossibility of meeting friends and college colleagues and the need to leave the university cities to return home in the case of off-site students (Aristovnik et al., 2020; X. Liu et al., 2020).

Once they reopened after lockdown periods, universities were not the same as in the pre-pandemic period. Therefore, new rules were needed to deal with post-lockdown university life, which inevitably changed the educational processes and sociality of university students, professors, and technical-administrative staff (Aristovnik et al., 2020).

Several studies have investigated the specific psychological impact of COVID-19 on university students worldwide, highlighting a significant negative effect of the COVID-19 pandemic on the mental health of students, especially high levels of anxiety and depression (Browning et al., 2021; Islam et al., 2020; Kaparounaki et al., 2020; Odriozola-Gonzalez et al., 2020). Specifically, most university students with high levels of anxiety and depression during the pandemic mainly reported difficulties related to online education, uncertainties about the university path, feelings of social isolation, and worries about future job prospects (Aristovnik et al., 2020; Browning et al., 2021). Interestingly, these feelings and concerns are shared by students in different countries, confirming the universally negative impact of the pandemic on the

mental health of students around the world (Aristovnik et al., 2020).

Furthermore, a study conducted in the U.S. also found that economic problems and financial instability are associated with more significant psychological distress among college students, particularly anxiety and depression (Jones et al., 2021).

A recent systematic review and meta-analysis by Ebrahim et al. (2022) reported current evidence on the impact of the COVID-19 pandemic on college students' mental health. The results of the meta-analysis of a total of 46,284 cases revealed an overall pooled prevalence rate of 29.1% for anxiety symptoms and 23.2% for depression (Ebrahim et al., 2022).

These variations in the prevalence of anxiety and depression among college students could be explained by the feelings of uncertainty and uncontrollability that characterize the pandemic period (Grupe & Nitschke, 2013). Specifically, the pandemic was a significant threat to the plans and aspirations of college students worldwide. Consequently, a sense of uncertainty about the future, along with stress about the spread of the disease and social isolation, contributed to the onset or exacerbation of anxiety symptoms (Bakioğlu et al., 2020; Li et al., 2020). At the same time, the development of new coping strategies and the gradual reshaping of educational processes with the refinement of online learning have made it more difficult for depressive symptoms to proliferate (Ebrahim et al., 2022; Mariani et al., 2020).

Another interesting study by Browning et al. (2021) aimed to identify the main risk factors for adverse psychological consequences among college students during the pandemic. According to the results, being a woman, having

a poor general health status, being 18 to 24 years old, spending eight or more hours on screens daily, and knowing someone infected predicted higher levels of psychological impact. Similarly, the study by Islam et al. (2020) on a sample of 476 university students living in Bangladesh confirmed that females and older students report higher levels of anxiety and depression.

Another potential risk factor for a more negative psychological impact is the degree program attended. In this regard, several studies underlined that healthcare students reported higher levels of psychological distress than students from other areas (Almhdawi et al., 2021; Hakami et al., 2020; Harries et al., 2021). Overall, compared to students in different fields, health science students typically perceive a high stress level due to the structure of medical courses, clinical training in a competitive environment, relationship with patients, and limited relaxation time (Bali et al., 2020; Iqbal et al., 2015; X. Liu et al., 2020). During the pandemic, the complete disruption of medical education pathways with the introduction of online teaching and the discontinuation of hands-on internships with patients contributed to the impairment of the psychological well-being of health area students. Almhdawi et al. (2021) reported that Jordan healthcare students had a relatively low quality of life during the COVID-19 pandemic. In particular, depression and stress levels, health self-evaluation, satisfaction with distance learning, physical activity, and weekly studying hours were significantly associated with quality of life scores (Almhdawi et al., 2021).

Similarly, Harries et al. (2021) reported moderate anxiety among U.S. medical students. More specifically, 74.7% of students agreed the pandemic had

significantly disrupted their medical education and were willing to accept the risk of COVID-19 infection to resume internships with patients. Dental students also reported high anxiety, depression and stress levels, as shown by several studies (Almhdawi et al., 2021; Hakami et al., 2020; Kharma et al., 2020; Menon et al., 2021). In particular, females, students who lived alone, and junior students were more likely to experience psychological problems during the pandemic, similarly to the general population of college students (Hakami et al., 2020).

Finally, another critical factor that may affect the psychological well-being of college students during the pandemic is satisfaction with online education. Based on the results of a recent survey by Aristovnik et al. (2020) conducted on a large sample of college students from five continents, several types of online lectures were adopted by universities worldwide. The most frequent type was real-time video conferences (59.4%), followed by presentations sent to students (15.2%), video recording (11.6%), and written communication through forums and chats (9.1%). In general, students reported high levels of satisfaction with online education, especially with real-time lectures, while students without adequate equipment to connect to the Internet and follow courses reported the lowest levels of satisfaction (Aristovnik et al., 2020). Furthermore, most college students said that the shift to online education resulted in an increased academic workload compared to the pre-pandemic period, negatively impacting psychological well-being and quality of life. In particular, the increase in workload was reported by students from Oceania (59.8%), Europe (58.0%), and North America (54.7%). In contrast, students from South America, Asia, and

Africa reported that their workload decreased (Aristovnik et al., 2020). This finding can be explained by the fact that Internet connection is still challenging in these continents, and the use of online education was not as widespread in the pre-pandemic period as in other continents. Consequently, as underlined by the literature, a positive experience with online university education during the pandemic is predictive of a better quality of life and higher psychological well-being of students (Almhdawi et al., 2021; Aristovnik et al., 2020; Browning et al., 2021; Ebrahim et al., 2022; Harries et al., 2021).

These data are fundamental because they enable early identification of students most at risk of developing psychological disorders as a reaction to the pandemic and the planning and implementation of appropriate intervention strategies to avoid long-term consequences on university students' mental health.

Chapter 3 will report the results of a survey conducted on a large sample of Italian university students during the first two waves of COVID-19 to explore their psychological experiences concerning the pandemic, lockdown measures and online education experience.

### *1.5. Pregnancy and Childbirth During the Pandemic*

Numerous studies conducted during the pandemic have shown that women have a higher risk of developing negative psychological consequences such as anxiety, depression, and post-traumatic stress than men (Almeida et al., 2020; C.



Wang et al., 2020). It is known that women have a few risk factors that can intensify the psychological impact of the pandemic, including being victims of domestic violence (Campbell, 2020), pre-existing anxiety and depressive symptoms (Hao et al., 2020), and chronic environmental stress (Street & Dardis, 2018).

Moreover, women experienced a range of pandemic-related stressors typical of developmental stages peculiar to the female gender: desire for motherhood and conception, pregnancy, childbirth, and postpartum (Almeida et al., 2020).

First, the pandemic had a significant impact on couples who had planned to have a child. According to a recent study by Micelli et al. (2020), 37.3% of participants who wanted to have a child before the COVID-19 pandemic later gave up this desire. The main reasons are fear about the virus's effects and vaccines on the fetus, economic concerns, and difficulty accessing medical care services during the pandemic (Almeida et al., 2020; Micelli et al., 2020).

A particular case is infertile couples forced to postpone assisted reproduction treatments because of the lockdown. In this regard, numerous studies have confirmed the devastating psychological impact of the pandemic on couples who have had to discontinue infertility treatments. A recent study we conducted in collaboration with the University of Genoa (Barra et al., 2022) on a sample of 524 couples whose IVF treatments have been interrupted or postponed due to the COVID-19 pandemic showed that the prevalence of anxiety and depression was significantly higher in women, especially those aged more than 35 years and with a previous IVF attempt. Furthermore, these psychological symptoms were significantly associated with the time spent on COVID-19-related news per day and the presence of a partner with a psychological disorder and, in females, a diagnosis

of gynecologic diseases such as endometriosis or uterine fibroids (Barra et al., 2022). Another study in Canada reported results similar to ours (Marom Haham et al., 2021). Specifically, women who had their medically assisted procreation treatments suspended due to the pandemic reported feelings of anger (23%), helplessness (61%), sadness (64%), and distress (50%). Another study in the U.S. found that for 22% of infertile couples interviewed, stopping treatment was equivalent to losing a child (Turocy et al., 2020).

Pregnancy represents an event that must necessarily be inscribed in a developmental perspective; in fact, women are called upon to process the critical event of pregnancy in relation to their identity, family relationships and relationship with their partners (Di Vita et al., 2013). It has been widely documented how the birth of a child, with all the changes that accompany it, can often be associated with negative feelings and experiences. Pregnancy, childbirth and puerperium result for the woman in physical changes, pain, and concerns about the child's health, but also experiences related to the loss of her independence and the need to redefine priorities in her daily life (Caretti & Crisafi, 2009). For these reasons, the perinatal period is a phase of the woman's life cycle characterized by high vulnerability to psychological disorders (Almeida et al., 2020). One in seven women reports increased levels of distress, anxiety, and depression during this period of life (Della Corte et al., 2022). In addition, vulnerability is more significant in women with high-risk pregnancies (Fairbrother et al., 2016).

Thus, it is clear how the stressor represented by the COVID-19 pandemic contributes to an increased sense of fear and uncertainty in many pregnant women. In this regard, according to the literature, women's main concerns during pregnancy

were about the effects of COVID-19 on the fetus's health and whether to avoid follow-up visits to avoid infection. For example, a study in Denmark of 255 pregnant women reported that half of the sample believed they were at a "high" risk of contracting the virus, while 36% believed there was a high risk that their child could get the disease (Overbeck et al., 2020).

In addition, pregnant women during the pandemic faced significant and unprecedented changes in prenatal care. As reported by Almeida et al. (2020, pp. 742-743):

1) To reduce the risk of COVID-19 exposure and transmission, many perinatal care visits have transitioned into a virtual mode.

2) For in-person visits, several hospitals prohibit or limit companions or escorts.

3) Treatment teams have been reconfigured as healthcare workers are deployed to other areas or are unable to maintain their previous roles.

4) In many places, patients and providers need to follow a universal mask policy, which may have negative emotional associations and limit the patient-clinician rapport. Wearing a mask is especially anxiety-provoking for some women who have experienced prior trauma, e.g., women whose intimate partners have tried to suffocate them.

These changes have contributed to women's fears, leading them, in many cases, to cancel antenatal visits to avoid the risk of infection and not expose the fetus to danger (Brown, 2021). For example, Chivers et al. (2020) reported that many women had avoided face-to-face visits for ultrasounds or blood tests because of fear of infection. Similarly, Shayganfard et al. (2020) found that the more anxious

women were about their health and the fetus because of COVID-19, the more they were inclined to avoid and cancel antenatal visits. According to Mappa et al. (2020), women's main anxieties were about the risk that contracting COVID-19 could result in growth restriction (65%), preterm birth (51%), and birth abnormalities (47%).

Studies indicate that pandemic-related stressors substantially elevated perinatal mental health challenges. For example, Wu and colleagues (2020) investigated the mental health of pregnant women before and after the announcement of the COVID-19 pandemic. The authors used the Edinburgh Postnatal Depression Scale to assess maternal depression and anxiety symptoms. Women considered after the official announcement of the COVID-19 outbreak reported significantly higher rates of depressive symptoms than women assessed before the pandemic was announced. Specifically, pregnant women who were underweight before pregnancy, primiparous, younger than 35 years of age, employed full-time, with average income and adequate living space were at higher risk of developing depressive symptoms and anxiety during the pandemic (Wu et al., 2020). An Italian study by Saccone et al. (2020) assessed the psychological impact of the COVID-19 pandemic in pregnant women using the Italian version of the Impact of Event Scale and the State-Trait Anxiety Inventory. In addition, women were asked to fill out a visual analogue scale for anxiety. Overall, according to the results of this study, the COVID-19 pandemic had a moderate psychological impact on pregnant women. However, more than half of the women surveyed (53%) rated the psychological impact of the pandemic as severe. The psychological impact was most severe in women in the first trimester of pregnancy (Saccone et al., 2020). Another study conducted in Canada with 1,987 pregnant women showed that 37.0% of

participants reported high depressive symptoms, 46.3% severely elevated anxiety, and 67.6% high pregnancy-related anxiety. In this study, social isolation strongly correlated with the risk of depression or anxiety (Lebel et al., 2020). Therefore, social support is an essential protective factor because it significantly reduces the risk of depressive and anxiety symptoms during pregnancy (Milgrom et al., 2019).

The importance of adequate social support is even more evident during delivery and postpartum. It is known that support from a partner or other companion is important to women during childbirth. Good support is associated with low levels of anxiety and depression during pregnancy and the postnatal period (Cheng et al., 2016). Specifically, during labor, partners provide information and emotional support, and facilitate communication between mothers and health professionals (Ecker & Minkoff, 2020). Furthermore, help from the partner is associated with increased birth satisfaction, greater confidence, and fewer complications during birth. Finally, women with good support use less pharmacological pain relief and are more likely to have a baby with a higher Apgar score at birth (Bohren et al., 2019; Brown, 2021).

Due to the restrictions adopted in hospitals because of the pandemic, many women were forced to give birth alone without a partner or other support figure, especially in the harshest stages of lockdown (Brown, 2021). In addition, many hospitals did not allow the partner to be present until the woman entered active labor. Therefore, the woman was forced to cope alone, not only with the moment of labor but also with feelings of anxiety and guilt that the father could not attend the birth of their child (Brown, 2021).

The partner's absence at the delivery time significantly impacted the women's birth experience. In an Italian study (Inversetti et al., 2021), women were asked which aspect of their birth experience most affected their satisfaction with childbirth. One-third of women reported that the most negative influence was the restrictions on the partner's presence in the hospital. In particular, the absence of the partner caused loneliness and isolation in women giving birth alone (Brown, 2021).

Several studies underlined that women who gave birth during the pandemic showed a significantly higher stress response to childbirth than those who gave birth before (Almeida et al., 2020; Mariño-Narvaez et al., 2021; Oddo-Sommerfeld et al., 2022). In addition to the absence of the partner during childbirth, a traumatic childbirth experience during the pandemic appears to be related to a lack of confidence in the medical team, fear of contracting the virus during delivery and being separated from the newborn after birth (Almeida et al., 2020). Furthermore, increased cesarean delivery rates during the pandemic are associated with increased levels of distress in women undergoing this mode of delivery compared with those who delivered by vaginal delivery (Oddo-Sommerfeld et al., 2022).

Finally, it is crucial to highlight that the pandemic and the lockdown also had a dramatic psychological impact on the postpartum period (Brown, 2021). Many women reported post-traumatic stress, anxiety, and depression in the postpartum as a direct result of the pandemic or as an exacerbation of disorders already present (Almeida et al., 2020).

Many new mothers faced the pandemic period with difficulty. According to a study conducted in the UK (Dib et al., 2020), 53% of mothers reported feeling sad,

59% lonely, 62% irritable, and 71% worried. Furthermore, a low family income and economic concerns appeared to be significantly associated with worse psychological outcomes (Dib et al., 2020). Davenport et al. (2020) compared the anxiety and depression levels of new mothers before and during the pandemic. They found that 15% of the mothers had symptoms of depression and 29% of anxiety before the pandemic. In comparison, they showed a dramatic increase in these rates during the pandemic (41% depression and 72% anxiety). Fallon et al. (2021) obtained similar results in a sample of mothers with infants aged 0-12 weeks. 43% of women reported a score indicating depression and 61% indicating anxiety.

Many parents attributed their symptoms to feeling lonely and isolated, away from family and unable to make new friends (Brown, 2021). Literature underlined that social support is an important protective factor against postpartum anxiety and depression (Della Corte et al., 2022; Pao et al., 2018). Effective postpartum support can consist of help from family members, friends, or professional figures to cope adequately with the new responsibilities that come with the birth of a child and the new family dynamics resulting from this event (Almeida et al., 2020). Due to the lockdown-imposed home confinement, many couples found themselves away from family and friends and have been forced to juggle multiple family tasks with little help (Almeida et al., 2020; Brooks et al., 2020). Single mothers were hit even harder (Almeida et al., 2020), mainly due to increased economic difficulties and lack of support from family members such as grandparents who were more at risk for COVID-19.

These pandemic-related stressors have also been shown to significantly affect the attachment relationship between the mother and the newborn.

The first 6 to 12 hours after birth seem to represent a critical time for the establishment of the emotional bond between mother and infant since, according to some authors, it is during this particular window of time that the mother is most sensitive and inclined to make a physical and emotional connection with her baby (Klaus & Kennell, 1976).

In this regard, a Chinese study underlined that mothers who gave birth while COVID-19 positive and were then prolongedly separated from their children after birth reported low postnatal attachment scores (Peng et al., 2021). In addition, women with higher levels of postpartum depression and a traumatic childbirth experience due to the restrictions for COVID-19 reported less bonding with their infant (Mayopoulos et al., 2021; Oskovi-Kaplan et al., 2020).

In light of these considerations, it is clear that the pandemic poses a key challenge in a particular developmental stage, such as pregnancy and motherhood. Consequently, it is crucial to investigate the effects of pandemic-related restrictions on women's psychological well-being to avoid long-term consequences that may also affect the relationship with the child.

Chapter 4 will present the results of a survey of Italian mothers to assess the impact of the pandemic and lockdown restrictions on the experience of childbirth.



### 1.6. Family Functioning and Quality of Life During the Pandemic

Developmental psychology has always emphasized that family plays a crucial role in the development of the individual, influencing mental health and psychological well-being of its members (Merz et al., 2009; Umberson et al., 2017).

The level of adaption and cohesion of a family can indicate the type of functionality that predominate (Fernandes et al., 2021). The Olson's Circumplex Model (Olson, 2008), one of the most known models of family functioning, identifies three critical dimensions: cohesion, flexibility and communication.

Cohesion is the emotional bond between family members (Olson, 2008). Olson distinguishes four different levels of cohesion: *disengaged* (very low), *separated* (low to moderate), *connected* (medium to high), and *enmeshed* (very high). Intermediate levels of cohesion (separated and connected) are the most functional, while extreme levels (disengaged or enmeshed) indicate problematic family functioning. More specifically, enmeshed families are characterized by excessive consensus and reduced independence; at the other extreme, disengaged families are characterized by little attachment or commitment between family members (Olson, 2008).

Family flexibility is defined as the quality and expression of leadership, organizations, role relationships, and rules. The four levels of flexibility are *rigid* (very low), *structured* (low to moderate), *flexible* (moderate to high), and *chaotic* (very high). Very low flexibility (rigidity) indicates an excess of order

and rules in the family system. In contrast, a very high level of flexibility (chaotic) indicates the family system's disorganization. As with cohesion, intermediate levels of flexibility are necessary for good family functioning.

Communication refers to the positive communication skills used within the family system, and it is a facilitating dimension that can improve family cohesion and flexibility (Olson, 2011). Good communication within the family also enables positive conflict management. Conflict is another essential dimension of family functioning and indicates the degree of aggression and anger expressions.

Scientific evidence shows that life challenges and unexpected traumatic events can profoundly affect family functioning, changing its structure and functions (Arditti, 2015; Fuller-Iglesias et al., 2015).

Families may adopt specific coping strategies to deal with stressful events (Arditti, 2015). Coping is «the set of resources that a person usually uses to solve or improve problematic situations, and to reduce the tensions that these situations might generate» (Martínez-Montilla et al., 2017, p. 593). Transferring this concept to the family system, family coping can be defined as «the capacity of the family to confront, mobilize and put into action measures to act in front of changes or to the appearance of stressful events» (Martínez-Montilla et al., 2017, p. 593).

The main coping strategies that can be used at the individual and family levels are social support, avoidance strategies, positive attitude, problem orientation, and transcendent orientation (Sica et al., 2008). Social support refers to searching for information to resolve problematic situations. Applied to

the family system, this coping strategy refers to sharing experiences among family members and in the external environment. Avoidance strategies indicate using behavioural and mental detachment to escape the critical situation. Family members can implement specific avoidance strategies to get around the problem and escape its solution. Positive attitude refers to the attitude of acceptance and positive reinterpretation of stressful events (Sica et al., 2008). Family members can feed hope in stressful situations, always supporting each other to create new ideas for the future (Walsh, 2016). Problem orientation is based on planning and problem-solving strategies (Sica et al., 2008). The use of problem-solving strategies by the family members is essential for good family functioning because a functional family should be able to solve problems collaboratively (Walsh, 2016). Finally, transcendent orientation refers to using religion and humor to deal with stressful situations (Sica et al., 2008). Transcendent beliefs provide meaning to human life and guarantee continuity between past, present and future. Humor can help family members to solve problems and look at life events from a positive perspective (Walsh, 2016).

The COVID-19 pandemic represented a threat and a crisis for families worldwide due to challenges related to social changes, insecurity, overload, and stress related to confinement (Prime et al., 2020). In addition, the lockdown experience resulted in difficulties among members of some families who were not used to living with their family members for long periods, placing family interactions under great pressure (Luttik et al., 2020).

Closing schools to contain the spread of the infection has resulted in increased parental stress, especially for mothers who traditionally have the

burden of caring for children and the elderly in their families on their shoulders (Almeida et al., 2020). Many parents reported feeling more anxious, agitated, fearful, or depressed due to limited financial and social resources, unemployment, increased use of alcohol and other addictive substances, and a global sense of unpredictability and loss of control resulting from the pandemic (Almeida et al., 2020; Luttik et al., 2020). This impact is even more amplified in the case of single parents or disabled family members to care for (Almeida et al., 2020).

However, in addition to bringing about relevant stressors that threatened the quality and stability of family relationships, the pandemic and lockdown allowed many families to strengthen their unity and cohesion (Prime et al., 2020). In fact, during the pandemic, many families have reported increased cohesion, and a better understanding of the values considered priorities for their family (Almeida et al., 2020).

It has also been shown that the family also plays an important role in containing the spread of the pandemic. In this regard, Di Gialleonardo et al. (2020) found a positive correlation between family interactions and infection rates worldwide. Specifically, the importance placed on relationships by family members may affect rates of disease spread and the number of deaths: countries where family ties are perceived as problematic show higher levels of infection and deaths in contrast to countries where family relationships are stronger, as family members tend to spend more time together, experiencing deeper ties.

Times of crisis and life challenges, as a pandemic, have a significant impact on the whole family, and, in turn, the main family processes mediate the

adaptation of all individual members to the critical event (Fernandes et al., 2021; Prime et al., 2020). Therefore, several studies were conducted in several countries around the world during the pandemic to investigate the impact of COVID-19 on family functioning and the quality of life of its members.

Fernandes et al. (2021) evaluated the functioning of a sample of Portuguese families during the pandemic. For this purpose, the authors referred to Olson's model and the dimensions of cohesion and adaptability. According to the results, 54.5% of the participants belong to an intermediate family, 39.4% to a balanced family and 6.1% to an unbalanced family. Furthermore, it was found that 14.6% of the sample is part of a disengaged family (with a low level of cohesion), while 7.4% is part of a rigid family (with low adaptability). On average, 56.4% possess very high values of adaptability (flexible adaptability), and 46.5% have a very high degree of cohesion. Older people reported lower levels of family cohesion, probably due to the feelings of loneliness that they usually experience during the stage of the life cycle that is old age (e.g., death of spouse or peers, retirement, and declining health status), which have been exacerbated by the lockdown. Finally, low scores in cohesion and adaptability were obtained by the 66-77 age group, unmarried people, retired people, and unemployed people (Fernandes et al., 2021).

Behar-Zusman et al. (2020) analyzed the impact of COVID-19 social distancing on the dimensions of family cohesion and conflict, creating a specific questionnaire called the *COVID-19 Family Environment Scale*. In particular, the Authors underlined that family conflict and cohesion are important stress-

related factors that may increase or mitigate the risk of psychological consequences of COVID-19 on youth and adults (Behar-Zusman et al., 2020).

A recent study by Hall et al. (2022) assessed the changes in family communication during the COVID-19 pandemic. As already highlighted by Olson (2008), communication facilitates sense-making by family members. It enables them to cope with uncertainty due to periods of high stress, representing a valid and effective coping strategy to implement during the pandemic. Based on the results reported by the authors, an intimate and cohesive family environment enhances communication and expression of emotions by family members, promoting problem-solving mechanisms and coping with stress and negative emotions related to it (Hall et al., 2022).

Hu et al. (2020) investigated the relationship between the family environment and the psychological well-being of health care workers during the pandemic. As a professional group on the front lines of dealing with the pandemic emergency, health care workers experienced a great deal of work pressure resulting in negative emotional states and symptoms of anxiety and depression. This study also considered the role of self-efficacy as a mediator of the association between family context and symptoms of anxiety and depression. The results showed that anxiety and depression in healthcare workers were negatively correlated with the dimensions of family cohesion and communication. In contrast, they were positively correlated with the dimension of conflict. Furthermore, self-efficacy was positively correlated with a positive family environment and negatively associated with symptoms of anxiety and

depression. In addition, self-efficacy was higher in men than women (Hu et al., 2020).

Prime et al. (2020) underlined that one in three families reported intense feelings of anxiety due to stress resulting from social confinement due to the pandemic. During the pandemic, good coping strategies, positive parenting, and social support were essential to promote family resilience, which can be defined as «the dynamic process to resist defeats, adapt positively, and cope actively with adversity or trauma» (Gayatri & Irawaty, 2021, p. 133). Family resilience is influenced by many vulnerability factors like developmental age, educational status, preexisting mental health conditions, economic difficulties, or being quarantined due to infection or fear of the disease. Therefore, it is important to consider the family's pre-existing vulnerabilities to examine the potential consequences of COVID-19 on family well-being. According to the Authors, healthy family relationships, good communication, spirituality, a positive attitude toward situations, and social support are positive coping strategies to promote family resilience in times of pandemic (Gayatri & Irawaty, 2021).

However, there are still limited studies that have explored the coping strategies adopted by families to cope with the stress caused by the COVID-19 pandemic. One of the few studies available in the literature is that of Salin et al. (2020) who explored the coping strategies developed by Finnish families with children during the pandemic.

First, the authors distinguish three different levels of family coping. The first level (*macro-environmental*) includes social support, public services, and relationships. The second level (*relational*) indicates the degree of agreement

and flexibility in daily family practices, time spent with family members, and family communication. Finally, the last level (*individual*) refers to personal time and attitudes (Salin et al., 2020). Based on the study results, Finnish families more frequently used relational coping strategies, indicating that the role of marital and parental relationships, as well as that of the family, was considered particularly important in addressing lockdown. In addition, it was found that coping strategies at the macroenvironmental level are less prevalent than those at the relational level but more prevalent than at the individual level (Salin et al., 2020).

In conclusion, it is important to investigate the psychological consequences of the pandemic not only on the individual but also on the family system to identify the main vulnerability factors at the family level and implement appropriate intervention strategies in the most at-risk situations.

Chapter 5 will present the results of a study conducted on a sample of Sicilian families aimed at exploring the relationship between individual psychological well-being and family quality of life, taking as reference the dimensions of family functioning described by Olson (2008).



## **CHAPTER 2**

### **Being Adolescents at the Time of COVID-19: Psychological Experiences and Social Needs of Italian Adolescents**

#### *2.1. Background*

As shown in Chapter 1, it has been extensively documented that the COVID-19 pandemic had a powerful psychological impact on adolescents, who are going through a developmental stage in which social and emotional support is of paramount importance for psychological well-being (Cockerham et al., 2021; Cooper et al., 2021; Keijsers & Bülow, 2021; Rogers et al., 2021).

Lockdown measures have revolutionized the daily lives of millions of teenagers worldwide and required a restructuring of social habits and relationships. Usually, adolescents spend much of their time in school or other social contexts, such as gyms or recreational spaces (Lerner & Steinberg, 2009). However, during the pandemic, they have had to stay home all day for months, with online relationships only with peers and adults, such as their teachers, except those who live with them. Moreover, their home has become a “school”, and various forms of

distance learning have been introduced (Cockerham et al., 2021; Octavius et al., 2020).

The research presented in this chapter considered some variables that play an essential role in determining behavioural and emotional responses to the pandemic and restriction measures.

First, we considered the perceived health risk related to COVID-19 to explain the psychological impact of lockdown and restrictions on adolescents (Commodari, 2017; Tang & Wong, 2003). It has been documented that adolescents engaged in risky behavior have a limited perception of risk related to their health, and adhere to preventive behaviors is more difficult (Johnson et al., 2002).

Risk perception plays a crucial role in adopting healthy and preventive behaviours (Brewer et al., 2004; Commodari et al., 2020; Ibuka et al., 2010). Health-related perceived risk has two dimensions: perceived seriousness and perceived susceptibility. Perceived seriousness refers to how at risk a person considers himself to develop a disease, while perceived susceptibility concerns the perceived probability of getting an infection. In addition, perceived susceptibility can be differentiated into perceived personal susceptibility, which is the perceived probability that one will be harmed by a hazard (Rogers, 1983), and perceived comparative susceptibility, which is the perceived probability that a threat will hurt one compared with other people of the same age and gender.

Therefore, we hypothesized that the perception of health risks related to COVID-19 is essential in influencing adolescents' psychological response to the pandemic and acceptance of infection containment measures, including school closures.

Furthermore, we explored the psychological well-being of Italian adolescents during the pandemic by referring to two affective components: positive and negative affects.

Affect is considered an important indicator of psychological well-being (Costa & McCrae, 1980; Watson & Clark, 1984). Specifically, positive affect refers to enthusiasm, joy, and energy, while negative affect is expressed through sadness, loneliness, anxiety, and guilt (Watson & Clark, 1984). Positive affect at school is significantly associated with motivation, academic success, and positive well-being (Alivernini et al., 2019). In contrast, uncertainty and inconsistency can cause increased negative affect (Di Santo et al., 2020). These two dimensions are not necessarily related: consequently, an increase in one does not always result in a decrease in the other.

We then explored the levels of positive and negative affect in Italian adolescents during the COVID-19 pandemic and their relationship with the other variables investigated in the study.

Another critical variable considered in our research is the experience of distance learning. The availability of digital learning platforms, the presence in the household of digital devices and internet connectivity, the student's ability to use these instruments, adequate spaces in the home, and other variables such as the capacities of the teachers to use technologies and methodologies for activating and facilitate home-based learning, can influence the effectiveness of distance learning strategies during the pandemic (Cockerham et al., 2021). Furthermore, the success of distance learning is also influenced by the psychological experiences of the

students and their emotional responses. In turn, a positive distance learning experience improves students' psychological well-being (Cockerham et al., 2021).

Therefore, we analyzed Italian adolescents' opinions and degree of satisfaction regarding their experience with distance education to understand its impact on their psychological well-being.

## *2.2. Aims and Hypotheses*

Based on these premises, this study aimed to investigate the effects of the COVID-19 pandemic on adolescent well-being, learning, and social needs. Specifically, based on the available literature on the topic, we purposed to answer the following research questions:

1: What was the level of perceived risk related to COVID-19 and fear of the disease among Italian adolescents during the first wave of the pandemic? What sociodemographic variables (gender, living or not in a “red zone,” and having family members working in contact with people sick with COVID-19) influenced the perceived risk and fear of COVID-19?

2: What were the knowledge and opinions of Italian adolescents regarding COVID-19 and the restrictive measures imposed during the lockdown and to be taken in the later stages of the pandemic?

3: What were the experiences of Italian adolescents in distance education, and how did the transition to online schooling during the pandemic affect students' well-being?

4: What psychological experiences and social needs do Italian adolescents report during the lockdown?

### *2.3. Materials and Method*

#### *2.3.1. Study Design and Participants*

This cross-sectional, observational study was conducted between April 22 and May 25, 2020. Participants were Italian students attending the upper secondary school. A Web-based survey was disseminated through the main social networks and by invitation from a group of teachers who helped recruit the sample. Participants completed the survey anonymously, voluntarily and without any remuneration. For underage students, valid informed consent has been obtained from parents.

The study protocol was drafted according to the Declaration of Helsinki, the Ethical Code for Italian psychologists (L. 18.02.1989, n. 56), Italian law for data privacy (DLGS 196/2003), and the Ethical Code for Psychological Research (March 27, 2015) approved by the Italian Psychologists Association.

The Ethics Committee of the Department of Educational Sciences of the University of Catania approved the study.

### *2.3.2. Measures*

Participants completed a battery of tests consisting of 81 multiple-choice questions. It included a sociodemographic section in which the participants provided information about gender, age, geographical area of residence, type of upper secondary school attended, and the number of persons in the household. Furthermore, they were asked to indicate whether they had contracted COVID-19, the presence of family members with COVID-19, whether they lived in a “red zone” (an area under more severe restrictions due to the high rate of spread of the virus) and whether any of their family members were in a profession exposed to a higher risk of contracting the virus (health workers, supermarkets, and other essential services).

The following sections of the questionnaire investigated perceived health risks related to COVID-19, knowledge and information on restrictions to control the spread of the virus, opinions on measures to be adopted in the later stages of the pandemic, opinions and satisfaction with distance learning, changes in the life habits of adolescents, and psychological well-being during the lockdown.

The three main dimensions of perceived health risk (perceived seriousness, perceived personal susceptibility, and perceived comparative susceptibility) were assessed using an adjustment of the Italian version (Commodari, 2017) of the Risk Perception of Infectious Diseases Questionnaire (Brug et al., 2004). This questionnaire was initially developed during the SARS epidemic and then translated into several languages (de Zwart et al., 2010). It showed good psychometric characteristics (Cronbach’s Alpha = .79) and was used in different

research fields to evaluate health risk perception (Commodari, 2017; de Zwart et al., 2009; de Zwart et al., 2010).

For our study, we selected three items to which participants were asked to respond on a 5-point Likert scale ranging from 1 (*Not at all*) to 5 (*Extremely*). More specifically, they were asked to indicate a) how serious it would be for them to get the disease, b) how likely they think they are to contract the disease, c) whether they would have a smaller or larger chance of getting the disease before summer, compared with their peers of the same age and gender.

To evaluate the psychological impact of the pandemic and lockdown measures, participants were asked to complete a Likert-type scale that focused on their personal feelings about their cognitive, physiological, and behavioral states. Each item (e.g., “In this period in which I must stay at home, I feel well physically”; “In this period in which I must stay home I am tense and I feel tight”) was scored on a five-point Likert-type scale ranging from 1 (*not at all*) to 5 (*most of the time*). The scale measured two affective dimensions: “*negative affectivity*” and “*positive affectivity*”. The negative affectivity scale consists of 9 items, and scores range from a low of 9 to a high of 45. The positive affectivity scale is composed of 6 items, and the scores are between 6 and 30. Higher scores correspond to higher levels of negative or positive affects.

### 2.3.3. Statistical Analyses

Confirmatory Factor Analysis (CFA) was conducted to test each scale's measurement model. The goodness of fit was assessed using the Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA), and Root Mean-Square Residual (RMSR). CFI and TLI values  $> .90$  indicated an adequate fit and better if they were  $> 0.95$  (van de Schoot et al., 2012). RMSEA values  $< .05$  indicated a good fit, values between  $.05$  and  $.08$  an acceptable fit, and values  $> .10$  a poor model fit (Hu & Bentler, 1999). RMSR values  $< .08$  indicated good fit (Hu & Bentler, 1999).

Cronbach's  $\alpha$  was used to evaluate items' internal consistency, which was considered acceptable when  $\alpha > .70$  (DeVellis, 2021).

Mean (M)  $\pm$  standard deviation (SD) was used for continuous variables, while categorical variables were expressed as frequencies and percentages. All composite scores were standardized to  $z$ -scores for statistical analyses.

Independent-samples  $t$ -tests were run to test study hypotheses, and the magnitude of the differences between the means was assessed by calculating the effect size through Hedge's formula (Hedges, 1981). Values of  $.20$  indicated a small effect,  $.50$  a medium effect, and  $.80$  a large effect (J. Cohen, 1988). In addition, chi-square tests were performed to explore the associations between categorical variables.

Two multiple regression models were run to investigate the impact of sociodemographic variables and health risk perception on positive and negative affects during the lockdown. The main sociodemographic variables and health risk



perception dimensions were the independent variables, and the “positive affectivity” and “negative affectivity” scores were the dependent variable, respectively.

A  $p$ -value  $< .05$  was considered significant. All the analyses were performed using The Statistical Package for the Social Sciences (SPSS) version 25.0 (IBM Corporation, Armonk, NY).

## *2.4. Results*

### *2.4.1. Psychometric Characteristics of the Scales*

According to the CFA results, all scales used in this study were valid and reliable measures of the respective constructs. In fact, the indices of goodness of fit were satisfactory for all scales.

Regarding the scale used to assess the perceived risk related to COVID-19, all the values indicated a good model of fit: RMSEA = .05; RMSR = .03; CFI = .945; TLI = .95. The reliability is also good (Cronbach’s  $\alpha = .80$ ).

The indices indicated the model's goodness even for the scales related to positive and negative affectivity. The values for the “positive affectivity” scale were RMSEA=.07; RMSR = .04; CFI = .943; TLI = .95, while the values for “negative affectivity” scale were RMSEA=.05; SRMR=.03; CFI= .932; TLI=.96. Reliability of both the scales was good (negative affectivity: Cronbach’s  $\alpha = .81$ ; positive affectivity: Cronbach’s  $\alpha = .78$ ).

#### *2.4.2. Sociodemographic Characteristics of the Sample*

Overall, 1,017 students answered the survey. 65.4% were female and the mean age was 16.57 ( $SD = 1.20$ , range = 13-20). Eighty per cent of the participants attended high school, while the remaining attended a technical (15.1%) or professional (4.9%) school.

Participants lived in 13 of the 20 Italian regions, with a clear predominance of students from Sicily (40.7%) and Lazio (34.5%). In addition, 30.5% lived in “red zones,” with more severe restrictions due to an exponential and uncontrolled growth in cases of contagion compared to other areas in Italy.

At the time the study was conducted, COVID-19 was not yet particularly widespread due to containment measures. Only five students (0.5%) reported that they had contracted the virus, while 136 (13.4%) were uncertain whether they had contracted it or not. Furthermore, 2.9% of respondents reported that one or more of their family members had been or was currently suffering from COVID-19.

10% of the sample had at least one family member who worked with people affected by COVID-19 (health care or other essential services).

Table 2.1 reports the sample sociodemographic characteristics.

**Table 2.1. Sociodemographic Characteristics of Participants**

		n	%
Gender	Female	665	65.4
	Male	352	34.6
School	High school	814	80.0
	Technical institute	153	15.1
	Professional institute	50	4.9
Area	Chief town	597	58.7
	Not chief town	420	41.3
Region	Lombardy	46	4.5
	Piedmont	12	1.1
	Trentino Alto Adige	2	0.2
	Friuli Venezia Giulia	2	0.2
	Emilia Romagna	23	2.2
	Abruzzo	5	0.5
	Molise	7	0.7
	Toscana	9	0.9
	Umbria	46	4.5
	Lazio	351	34.5
	Campania	83	8.2
	Puglia	17	1.7
	Sicily	414	40.7
“Red zone”	Yes	310	30.5
	No	707	69.5
Size of the household	1	8	0.8
	2	78	7.7
	3	258	25.4
	4	469	46.1
	>4	204	20.1
Affected by COVID-19	Yes	5	0.5
	No	876	86.1
	Uncertain	136	13.4
Family member with COVID-19	Yes	30	2.9
	No	987	97.1
Family member working with COVID-19 people	Yes	102	10.0
	No	915	90.0

### *2.4.3. Perceived Health Risk and Fear of COVID-19*

As shown in Table 2.2, the perceived personal susceptibility related to the possibility of contracting COVID-19 among the adolescents of our sample is low. More than half of the respondents (60.3%) believed that the likelihood of contracting COVID-19 was low or very low. Only for 4.5% of respondents, this probability was high or very high.

Similarly, perceived comparative susceptibility is also low. Specifically, most of the sample considered the likelihood of contracting the virus low or very low compared to adolescents of the same gender and age. 4.3% of the sample thought this probability was high and 0.9% very high.

The perceived seriousness of the disease appears moderate: 36% of the sample believed that contracting the virus could be serious or very serious, and 31.1% thought that it was neither serious nor not serious. A small percentage of the sample considered it not at all or not very serious about contracting the disease (3.8% not at all serious and 18.6% not very serious).

Regarding the fear of COVID-19 among adolescents in our sample, the majority reported that they had no fear of the disease. 61% of the sample stated that they had no or little fear of COVID-19, while only 6.7% reported a very high fear of the disease.

Table 2.3 shows the results of t-tests to highlight differences in risk perception based on gender, living or not in a “red zone,” and having family members working in contact with people sick with COVID-19. Unfortunately, it was impossible to

use the variables related to being or not being sick with COVID-19 or having ill family members, given the clear numerical imbalance between the two groups.

Adolescents living in a “red zone” reported a higher perceived risk than those living in other places of Italy. The ES was large ( $p < .001$ ;  $g = .74$ ). Furthermore, females showed a higher perceived risk than males with a medium ES ( $p = .04$ ;  $g = -.51$ ).

Interestingly, both perceived susceptibility ( $p = .001$ ;  $g = .53$ ) and comparative susceptibility ( $p < .001$ ;  $g = .52$ ) were higher among adolescents with family members working in essential services and exposed to a higher risk of contracting the disease. The ES was medium for both variables.

Finally, as hypothesized, adolescents living in a “red zone” reported higher levels of fear of COVID-19 than their peers not living in an area with more severe restrictions. The ES was medium ( $p = .007$ ;  $g = .55$ ).

**Table 2.2.** *Frequencies and Percentages of Health Risk Perception Related to COVID-19 and Fear of the Disease in the Sample*

	Perceived personal susceptibility		Comparative susceptibility		Perceived seriousness		Fear of COVID-19	
	n	%	n	%	n	%	n	%
No answer	12	1.2	7	0.7	5	0.5	0	0.0
Very low	282	27.7	211	20.7	39	3.8	350	34.4
Low	332	32.6	343	33.7	189	18.6	278	27.3
Neither low nor high	345	33.9	404	39.7	316	31.1	196	19.3
High	38	3.7	43	4.3	309	30.4	125	12.3
Very high	8	0.8	9	0.9	159	15.6	68	6.7

**Table 2.3.** Differences in Health Risk Perception According to Sociodemographic Variables

	Male (n=352)		Female (n=665)				“Red zone” (n=310)		Not “red zone” (n=707)				Family members working with COVID-19 people (n=102)		Family members not working with COVID-19 people (n=915)			
	M	SD	M	SD	<i>t-test</i>	<i>g</i>	M	SD	M	SD	<i>t-test</i>	<i>g</i>	M	SD	M	SD	<i>t-test</i>	<i>g</i>
Perceived susceptibility	2.08	0.89	2.54	0.90	-1.99*	-0.51	2.75	0.91	2.09	0.89	3.55**	0.74	2.61	0.92	2.13	0.89	3.36**	0.53
Perceived comparative susceptibility	2.29	0.87	2.31	0.87	-0.29	-0.02	2.37	0.87	2.28	0.87	1.55	0.10	2.71	0.97	2.26	0.85	4.91**	0.52
Perceived seriousness	3.29	1.11	3.39	1.04	-1.41	-0.09	3.41	1.10	3.33	1.05	1.07	0.07	3.24	1.24	3.37	1.04	-1.00	-0.12
Fear of getting COVID-19	2.20	1.21	2.35	1.25	-1.723	-0.12	2.91	1.32	2.22	1.20	2.71**	0.55	2.34	1.20	2.29	1.24	0.36	0.04

#### *2.4.4. Knowledge and Opinions on COVID-19 and Lockdown Measures*

Most of the sample reported having no difficulty complying with the government's restrictive provisions (73.1%), and they agreed with the restrictions imposed to contain the spread of the pandemic (81.9%).

However, even though closing schools was one of the restrictive measures taken early to fight the pandemic, 76.2% of the respondents did not consider students a category at risk for COVID-19. The remaining participants (21.9%) believed that students were an at-risk category for this disease since schools did not permit social distancing. The remaining 1.9% did not answer the question.

A significant percentage of the respondents had confidence in the information they received on the disease (56.1% trust enough; 18.3% trust a lot; 0.2% trust very much). Moreover, the most critical information the adolescents would have liked to receive on COVID-19 concerned how to cure the disease (42.8% of the respondents). Interestingly, only 17.2% of respondents were interested in how to prevent the infection. Furthermore, 11.2% wanted information on the likelihood of contracting the virus in an area of residence, 10.6% how to recognize the symptoms of the disease, 3% the geographical areas where the virus is most present, and only 0.2% would have liked to have been more informed about how the virus was transmitted.

Regarding adolescents' opinions on the behavioral measures that could be useful to maintain in the later stages of the pandemic with a gradual reduction of containment measures (Table 2.4), a very high percentage (89.1%) agreed on the need to avoid public transport, such as trains or buses, as well as confined spaces such as bars, restaurants, cinemas, theatres, and school classrooms (91.8%). Similarly, 90.2% of the respondents agreed with the need to avoid going into shops if not necessary and only with personal



protective equipment, such as a face mask. Further, 84.4% of the respondents agreed with the need to avoid going to gyms or swimming pools, and 72.5% considered it helpful to prevent medical consultations if possible. However, adolescents did not think it would be necessary to maintain social distancing in the second quarantine stage. Most respondents disagreed on the need to avoid staying with persons who are not cohabiting (57.0%), and 82.6% think preventing staying in open places such as parks is unnecessary.

**Table 2.4.** *Adolescents' Opinions on the Behavioural Measures in the Later Stages of the Pandemic*

	Yes		No	
	n	%	n	%
Avoid using public transport (trains, buses, planes)	906	89.1	111	10.9
Avoid going to closed places such as bars, restaurants, cinemas and theatres, classrooms	934	91.8	83	8.2
Avoid going to shops if not necessary and with the required protections (facial mask)	917	90.2	100	9.8
Avoid meeting non-cohabiting people	437	43.0	580	57.0
Avoid unnecessary medical visits	737	72.5	280	27.5
Avoid walking in open places	177	17.4	840	82.6
Avoid playing sports in gyms or swimming pools	858	84.4	159	15.6

#### *2.4.5. Experiences and Opinions on Distance Learning*

As reported in Table 2.5, the organization of online lessons was different depending on the school. Virtual classrooms were created in some schools, and the school day's classic organization was maintained. Other schools have built virtual classrooms but have changed the overall duration of the school day and the number of school days in a week. The remaining schools did not use virtual classrooms; each teacher sent learning materials to the students using social networks or e-mails. Furthermore, there were differences in the different class groups; in some cases, each teacher used a different approach to distance learning.

Unfortunately, not all the students had a tablet or a notebook for online lessons: in this regard, 7.6% of the participants used their mobile phones to attend school classes, and 27.4% were forced to share their notebook or tablet with a family member, during the school day. Moreover, 17.5% of the students attend distance lessons in a room with other persons.

Table 2.6 reports students' opinions in our sample on measures to be taken in schools in the later stages of the pandemic to contain contagions.

The chi-square test underlined a significant association between attended school and opinions about reopening measures. In particular, the students attending classical and scientific high schools were more likely to continue distance learning than students attending technical institutes ( $\chi^2 = 18.786, p = .009$ ). Living in a “red zone” was not found to be significantly associated with opinions on measures to reopen schools in the later stages of the pandemic ( $p > .05$ ). Furthermore, a chi-square test for association was conducted between the organization of at distance learning and opinions of the students on behavioral measures the reopening of schools. All expected cell frequencies were greater than five. There was a statistically significant association between holding classes every day and

preference for resumption of face-to-face courses as in the pre-COVID period ( $\chi^2(1) = 6.53$ ,  $p = .011$ ). More specifically, students who do not attend classes every day are more likely to resume classes in attendance as before the pandemic. There was also a significant association between the use of an appropriate device to follow the lessons (PC or tablet) and agreement to continue with distance learning ( $\chi^2(1) = 6.02$ ,  $p = .014$ ). Students without an adequate Internet connection were less likely to agree to continue distance learning. Finally, a significant association was detected between sharing a device to follow lessons and the preference for continuing lessons by distance learning ( $\chi^2(1) = 6.28$ ,  $p = .012$ ). In this regard, students forced to share their PC or tablet with other family members are less likely to continue with distance learning.

**Table 2.5.** *Distance Learning Modalities During the COVID-19 Pandemic*

	n	%
The duration of the school week remained the same	592	58.3
Lessons are held regularly every day, with all the teachers, as before the COVID-19 pandemic	499	49.1
The school carries out distance learning using a specific online platform (e.g., Google Class or Zoom)	996	98.1
The student has a computer, a tablet, or a notebook to use for online lessons	938	92.4
The student does not share the use of the tablet or the notebook with other people	700	72.6
The student follows online lessons in a room alone	837	82.5

**Table 2.6.** *Opinions on the Organization of Teaching Activities After the Lockdown*

	Agree		Disagree	
	n	%	n	%
Resume all teaching activities regularly as in the pre-Covid period	177	17.4	840	82.6
Continue with all distance learning activities, as is being done in this period of quarantine	692	68.0	325	32.0
Continue with distance learning activities except for exams	557	54.8	460	45.2
Continue with distance learning activities except for the meetings of the collegial organs (e.g. class councils, assemblies, etc.)	276	27.1	741	72.9

Regarding the impact of distance education on the well-being of adolescents in our sample (Table 2.7), most of the sample reported a significant increase in workload during the pandemic compared with the pre-pandemic period, resulting in less time available to devote to oneself and one's hobbies. In addition, females had less time for themselves than males ( $p = .002$ ). Furthermore, adolescents living in a "red zone" reported a more significant increase in workload than peers who did not live in an area with stricter restrictions ( $p = .025$ ). No significant differences were found concerning the school attended and other sociodemographic variables.

77.1% of the participants were more distracted during the study, 51.3% did not manage to study following the usual rhythms, and 64.6% were concerned about their school career. Females were more distracted during the study ( $p < .0001$ ), had more difficulty studying at their usual pace ( $p = .033$ ) and were more worried about their school career ( $p = .035$ ) than males. Furthermore, adolescents living in a "red zone" were more concerned about their school carrier than their peers not living in a "red zone" ( $p < .0001$ ).

57.5% believed the teachers were more understanding during the pandemic period. Interestingly, males tended to perceive teachers as more understanding than females ( $p = .015$ ). There are no significant differences related to the school attended or other sociodemographic variables.

**Table 2.7.** *Differences in Distance Learning Experiences in the Study Sample*

In this period of distance learning, the student ...	Male (n=352)		Female (n=665)		<i>t-test</i>	Not living in a “red zone” (n=707)		Living in a “red zone” (n=310)		<i>t-test</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
... has much more homework than before	3.77	1.25	3.93	1.13	1.909	3.82	1.18	4.00	1.14	2.249*
... is always busy with the homework	2.93	1.27	3.20	1.29	3.151**	3.06	1.28	3.22	1.31	1.783
... is studying less than usual	2.57	1.42	2.58	1.46	0.097	2.54	1.45	2.64	1.44	0.947
... is get distracted during the study	3.28	1.27	3.60	1.25	3.778**	3.47	1.27	3.53	1.27	0.661
... can study regularly following the usual rhythms	2.68	1.28	2.51	1.23	-2.130*	2.60	1.27	2.49	1.17	-1.298
... is worried about being left behind with learning	3.07	1.46	3.28	1.49	2.124*	3.08	1.47	3.48	1.47	3.957**
... thinks that the professors are more understanding than usual	2.91	1.25	2.71	1.19	-2.441*	2.79	1.20	2.76	1.25	-0.371
... has difficulty organizing the day	2.67	1.26	2.89	1.36	2.490*	2.71	1.32	3.05	1.31	3.665**
... checks if they use the time effectively	2.86	1.23	2.76	1.31	-1.080	2.79	1.29	2.81	1.27	0.223
... organizes an adequate and orderly study environment	3.06	1.36	2.98	1.32	-0.829	3.07	1.32	2.88	1.37	-2.070*

#### 2.4.6. Psychological Experiences and Social Needs During the Lockdown

Regarding the positive affect scale, the sample reported a median value of 17. In particular, 58.3% reported values above the median, while 41.7% reported values below the median.

Based on this finding, the adolescents in our sample are characterized by a good level of positive affectivity. This is confirmed by the fact that most adolescents stayed physically well (68.7%). Furthermore, they showed a great need for social relationships. In fact, a high percentage were not bored listening to others' problems (46.7%) and reported being able to manifest their emotions (41.5%). Confirming the importance of emotional and social support from adults and peers during this developmental stage, most of the participants suffered the ban on meeting friends (55.8%) and relatives (62.5%) as well as on going out late at night due to the closure of restaurants, pubs, and discos (52%). On the other hand, 62.3% reported spending more time on social networks to keep in touch with friends and family during the lockdown. Furthermore, 81.1% found support from family and 65.3% from peers to cope with feelings of loneliness and isolation caused by the lockdown.

Males felt better than females, but the ES was small ( $p < .001$ ;  $g = .30$ ). Furthermore, females were less self-confident than males with a medium ES ( $p < .001$ ;  $g = .56$ ) while there were no significant differences by age, the area in which the person lived, and other sociodemographic variables. Table 8 reported the  $t$ -test results.

The median value of the sample scores on the negative affect scale is 32. In particular, 52.7% reported values above the median, while 47.3% reported values below the median. Therefore, more than half of the sample has a significantly high level of negative affectivity.

In this regard, about 40% of students reported more feelings of tension and sadness (42.6%) and more irritability (49.6%) than usual, with increased ruminations (59.6%). In

addition, a significant percentage reported difficulty concentrating (55.9%) and sleeping (55.6%). However, only a tiny percentage of the students reported problems eating, such as forgetting to eat or skipping meals (13.7%), disturbances in a heartbeat (18.7%), crying frequently (34.4%), or other symptoms that showed an explicit condition of pathological stress. According to the *t*-test results, females and adolescents living in a red zone reported more significant difficulties (Table 2.8).



**Table 2.8.** Comparison of the Answers to the Questionnaire According to Gender and Residence in a “Red Zone”

	Male (n=352)		Female (n=665)		<i>t-test</i>	<i>g</i>	Living in a “red zone” (n=310)		Not living in a “red zone” (n=707)		<i>t-test</i>	<i>g</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
During this period in which I must stay at home, I feel physically well	3.32	1.17	2.97	1.16	4.54**	0.30	2.99	1.18	3.14	1.17	-1.81	-0.12
During this time in which I must stay home, I get bored listening to other people’s problems	2.89	1.16	2.53	1.28	4.54**	0.29	2.69	1.36	2.64	1.20	0.59	0.04
During this time in which I must stay home, I frankly express my emotions	3.19	1.20	3.13	1.27	0.66	0.04	3.18	1.26	3.13	1.24	0.58	0.04
During this time in which I must stay at home, I feel confident in myself	3.18	1.14	2.50	1.23	8.58**	0.56	2.75	1.20	2.73	1.26	0.30	0.01
During this time in which I must stay home, I feel tense or I feel	2.87	1.26	3.40	1.27	-6.22**	-0.41	3.23	1.34	3.21	1.27	0.14	0.01

tight													
During this period in which I must stay home, I feel my heart beat faster or irregularly	1.81	1.17	2.33	1.34	-6.33**	-0.40	2.72	1.38	2.07	1.26	2.82**	0.50	
During this period in which I must stay home, I have difficulty falling asleep	3.15	1.48	3.60	1.40	-4.67**	-0.31	3.73	1.44	3.37	1.44	2.45*	0.25	
During this period in which I must stay home, I always think of the same things and feel my head full of thoughts	3.30	1.31	3.83	1.18	-6.13**	-0.43	3.72	1.26	3.61	1.24	1.26	0.08	
During this period in which I must stay home, I am irritable, and I lose patience	2.95	1.38	3.53	1.36	-6.36**	-0.42	3.98	1.37	3.25	1.40	2.70**	0.52	
During this period in which I must stay home, I am discouraged, depressed,	2.65	1.38	3.29	1.37	-6.98**	-0.46	3.35	1.46	3.00	1.38	2.21*	0.25	

downcast												
During this period in which I must stay home, I feel like crying more frequently than usual	1.86	1.20	3.18	1.50	-14.93**	-0.94	2.86	1.56	2.66	1.52	1.91	0.13
During this period in which I must stay home, I especially miss not meeting my friends	3.74	1.35	3.33	1.47	4.32**	0.28	3.50	1.45	3.46	1.44	0.35	0.02
During this period in which I must stay home, I especially miss not meeting my relatives	3.58	1.29	3.80	1.25	-2.58*	-0.17	3.79	1.28	3.69	1.26	1.11	0.07
During this period in which I must stay home, I spend at least an hour a day playing a musical instrument, dancing, gymnastics, acting, drawing, or doing the	3.84	1.38	3.53	1.42	3.29**	0.22	3.63	1.45	3.64	1.40	-0.15	-0.007

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things I like													
During this period in which I must stay home, I spend more than half of my day fantasizing	2.60	1.29	2.88	1.37	-3.09**	-0.20	2.86	1.36	2.74	1.34	1.28	0.09	
During this period in which I must stay home, I spend many hours a day in the morning and/or afternoon playing video games or watching television	3.49	1.27	2.81	1.40	7.62**	0.50	3.20	1.34	2.97	1.41	2.44*	0.16	
During this period in which I must stay home, I spend much more time than before on social media such as Instagram or Facebook	3.30	1.31	3.83	1.18	-2.74**	-0.43	3.71	1.26	3.62	1.30	0.99	0.07	

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

Multiple regression analyses were performed to investigate the impact of sociodemographic and perceived health risk variables on the psychological outcomes (positive and negative affects z scores). Sociodemographic variables, perceived health risk, and adherence to government restrictive measures were used as independent variables, while positive and negative feelings z scores were the dependent variable. All regression assumptions were respected.

A significant regression equation was found regarding positive affectivity, as reported in Table 2.9. According to these results, females reported fewer positive feelings than males on average, as well as adolescents living in Northern Italy. Furthermore, higher confidence in the information received on COVID-19, higher perceived susceptibility, higher ease in respecting government measures and higher beliefs that these measures are justified were predictive of positive feelings.

The regression model was also significant regarding negative affectivity, as shown in Table 2.10. According to these results, females and older adolescents reported more negative feelings than males and younger adolescents on average. Furthermore, living in a red zone, a higher perceived seriousness, a higher fear of getting COVID-19, and lower compliance with government measures were predictive of negative feelings.

In summary, the regression models showed a moderate but significant impact of both the sociodemographic and the health risk perception variables related to COVID-19 experience on the perception of negative and positive affects in the adolescents of our sample.

**Table 2.9.** *Multiple Regression Analyses of Possible Predictors for Positive Affectivity in the Sample*

Positive affectivity	F= 6.995; $p < .001$ ; R square=.11		
	<i>Std <math>\beta</math></i>	<i>t</i>	<i>p</i>
Gender	-.185	-5.851	<.001
Region	.074	2.326	.020
Confidence in information on COVID-19	.084	2.631	.009
Perceived susceptibility	-.089	-2.386	.017
Compliance with Government measures	.152	4.698	<.001
Beliefs that restrictions are right	.082	2.480	.013

**Table 2.10.** *Multiple Regression Analyses of Possible Predictors for Negative Affectivity in the Sample*

Negative affectivity	F= 11.103; $p = < .001$ ; R square=.16		
	<i>Std <math>\beta</math></i>	<i>t</i>	<i>p</i>
Gender	.284	9.291	<.001
Age	.119	3.900	<.001
Living in a “red zone”	.090	2.905	.004
Perceived seriousness	.085	2.690	.007
Fear of getting COVID-19	.091	2.809	.005
Compliance with Government measures	-.103	-3.281	.001

## 2.5. Discussion

This study aimed to offer a general overview of the opinions and psychological experiences of Italian adolescents during the first wave of the COVID-19 pandemic. Specifically, we analyzed the perceived health risk related to COVID-19 and its three dimensions (perceived seriousness, perceived personal susceptibility, and perceived comparative susceptibility), the beliefs of adolescents in the first phase of lockdown and their opinions on the later stages of the pandemic, during which a partial reduction of restrictions was hypothesized. Moreover, the study explored adolescents' views and experiences regarding the shift to distance learning and their psychological experiences during the lockdown, specifically focusing on the dimensions of positive and negative affectivity.

The study's main findings are discussed below according to the research questions they address.

*What was the level of perceived risk related to COVID-19 and fear of the disease among Italian adolescents during the first wave of the pandemic? What sociodemographic variables (gender, living or not in a “red zone,” and having family members working in contact with people sick with COVID-19) influenced the perceived risk and fear of COVID-19?*

According to the study results, Italian adolescents had a low perception of risk related to COVID-19. Perceived comparative susceptibility and perceived seriousness in Italian adolescents were also very low. These results underlined that young people do not consider COVID-19 as a potential threat to their health. This belief is justified by the fact that

adolescents, from the earliest stages of the pandemic, represented a category less at risk than others for adverse effects of the disease (Kolifarhood et al., 2020), although the possibility of getting the disease depends on the diffusion within the population. Consequently, adolescents tend to underestimate the likelihood of contracting the virus and thus their susceptibility to infection, both as individuals and compared to other youths of the same age and gender.

These findings align with the literature, which shows that adolescents are more at risk of engaging in health risky behaviours because they tend to underestimate the health risks of potentially harmful behaviours or conditions. In this regard, Johnson et al. (2002) asked a sample of high school students to estimate the risks associated with smoking and unprotected sex. The results showed that smokers saw their risk of negative consequences as high as nonsmokers. A similar result was also found for adolescents who engaged in unprotected sex. According to this study, adolescents involved in risky behaviour do not have adequate risk perception. Another study by Sjöberg et al. (2004) confirms a lower health risk perception in adolescents in the specific case of melanoma prevention. Specifically, adolescents interviewed in the study showed a lower perception of personal risk related to tanning than the perceived risk to others.

Therefore, although adolescents may have valid perceptions of the risks to others, they tend to have overly optimistic views of their personal risks (Sjöberg et al., 2004). This would also explain the fact that, despite underestimating their risk of infection, the Italian teenagers in our sample were aware of the restriction measures necessary to contain the spread of the virus, and they agreed with the limitations imposed by the government. These responses show high awareness of the threat posed by COVID-19 and that young people were conscious that they were not at serious risk but that the risk was increased for society.



Interestingly, adolescents living in a red zone reported higher perceived seriousness and susceptibility than those who did not live in these areas with more severe restrictions. Furthermore, females showed a higher perceived seriousness than males. In both cases, the medium effect size suggests a significant role of these variables in influencing health risk perception. Therefore, living in an area with more restrictions than in other regions of the country may have contributed significantly to increasing the perception of the risk of the disease. Also, this information seems consistent with several studies demonstrating that women tend to have a higher perception of risk than men, thus avoiding risky behaviours to a greater extent (Harris et al., 2006).

*What were the knowledge and opinions of Italian adolescents regarding COVID-19 and the restrictive measures imposed during the lockdown and to be taken in the later stages of the pandemic?*

The results of this study showed a high level of responsibility of Italian adolescents concerning the restrictions imposed to contain the pandemic, despite the difficulties and negative feelings experienced during this period. Confinement at home and the ban on meeting friends and relatives create the most discomfort for the adolescents interviewed. Nevertheless, 73.1 % responded that they had no difficulty adhering to the restriction measures, and 81.9 % agreed with the measures to contain the spread of the virus.

This finding is in line with the results of surveys conducted in other countries on adolescents' experiences during the COVID-19 pandemic. For example, research by UNICEF (2020) investigated the behaviours of Bulgarian adolescents in the context of the restrictive measures imposed during the pandemic. In line with our results, the Authors

showed that 80% of teenagers acted responsibly and adhered to the imposed public health measures (64% did not go outside, and 89% wore facemasks when they did). Furthermore, these responsible behaviours are enacted despite the anger and loneliness experienced due to the isolation imposed by the lockdown (UNICEF, 2020). Similarly, a study on a sample of South African adolescents revealed high levels of awareness regarding preventive measures to be taken during the pandemic and compliance with restraint measures to contain the infection (Gittings et al., 2021).

Our analyses showed that high perceived susceptibility predicts lower scores of positive affectivity while high perceived seriousness and fear of COVID-19 are predictors of higher levels of negative affectivity. This finding can be explained by the relationship between the cognitive component of risk perception and the affective component, particularly during adolescence (Curry & Youngblade, 2006). Specifically, it is likely to assume that high levels of risk perception result in a higher state of anxiety and tension related to COVID-19, which results in lower levels of positive affectivity and higher levels of negative affectivity.

The Italian adolescents involved in our study were also very responsible for measures to be taken in the later stages of the pandemic to continue limiting the virus's circulation. Most of the sample thought it was appropriate to avoid crowded places such as public transportation, bars, restaurants, etc. Still, they did not consider it necessary to continue banning meetings with friends and relatives as well as avoid staying in open places such as parks or squares. This finding also appears to be in trend with those reported in other countries (UNICEF, 2020).

Another interesting result is that Italian adolescents said they were informed about COVID-19 and trusted the information they received. However, 22.7% of the sample said they had little trust in the sources of information on COVID-19, which are mainly TV and social media. Confidence in COVID-19 knowledge is an important variable in influencing

the psychological experiences of Italian adolescents during the pandemic. Regression models showed that high confidence in COVID-19 information sources predicts higher levels of positive affectivity. Consequently, it is crucial to promote clear, accurate, logical and consistent communication on COVID-19, primarily aimed at adolescents and young people (Reddy & Gupta, 2020; UNICEF, 2020).

*What were the experiences of Italian adolescents in distance education, and how did the transition to online schooling during the pandemic affect students' well-being?*

The results of our study confirm that all Italian schools have adopted distance learning, even if, in most cases, there were no shared guidelines on the organization of online educational activities. For example, some teachers organize virtual lessons; others use e-mail or social networks to send learning materials, such as slides. More generally, each teacher employs different approaches to e-learning, using the online resources they prefer.

The experience of distance learning was not simple for the students of our sample. In this regard, a relevant percentage did not have a personal computer to attend online lessons or shared the PC with other family members and followed the online activities in a room with other people. More specifically, these variables were significantly associated with students' opinions on resuming face-to-face teaching activities or continuing with distance learning. Students who did not have adequate devices to follow online lessons or who had to share their devices with other family members were more reluctant to continue distance learning activities in the later stages of the pandemic and more likely to resume face-to-face learning activities.

Several studies underlined that the closure of schools and the adoption of distance learning due to the COVID-19 pandemics have, in many cases, contributed to further exacerbating educational inequality related to disparities in opportunities and conditions (Zondiros, 2008). Examples are students who do not have a device and/or an internet connection (Petretto et al., 2020; Van Lancker & Parolin, 2020) or who experience particularly fragile conditions such as disabilities and difficult family situations. Therefore, considering the need to continue distance learning due to the new waves of contagion, it is essential to implement policies that allow all students equal access to the information technologies required for online learning (UNESCO, 2020a).

The students interviewed were aware of the importance of distance learning for the containment of the pandemic. Indeed, most of our sample believed that it would be necessary to continue online teaching in the phases following the lockdown to avoid the resumption of the infections.

As already reported in previous studies worldwide (Ferraro et al., 2020; Li et al., 2022; UNESCO, 2020a; UNICEF, 2020), our results also confirmed that distance learning caused a significant increase in student workload and consequent psychological distress related to homework. The adolescents interviewed complained of an excessive load of homework during this period compared to the pre-pandemic one, with a resultant reduction of the free time to devote to themselves; furthermore, they were more distracted in studying, had difficulty organizing study at their usual pace and were concerned that their school career may be compromised by the lockdown period. In particular, our results show that females suffered more from increased homework than males, confirming that gender is an important variable concerning the impact of the pandemic on the school performance and psychological well-being of adolescents (Commodari & La Rosa, 2020).

In this scenario, the role of teachers is of primary importance in promoting good ways of learning and in reducing students' stress. In this regard, although 57.5% of the students interviewed said that their professors were more understanding during the lockdown, a significant percentage did not perceive adequate support from them. These findings align with other studies that show a perceived lack of support from teachers among adolescents (Li et al., 2022). More specifically, in our sample, females perceived a more significant lack of support from teachers than did males, underlining that females manifest more difficulties in dealing with the consequences associated with the transition to online education (Commodari & La Rosa, 2020). Therefore, it is essential to provide adequate support for teachers to help them manage the difficulties of their students and create a student-centred learning environment in contrast to a teacher-centred approach (Al-Balushi et al., 2020; Lobb, 2020).

*What psychological experiences and social needs did Italian adolescents report during the lockdown?*

This study shows that Italian adolescents suffered the psychological effects of the lockdown. In particular, more than half of the sample had a significantly high level of negative affectivity, signifying that participants were experiencing a rise in negative emotions such as sadness, fear, irritability, and loneliness. Furthermore, regression models confirmed that females and adolescents residing in the red zones with more restrictions showed higher negative feelings related to the quarantine. In this regard, the medium effect sizes indicate a possible role of these variables in determining negative affectivity in the adolescents of the sample, even if these feelings may be influenced by other variables not

considered in the study. However, it is essential to emphasize that these feelings are subjective perceptions rather than a psychopathological state.

Indeed, the pandemic and the lockdown did not reduce the empathy and social needs of Italian adolescents, who reported high levels of positive affectivity. This finding is indeed very interesting and confirms that the two dimensions of positive and negative affectivity are independent of each other (Costa & McCrae, 1980; Watson & Clark, 1984). In the case of our study, high levels of negative affectivity associated with high levels of positive affectivity represent an encouraging finding as they underline that Italian adolescents have adequate resources to cope adaptively with the psychological impact of the pandemic by relying on family and peer support and thus on a good social network.

In line with data reported among adolescents in other countries (Cockerham et al., 2021; Keijsers & Bülow, 2021; UNICEF, 2020), the lack of face-to-face interactions with friends and family has resulted in a significant increase in time spent on social networks such as Facebook or Instagram, considered a means of maintaining social interactions with others during lockdown isolation. This search for new ways to communicate with peers during the lockdown confirms the importance of social support during adolescence but at the same time raises the question of paying attention to the risks associated with more intensive use of the Internet, such as Internet addiction and cyberbullying that have increased significantly during the pandemic (Shin & Choi, 2021; UNICEF, 2020; Utemissova et al., 2021).

Our results also showed a moderate but significant impact of both the sociodemographic and the health risk perception variables related to the COVID-19 experience in the perception of negative and positive feelings. More specifically, being male, living in a region with less virus spread, reporting low levels of perceived susceptibility, and high compliance and agreement with government measures were all variables associated with the perception of positive feelings. On the contrary, being female and older, living in a red zone, reporting

high levels of perceived seriousness and fear of getting COVID-19, and being less compliant with government measures were associated with more negative feelings.

The results also confirmed the literature data demonstrating that when children and teenagers do not go to school and stay home, they are physically less active, are exposed to much more screen time, and have irregular sleep patterns. Similarly, the teenagers in the sample had difficulty falling asleep and spent more time watching television, playing video games, or using social networks. However, a significant percentage stated that they dedicated at least an hour a day to play a musical instrument, dancing, exercising, acting, or drawing. In light of these insights, it is important to promote healthy habits and lifestyles in adolescents to reduce psychosocial stress and improve the psychological and physical well-being of the young population.

However, this study has also some limitations. First, we used an internet-based questionnaire, so it was not possible to ascertain the accuracy of the answers to the questions. Furthermore, not all Italian regions are represented in our sample; however, the sample is representative of the three main areas in which Italy is generally divided (North, Central, and South). Despite having high validity and reliability indices, the questionnaire used in the study is a self-report measure and, therefore, subject to bias in responses such as social desirability and falsification. Finally, the cross-sectional design of the study did not allow to establish an exact causal relationship between the variables.

In conclusion, adolescence is a critical developmental stage, especially in a context such as the COVID-19 pandemic. The results of this study underline that the COVID-19 emergency undoubtedly had a significant impact on Italian adolescents' lifestyle and psychological well-being. In light of these findings, the physical and mental effects of the COVID-19 epidemic on adolescents are a matter of fundamental importance both for governments and families and cannot be neglected, even once out of the health emergency

period, since adolescents are more at risk for long-term psychological consequences than adults.

Therefore, it is necessary to prepare adequate strategies to support the youth population in addressing the uncertainty associated with the pandemic to reduce the psychological impact of the periods of school closures and home confinement as much as possible and guarantee adequate support to promote a total return to psychological well-being and sociality after two years of distancing and isolation.



## **CHAPTER 3**

### **Italian University Students Facing the COVID-19: A Comparative Analysis of Psychological Experiences During the First Two Waves of the Pandemic**

#### *3.1. Background*

As already highlighted in Chapter 1, the period of university studies is an important time in individual development as it prepares young people for entry into the labour market and is in many cases accompanied by major life changes such as moving to another city and leaving home.

Furthermore, literature underlined that the transition to university may be a stressful experience and can frequently be associated with difficulties in regulating emotions (Dalbudak et al., 2013; Hamaideh, 2018), anxiety and depression (Lun et al., 2018; Matar Boumosleh & Jaalouk, 2017), risk of addiction and self-harming behaviours (Ewing et al., 2019; Hamza & Willoughby, 2018). In addition, this period is characterized by intense feelings of uncertainty and fear for one's future employment, which can be exacerbated by unforeseen events that threaten the regularity of the academic career.

In this sense, in a lifespan perspective, it is important to investigate the experience of the COVID-19 pandemic in university students since it could have long-term consequences

on individual psychological well-being also in later developmental stages and affect the acquisition of skills and resources in this particular period of the life cycle.

Several studies concerning the psychological impact of the lockdown on university students reported adverse psychological effects, including post-traumatic stress symptoms, depression, anxiety, and loneliness (Browning et al., 2021; Ebrahim et al., 2022; Harries et al., 2021; Lyons et al., 2020). However, these results are not entirely generalizable because university students in each country experience different conditions related to different trends in infections and various restrictive measures imposed by governments on daily and academic life. Therefore, it is also essential to conduct studies that consider the specific context in which university students live to obtain valuable results in order to identify risk and protective factors and adequately support students in coping with the profound changes produced by the pandemic.

In this sense, the study presented in this chapter is a comparative analysis of the experience of a large sample of Italian university students during the first two waves of the COVID-19 pandemic.

Italy was the worst-affected country by the COVID-19 in Europe and was characterized by several waves of contagion. During the first wave of the pandemic, universities were closed on March 6, 2020, and all academic activities, such as lessons, exams, degrees, and administrative management, have adapted to online modalities (D'Addio & Endrizzi, 2020). The improvement of the epidemiological situation allowed an easing of the restrictive measures, and, as of May 4, Italy entered the second phase of the COVID-19 lockdown (Chirico et al., 2021). During the summer of 2020, the number of new cases remained low. Still, since the beginning of September and with the reopening of schools, the curve of contagions has gradually begun to rise again and necessitate new containment measures that also affected universities (Chirico et al., 2021). Italy was divided into three zones depending

on the severity of the pandemic, corresponding to red, orange, and yellow zones. In red zones, lockdown measures were like the ones which were implemented from March to May 2020, such as compulsory closing of shops, restaurants and other activities, online education for schools except for kindergartens, elementary schools and sixth-grade classes, and no movements allowed except for working or necessity reasons. In orange zones, restrictions included compulsory closing of restaurants and online education for high schools only, while movement within the hometown territory was still allowed. In the yellow zones, the only restrictions included compulsory closing for restaurant and bar activities at 6 PM and online education for high schools only (Vinceti et al., 2021). On March 1, 2021, Sardinia was the first region to become a white zone, with no restrictions at all. After three weeks, on March 21, the region became a red zone due to growing infections and the upcoming Easter holidays. With the gradual mass vaccination against COVID-19 and new measures such as the Green Pass, containment measures have been progressively relaxed until an almost complete return to normal in 2022.

In this context, it is essential to assess changes in the quality of life and psychological well-being of Italian university students across the different phases of the pandemic, as well as identify protective and risk factors to put in place psychological support policies for students most in need during this period of rapid changes.

For this purpose, our study considered a set of variables affecting the psychological impact of the pandemic on the general population. It analyzed them in a large sample of Italian university students across one year of the pandemic.

First, we considered the perceived health risk, the degree of information, and confidence in information sources among university students. In fact, it has been widely documented during other pandemics that being adequately informed about disease prevention measures and having an accurate perception of the risk of contracting the infection can improve

compliance with measures to combat the pandemic's spread and reduce the psychological impact of this experience (Akan et al., 2010; Tooher et al., 2013).

Then, we assessed the dimensions of health perceived risk: perceived personal susceptibility and perceived comparative susceptibility (see Chapter 2 for a more detailed description). We also evaluated how informed university students were about the pandemic and how much they trusted the information they received about the disease during the two waves of contagion.

In addition, the study explored satisfaction with distance learning and psychological well-being in terms of positive and negative affectivity (see Chapter 2 for a more detailed description).

### *3.2. Aims and Hypotheses*

Based on these considerations, this study aimed to analyze a large sample of Italian university students' psychological experiences during the first two waves of the COVID-19 pandemic. More specifically, our objectives were a) to measure the dimensions of risk perception related to COVID-19, b) to explore the confidence in the information received on the pandemic and the contagion containment measures, and the degree of satisfaction with the distance learning experience, and c) to analyze psychological experiences related to the lockdown.

More specifically, we purposed to answer the following research questions:

1: What was the level of perceived risk related to COVID-19 and fear of the disease among Italian university students, and were there any differences after one year of the

pandemic? What sociodemographic variables influenced the perceived risk and fear of COVID-19?

2: What were the knowledge and opinions of university students regarding COVID-19 and the restrictive measures imposed, and how did they change across the first two waves of the pandemic?

3: What were the experiences of university students in distance education across the first two waves of the pandemic?

4: What psychological experiences and social needs did university students report during the pandemic, and how did they change after one year?

### *3.3. Materials and Methods*

#### *3.3.1. Study Design and Participants*

This cross-sectional, observational study was conducted in two phases. The first stage covered the initial period of the COVID-19 pandemic (between April 22 and May 1, 2020, during the first lockdown in Italy). The second data collection occurred from March 22 to April 13, 2021. This period coincided with the division of Italy into zones of different colours based on infection rates (white, yellow, orange, and red) and with a gradual relaxation of containment measures.

An original, anonymous, and voluntary questionnaire was distributed online via the main social networks to students attending the University of Catania (Italy). All participants were informed about the study objectives, methodology, and estimated duration and completed an online informed consent form before filling in the questionnaire. The study protocol adhered to the ethical standards of the Declaration of Helsinki and the Ethical Code

for Italian psychologists (L. 18.02.1989, n. 56), Italian law for data privacy (DLGS 196/2003), and the Ethical Code for Psychological Research (March 27, 2015) approved by the Italian Psychologists Association. The Ethics Committee of the Department of Educational Sciences of the University of Catania approved the study.

### *3.3.2. Measures*

Participants completed a battery of tests consisting of four sections.

The first section contained sociodemographic questions about gender, age, type of university course, off-site student status, residence in a red zone, number of persons in the household, having contracted COVID-19 or not.

The second section assessed the two dimensions of risk perception related to COVID-19 (perceived personal susceptibility and perceived comparative susceptibility) by using an Italian version adjustment (Commodari, 2017) of the Risk Perception of Infectious Disease Questionnaire (Brug et al., 2004). The characteristics of the questionnaire were already described in Chapter 2.

In the third section, students were asked to indicate whether they agreed with statements reporting information related to COVID-19 and lockdown (e.g., “Are students a category of people at higher risk for COVID-19 than the general population?;” “In the later stages of the pandemic, it is necessary to avoid the use of public transport to reduce the risk of contagion and to avoid a new increase in the cases”). Furthermore, they were asked to express their confidence in the information received on COVID-19 and the government's restrictive measures to contain the pandemic.

Finally, the last section evaluated the psychological impact of the lockdown through the two dimensions of positive and negative affectivity. More specifically, the scale used in this study was developed and adapted from the version for adolescents already described in Chapter 2.

### *3.3.3. Statistical Analyses*

Statistical analyses were performed using The Statistical Package for the Social Sciences (SPSS) version 25.0 (IBM Corporation, Armonk, NY).

Confirmatory factor analysis (CFA) was conducted to validate the construct, validity and reliability of the scales used in this study. Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA), and Root Mean-Square Residual (RMSR) were used to assess the goodness of fit. Specifically, CFI and TLI values  $> .90$  (van de Schoot et al., 2012), RMSEA values  $< .05$  (Hu & Bentler, 1999), and RMSR values  $< .08$  (Hu & Bentler, 1999) were considered indicative of a good fit.

The reliability was assessed using Cronbach's  $\alpha$ , and  $\alpha > .70$  was considered acceptable ( DeVellis, 2021).

Frequencies and percentages were used to express categorical variables, while mean (M)  $\pm$  standard deviation (SD) was used for continuous variables.

Independent-samples *t-tests* and one-way ANOVA were run to conduct a comparative analysis between the questionnaire scores in the two stages of the pandemic. Furthermore, we also assessed the effect of sociodemographic factors such as sex, area of residence, and type of university degree, on the scales scores in each stage of the study. Finally, chi-square tests were also performed to explore the associations between categorical variables.

Finally, two multiple regression models were conducted to assess positive and negative affectivity predictive variables after the first year of the COVID-19 pandemic. Specifically, the main sociodemographic variables and health risk perception dimensions were the independent variables, and the “positive affectivity” and “negative affectivity” scores were the dependent variable.

A statistical significance level  $> .05$  was assumed at each study stage.

### *3.4. Results*

#### *3.4.1. Psychometric Characteristics of the Scales*

According to the CFA results, the goodness of fit was satisfactory for all scales.

Regarding the model for the “negative affectivity” scale, the Chi-square statistic was not statistically significant [ $\chi^2(9) = 16.5; p = .057$ ] and the other values were indicative of a good model fit (RMSEA = .035; SRMR = .023; CFI = .986; TLI = .976). Similar results were obtained for the model of the “positive affectivity” scores [ $\chi^2(9) = 29.6; p < .001$ ; RMSEA = .059; SRMR = .026; CFI = .981; TLI = .968].



### *3.4.2. Sociodemographic Characteristics of the Sample*

The study population comprised 1,230 university students, 654 in stage 1 and 576 in stage 2. Most participants were females (476 [72.8%] and 449 [78.0%]) and undergraduate students (434 [66.3%] and 389 [67.6%]). Furthermore, the sample appears to be balanced between healthcare and other degree students ( $p = .906$ ) and between off- and on-campus students ( $p = .065$ ). A large majority of the sample said they do not live in cities or towns declared "red zones" (513 [78.4%] and 531 [92.2%]).

A detailed description of the study group is presented in Table 3.1.

**Table 3.1.** *Sociodemographic Characteristics of the Sample*

		Stage 1 (n = 654)		Stage 2 (n = 576)		<i>p</i>
		<i>n</i>	%	<i>n</i>	%	
Gender	Female	476	72.8	449	78.0	.036
	Male	178	27.2	127	22.0	
Age (years old)	18-20	151	23.1	100	17.4	.013
	21-23	328	50.2	344	59.7	
	24-26	122	18.7	90	15.6	
	27-29	22	3.4	21	3.6	
	30+	31	4.7	21	3.6	
Type of university course	Undergraduate	434	66.3	389	67.6	< .001
	Postgraduate	133	20.4	122	21.2	
	Out-of-course	85	13.0	65	11.3	
	PhD	2	0.3	0	0.0	
Area of study	Healthcare	294	45.0	257	44.6	.906
	Other courses	360	55.0	319	55.4	
Off-site student	Yes	305	46.6	299	51.9	.065
	No	349	53.4	277	48.1	
“Red zone”	Yes	141	21.6	45	7.8	< .001
	No	513	78.4	531	92.2	
Size of the household	1	31	4.7	17	3.0	.510
	2	72	11.0	72	12.5	
	3	178	27.2	158	27.4	
	4	255	39.0	230	39.9	
	> 4	118	18.0	99	17.2	
Affected by COVID-19	Yes	1	0.0	34	5.9	< .001
	No	653	86.6	493	85.6	
	Uncertain	0	13.3	49	8.5	

### *3.4.3. Perceived Health Risk and Fear of COVID-19*

Table 3.2 reports data related to perceived health risk and fear of COVID-19 in the two periods of the pandemic.

In general, university students in the sample exhibited a moderate perception of the risk of contracting the infection. However, one year later, a significant difference can be seen in the scores of personal and comparative susceptibility and fear of COVID-19. Specifically, during the pandemic's second phase, college students reported higher personal susceptibility and anxiety for COVID-19 and lower comparative susceptibility.

When analyzing the two groups in the two different phases of the study, both during the first and second phases of the pandemic, females reported a higher average perceived risk and fear of COVID-19. Furthermore, one-way ANOVA showed significant differences in scores across age groups. Specifically, during the first phase of the pandemic, students in the age group 21-23 years reported higher personal susceptibility scores than students in the other age groups; similarly, during the second phase, they reported higher personal and comparative susceptibility scores.

No significant differences were found regarding the type and year of the degree program, as well as living or not in an area declared a "red zone."

A detailed comparison is reported in Table 3.3.

**Table 3.2.** *Differences in Health Risk Perception and Fear of COVID-19 in the Two Study Stages*

	Stage 1 (n = 654)		Stage 2 (n = 576)		<i>t-test</i>	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Personal susceptibility	2.76	0.79	2.94	0.74	-3.85	< .001
Comparative susceptibility	2.89	0.55	2.58	0.73	7.92	< .001
Fear of COVID-19	2.14	0.86	3.31	1.26	-18.69	< .001

**Table 3.3.** *Influence of Sociodemographic Variables on Health Risk Perception and Fear of COVID-19 in Both Stages of the Study*

		Personal susceptibility				Comparative susceptibility				Fear of COVID-19			
		Stage 1 (n = 654)	<i>p</i>	Stage 2 (n = 576)	<i>p</i>	Stage 1 (n = 654)	<i>p</i>	Stage 2 (n = 576)	<i>p</i>	Stage 1 (n = 654)	<i>p</i>	Stage 2 (n = 576)	<i>p</i>
Sex	Male	2.62±0.78	.004	2.76±0.85	.009	2.86±0.59	.47	2.39±0.85	.006	2.02±0.84	.03	2.89±1.23	<.001
	Female	2.82±0.79		2.99±0.70		2.89±0.54		2.63±0.68		2.19±0.86		3.43±1.24	
Age	18-20	2.62±0.84		2.85±0.63		2.87±0.59		2.40±0.70		2.13±0.89		3.30±1.33	
	21-23	2.82±0.77		3.02±0.74		2.91±0.54		2.65±0.70		2.11±0.82		3.35±1.24	
	24-26	2.74±0.84	.04	2.85±0.80	.008	2.82±0.51	.41	2.54±0.78	.01	2.20±0.89	.73	3.20±1.30	.87
	27-29	2.73±0.70		2.47±0.96		2.82±0.39		2.30±0.80		2.32±0.99		3.38±1.35	
	> 30	2.63±0.70		2.86±0.65		2.60±0.73		2.46±0.76		2.16±0.89		3.19±1.03	
Red zone	Yes	2.74±0.76	.26	2.93±0.76	.32	2.87±0.56	.22	2.58±0.73	.89	2.16±0.87	.27	3.11±1.45	.27
	No	2.84±0.89		3.05±0.60		2.94±0.55		2.60±0.73		2.07±0.83		3.33±1.24	
Type of degree	Undergraduate	2.76±0.81		2.98±0.70		2.88±0.57		2.60±0.70		2.14±0.86		3.37±1.27	
	Postgraduate	2.71±0.77	.38	2.82±0.83	.12	2.86±0.51	.46	2.56±0.76	.69	2.11±0.92	.89	3.25±1.22	.23
	Out-of-course	2.89±0.74		2.95±0.79		2.95±0.53		2.52±0.84		2.18±0.80		3.09±1.28	
	PhD	2.50±0.70		/		2.50±0.70		/		2.50±0.70		/	
Area of study	Healthcare	2.79±0.81	.47	2.92±0.82	.68	2.89±0.57	.92	2.56±0.74	.65	2.11±0.87	.32	3.30±1.22	.90
	Other courses	2.74±0.78		2.95±0.69		2.88±0.54		2.59±0.72		2.17±0.85		3.32±1.29	

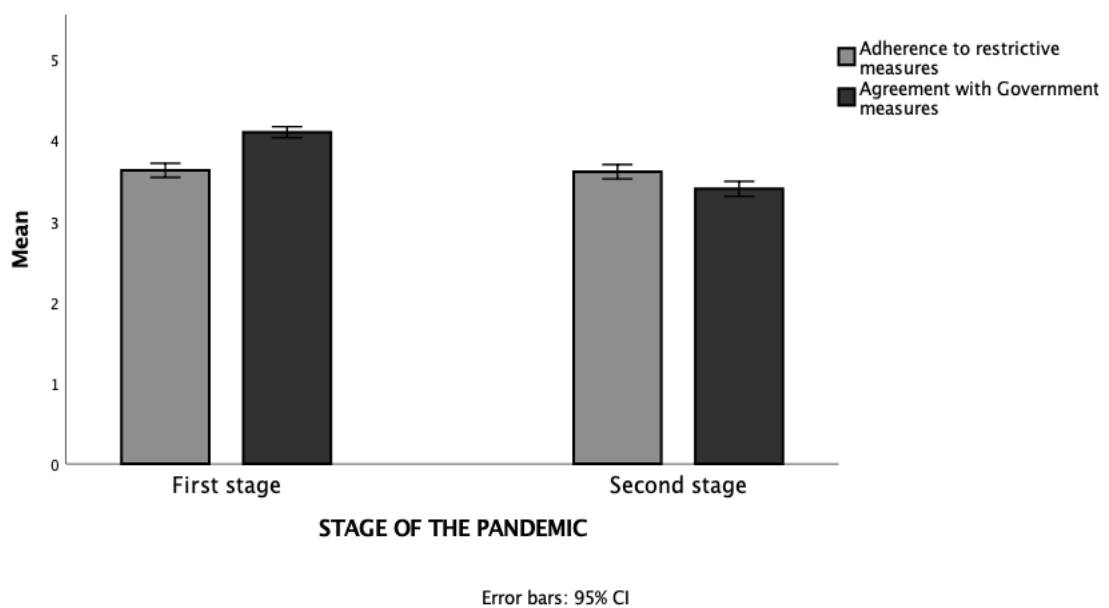
#### 3.4.4. *Opinions and Beliefs Regarding COVID-19 Prevention Measures*

As reported in Table 3.4, in both phases of the pandemic, the majority of the sample received most of the information concerning COVID-19 via television (first stage: 54.0%, second stage: 46.7%) and the Internet (first stage: 36.2%, second stage: 46.4%). On the other hand, only a tiny percentage preferred to receive information about the pandemic through newspapers (first stage: 6.4%, second stage: 4.0%) or by contacting their doctor (first stage: 3.2%, second stage: 2.4%). In particular, television was most used during the first phase of the pandemic, while the Internet was mainly used during the second phase ( $\chi^2(4) = 16.20, p = .003$ ). Considering the influence of sociodemographic variables on the information sources consulted during the two stages of the pandemic, it is interesting to note that females used television more than males, who consulted the Internet more ( $\chi^2(4) = 17.15, p = .002$ ). Furthermore, students who lived in areas declared red zones tended to inform themselves more by reading newspapers. In contrast, those who did not live in a red zone informed themselves more through television ( $\chi^2(4) = 13.04, p = .01$ ). Finally, postgraduate ( $\chi^2(12) = 22.56, p = .03$ ) and health area students ( $\chi^2(4) = 14.79, p = .005$ ) used the Internet more to inform themselves.

In general, the students surveyed in the first and second stages of the pandemic reported good confidence in the information they received regarding COVID-19, as shown in Table 5. There was no significant difference in the level of confidence between the first and second phases of the pandemic ( $p = .25$ ). It was found that males tend to trust the information received on COVID-19 more than females ( $\chi^2(4) = 11.12, p = .02$ ). Furthermore, older students are less trusting of COVID-19 information than younger students ( $\chi^2(16) = 26.57, p = .04$ ). No significant differences were found regarding the other sociodemographic variables considered in the study.

Concerning university students' opinions on restraint measures to contain the infection in the two phases of the pandemic, as shown in Figure 3.1, the degree of agreement with the restrictive measures imposed by the government significantly decreased one year after the outbreak of the pandemic ( $p < .001$ ). No significant difference between the first and second stages in adherence to restrictive measures ( $p = .79$ ). No sociodemographic variable significantly influenced adherence to restriction measures and agreement with government measures to counter the pandemic.

**Figure 3.1.** *Differences in Adherence to Restrictions and Agreement With Government Measures in the Two Stages of the Pandemic*



Furthermore, there were statistically significant differences between the degree of agreement expressed during the first phase of the pandemic and that expressed in the second phase. More specifically, during the first phase of the pandemic, students were more in agreement with restrictive measures such as avoiding using public transportation ( $\chi^2(1) = 22.85, p < .001$ ), going to enclosed places such as bars and restaurants ( $\chi^2(1) = 98.94, p <$

.001), going to stores unless necessary ( $\chi^2(1) = 24.45, p < .001$ ), avoiding non-essential medical visits ( $\chi^2(1) = 70.47, p < .001$ ), and staying in open places ( $\chi^2(1) = 15.52, p < .001$ ). Interestingly, during the second phase of the pandemic, students were more in agreement with avoiding dating no cohabitants than during the first phase ( $\chi^2(1) = 68.79, p < .001$ ). Regarding the influence of sociodemographic variables, females were more in agreement to avoid using public transportation ( $\chi^2(1) = 6.90, p = .009$ ) and dating no cohabitants ( $\chi^2(1) = 8.60, p = .003$ ) than males. Furthermore, students who lived in areas declared red zones were more likely to avoid going to enclosed places such as bars and restaurants ( $\chi^2(1) = 3.87, p = .04$ ) and meeting no cohabitants ( $\chi^2(1) = 4.09, p = .04$ ). Finally, regarding age, students in the 18-20 age group were least supportive of the ban on dating non-cohabitants ( $\chi^2(4) = 10.99, p = .02$ ). No other significant differences were detected.



**Table 3.4.** *Source of Information on COVID-19 and Degree of Confidence in the University Students' Sample During the Two Phases of the Pandemic*

		Stage 1 (n = 654)		Stage 2 (n = 576)		<i>p</i>
		<i>N</i>	%	<i>N</i>	%	
Source of information	Newspapers	42	6.4	23	4.0	.003
	TV	353	54.0	269	46.7	
	Radio	1	0.2	3	0.5	
	Internet	237	36.2	267	46.4	
	Doctors or other official sources	21	3.2	14	2.4	
Confidence in COVID-19 information	Not at all	9	1.4	4	0.7	.25
	Slightly	154	23.5	130	22.6	
	Moderately	411	62.8	362	62.8	
	Very	71	10.9	77	13.4	
	Extremely	9	1.4	3	0.5	

**Table 3.5.** *University Students' Opinions on the Restrictive Measures to Adopt After the Lockdown in the Two Study Stages*

	Stage 1 (n = 654)				Stage 2 (n = 576)				<i>p</i>
	Agree		Disagree		Agree		Disagree		
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	
Avoid using public transport (trains, buses, planes)	579	88.5	75	11.5	432	78.5	124	21.5	< .001
Avoid going to closed places such as bars, restaurants, cinemas and theatres, classrooms	600	91.7	54	8.3	401	69.6	175	30.4	< .001
Avoid going to shops if not necessary and with the necessary protections (facial mask)	615	94.0	39	6.0	493	85.6	83	14.4	< .001
Avoid meeting non-cohabiting people	271	41.4	383	58.6	375	65.1	201	34.9	< .001
Avoid unnecessary medical visits	484	74.0	170	26.0	293	50.9	283	49.1	< .001
Avoid walking in open places	80	12.2	574	87.8	33	5.7	543	94.3	< .001

### 3.4.5. Experiences and Opinions on Distance Learning

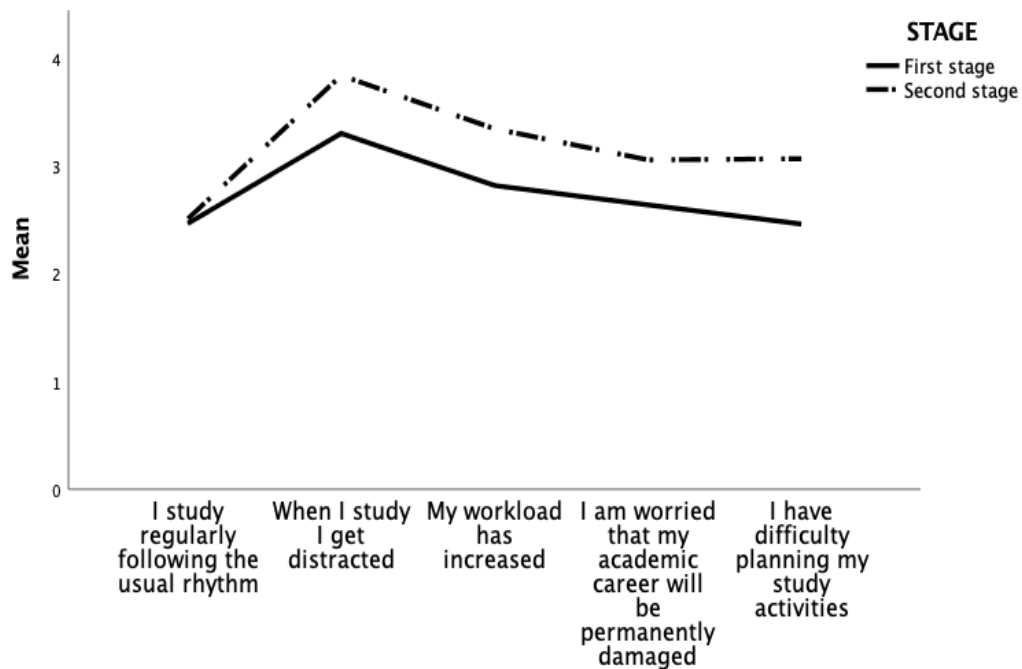
As shown in Table 3.6, regarding the opinions of the college students in our sample on the resumption of academic activities in the later phases of the pandemic, it can be seen that in both the first and second phases of the pandemic, the overwhelming majority believed it was appropriate not to resume activities regularly (first stage: 93.9%, second stage: 88.2%) but rather to continue with distance learning (first stage: 76.9%, second stage: 76.6%). However, significant differences were found between the first and second phases of the pandemic. In particular, college students interviewed during the second phase of the pandemic tended to be more supportive of resuming academic activities normally ( $\chi^2(1) = 12.38, p < .001$ ). Furthermore, compared with the first phase of the pandemic, students interviewed in the second phase were more in disagreement with continuing distance academic activities except for profit examinations ( $\chi^2(1) = 41.60, p < .001$ ) but were instead more in favour of continuing with all online academic activities except for degree examinations ( $\chi^2(1) = 16.13, p < .001$ ). Regarding the influence of sociodemographic variables on these opinions, students in the 18-20 age group disagreed more with the possibility of continuing with all academic activities in the online mode ( $\chi^2(4) = 16.94, p = .002$ ). Furthermore, off-campus students were most disagreeable with continuing online activities except for profit exams ( $\chi^2(1) = 4.18, p = .04$ ). Finally, undergraduate students were more in favour of continuing with online activities except for profit exams ( $\chi^2(3) = 13.73, p = .003$ ).

**Table 3.6.** *University Students' Opinions on the Restrictive Measures to Adopt in the Universities After the Lockdown in the Two Study Stages*

	Stage 1 (n = 654)				Stage 2 (n = 576)				<i>p</i>
	Agree		Disagree		Agree		Disagree		
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	
Resume all academic activities regularly	40	6.1	614	93.9	68	11.8	508	88.2	< .001
Continue with all distance learning activities	503	76.9	151	23.1	441	76.6	135	23.4	.885
Continue with distance learning activities except for exams	318	48.6	336	51.4	176	30.6	400	69.4	< .001
Continue with distance learning activities except for degree exams	332	50.8	322	49.2	358	62.2	218	37.8	< .001
Continue with distance learning activities except for collegial organ meetings (e.g., class councils, assemblies, etc.)	332	50.8	322	49.2	358	62.2	218	37.8	< .001

As for the impact of university closures and the transition to distance learning on the well-being of university students, Figure 3.2 highlights a significant adverse effect. In fact, after a year of the pandemic, students reported being more distracted ( $p < .001$ ), having a heavier workload ( $p < .001$ ), being more concerned that their academic career could be irreparably damaged ( $p < .001$ ), and having greater difficulty planning study activities ( $p < .001$ ).

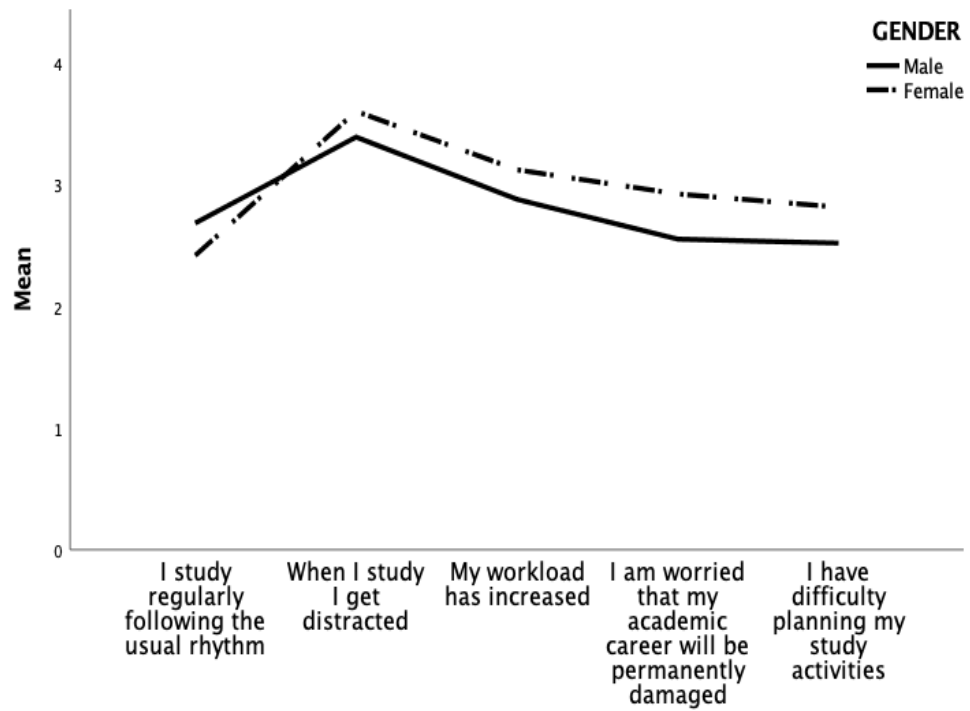
**Figure 3.2.** Differences in the Impact of Distance Learning in the Two Phases of the Pandemic



Analyzing the impact of the sociodemographic variables, we mainly found a significant effect of gender, age and type of course attended. As shown in Figure 3.3, compared with males, female students reported more difficulty in studying at their usual rhythms ( $p = .001$ ), were more distracted during study activities ( $p = .006$ ), experienced a more significant increase in their workload ( $p = .006$ ), were more concerned that their academic career may

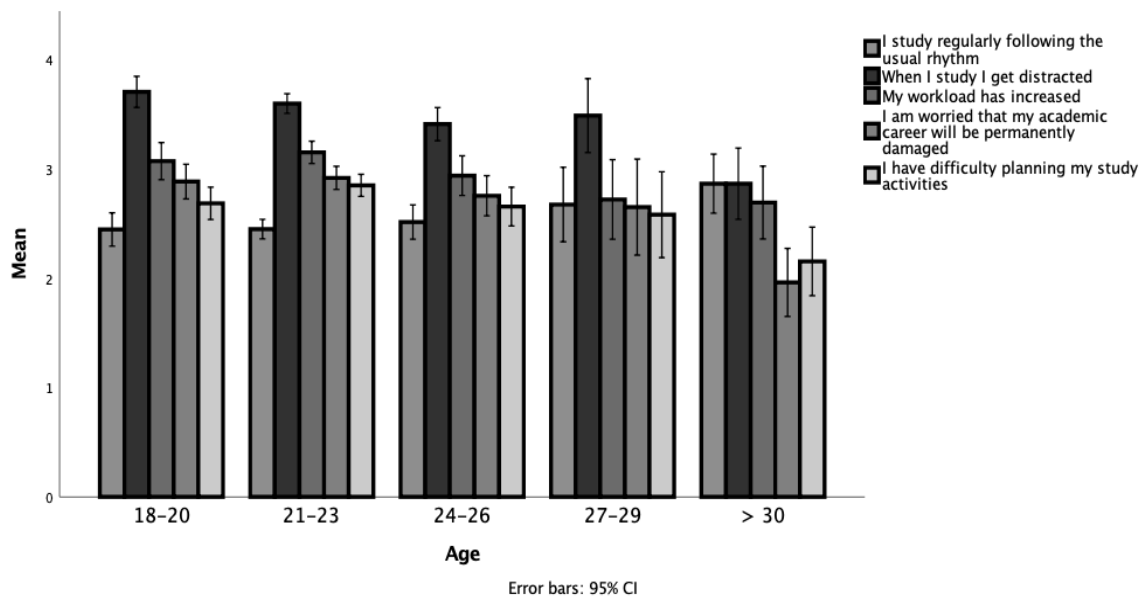
be compromised because of the pandemic ( $p < .001$ ), and had more difficulty organizing their study activities ( $p = .001$ ).

**Figure 3.3.** *Gender Differences in the Impact of Distance Learning*



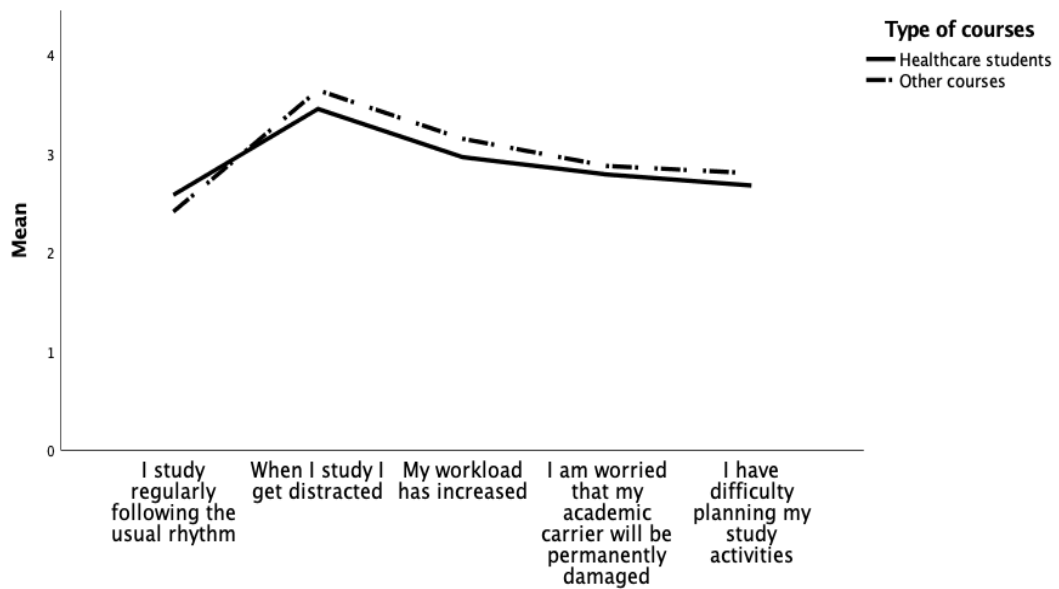
Regarding the influence of age, Figure 3.4 shows that younger students report significantly higher scores in the variables considered.

**Figure 3.4.** *Age Differences in the Impact of Distance Learning*



Finally, regarding the influence of the type of course attended (Figure 3.5), compared with health students, students attending other courses reported greater difficulty in studying at their usual rhythms ( $p = .01$ ), a greater tendency for distraction during the study ( $p = .005$ ), and a more significant increase in academic workload ( $p = .01$ ).

**Figure 3.5.** Differences in the Impact of Distance Learning According to the Type of Course





### 3.4.6. Social Support and Psychological Experiences During the Pandemic

As shown in Figure 3.6, university students in our sample received support mainly from family, friends, and religion to a more limited extent. Furthermore, after one year, the support received from friends ( $p = .02$ ) and religion ( $p = .001$ ) increased significantly.

**Figure 3.6.** Sources of Support for University Students in the Two Phases of the Pandemic

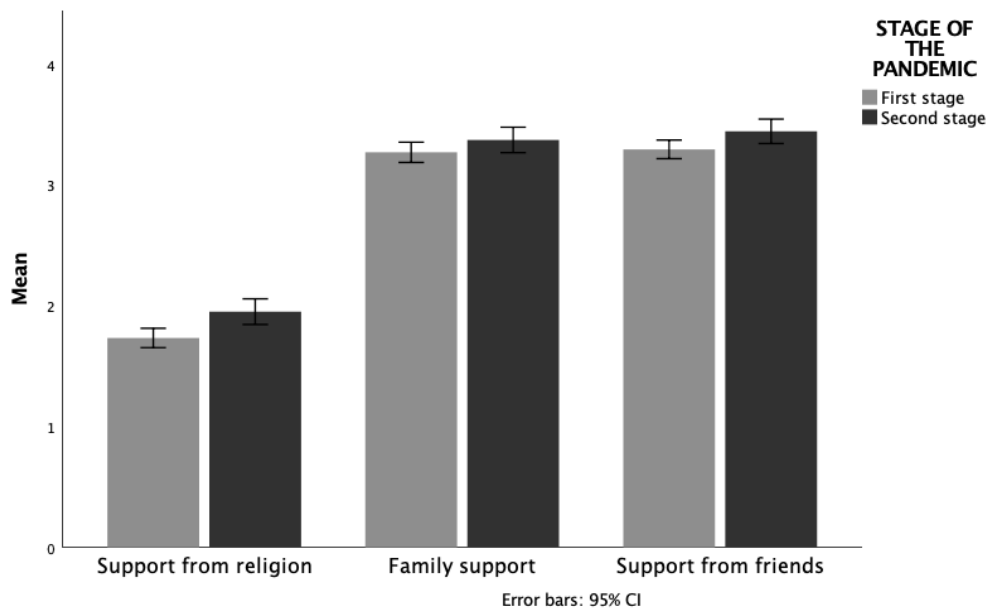
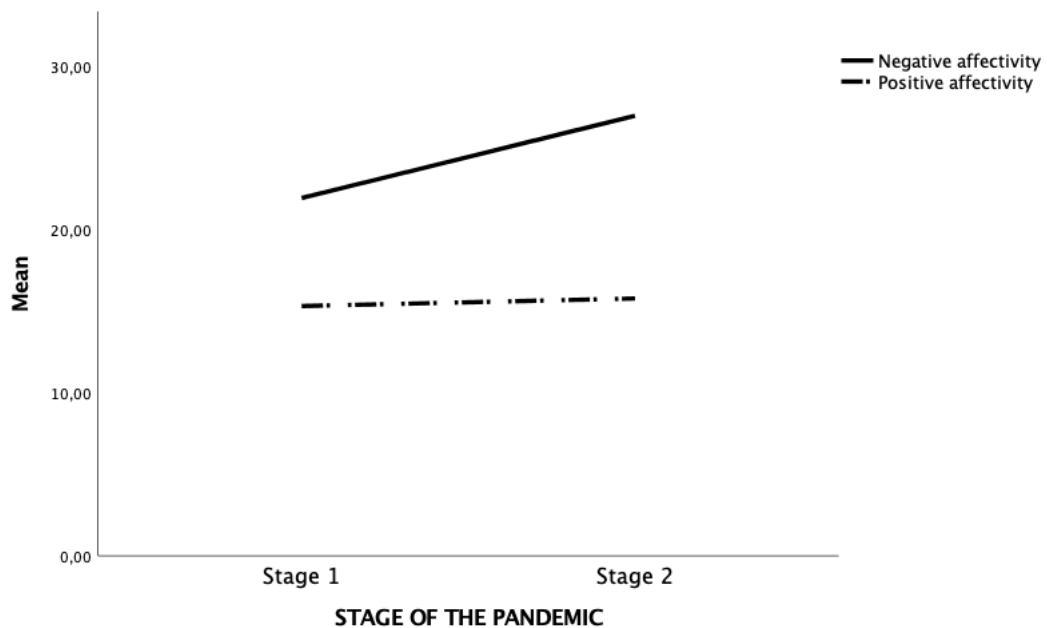


Figure 3.7 reports the differences in the positive and negative affectivity scores across the two stages of the pandemic. A significant increase in the scores related to negative affectivity ( $p < .001$ ) and a slight increase in the scores of positive affectivity ( $p = .03$ ) can be observed across the two waves of the pandemic.

**Figure 3.7.** *Differences in Positive and Negative Affectivity Scores in the Two Stages of the Pandemic*



Analyzing the influence of sociodemographic variables on positive and negative affectivity in the two phases of the pandemic (Table 3.7), female students reported higher negative affectivity scores and lower positive affectivity scores than males in both the first and second phases of the pandemic. Furthermore, younger students report lower positive affectivity during the first phase of the pandemic and higher negative affectivity during both stages. In addition, students residing in areas with more severe restrictions had lower positive affectivity in the first phase of the pandemic and higher negative affectivity in both phases. Finally, health area students report better positive and negative affectivity scores than students in other courses in the second phase of the pandemic.

**Table 3.7.** *Influence of Sociodemographic Variables on Positive and Negative Affectivity in Both Stages of the Study*

		Positive affectivity				Negative affectivity			
		Stage 1 (n = 654)	<i>p</i>	Stage 2 (n = 576)	<i>p</i>	Stage 1 (n = 654)	<i>p</i>	Stage 1 (n = 654)	<i>p</i>
Sex	Male	15.79±3.52	.03	17.25±4.28	< .001	19.69±6.07	< .001	22.18±8.04	< .001
	Female	15.10±3.74		15.33±3.72		22.73±6.91		28.28±7.67	
Age	18-20	15.21±3.59		15.78±4.25		22.47±6.64		27.65±7.31	
	21-23	14.94±3.84	.02	15.58±3.79	.07	22.26±6.73	.03	27.20±8.22	.01
	24-26	15.81±3.49		16.02±4.01		21.37±7.09		26.16±8.20	
	27-29	16.31±2.80		15.14±4.17		19.95±6.22		28.14±8.30	
	> 30	16.58±3.55		18.00±3.59		18.87±7.28		21.38±8.93	
Red zone	Yes	14.56±3.94	.008	15.02±3.87	.19	23.40±7.50	.003	29.62±8.45	.02
	No	15.49±3.60		15.81±3.93		21.49±6.58		26.71±8.09	
Type of degree	Undergraduate	15.13±3.68	.09	15.87±3.99	.58	22.24±6.78	.07	27.23±8.11	.27
	Postgraduate	15.78±3.84		15.52±4.03		20.57±6.72		25.89±8.51	
	Out-of-course	15.23±3.48		15.49±3.35		22.37±7.10		27.18±7.67	
	PhD	20.00±1.41		/		18.50±0.70		/	
Area of study	Healthcare	15.56±3.80	.09	16.14±3.69	.03	21.67±6.86	.43	25.69±7.81	.001
	Other courses	15.07±3.60		15.44±4.09		22.10±6.80		27.94±8.30	

As a final step in our analyses, we conducted a multiple regression model to identify the main predictors of positive and negative affectivity after one year of the pandemic. Sociodemographic variables, perceived health risk, and adherence to restrictive government measures were used as independent variables, while positive and negative feelings scores were the dependent variables.

Regarding negative affectivity, the regression model explained 44% of the variance ( $R^2 = .44$ ,  $F = 45.55$ ,  $p < .001$ ). Specifically, the independent variables that contribute most to explaining negative affectivity score are concern about university career ( $\beta = .47$ ,  $p < .001$ ), fear of COVID-19 ( $\beta = .22$ ,  $p < .001$ ), gender ( $\beta = .18$ ,  $p < .001$ ), and family support ( $\beta = -.15$ ,  $p < .001$ ). Table 3.8 shows all the results of the regression analysis and the contribution of the other independent variables.

Regarding positive affectivity, the regression model explained 26% of the variance ( $R^2 = .26$ ,  $F = 20.34$ ,  $p < .001$ ). Specifically, the independent variables that contribute most to explaining positive affectivity score are concern about university career ( $\beta = -.34$ ,  $p < .001$ ), family support ( $\beta = .16$ ,  $p < .001$ ), gender ( $\beta = -.10$ ,  $p < .001$ ), and support from friends ( $\beta = .10$ ,  $p < .001$ ). Table 3.9 shows all the results of the regression analysis and the contribution of the other independent variables.

**Table 3.8.** *Predictors of Negative Affectivity After One Year of the COVID-19 Pandemic*

	$\beta$	t	p	F	R <sup>2</sup>
				45.548	.441
Intercept		12.238	< .001		
Gender	.179	7.879	< .001		
Living in a “red zone”	.057	2.527	.012		
Healthcare student	-.078	-3.506	< .001		
Personal susceptibility	.041	1.660	.097		
Comparative susceptibility	-.056	-2.326	.020		
Confidence in information on COVID-19	-.019	-.831	.406		
Fear of COVID-19	.219	9.025	< .001		
Concern about university career	.467	20.265	< .001		
Support from religion	-.019	-.825	.409		
Family support	-.146	-5.878	< .001		
Support from friends	.004	.163	.871		
Age	.013	.439	.661		
degree=Postgraduate	-.031	-1.217	.224		
degree=Out-of-course	.038	1.529	.126		
degree=PhD	.000	-.012	.990		
Adherence to restrictive measures	-.052	-2.233	.026		
Agreement with Government measures	-.060	-2.512	.012		

**Table 3.9.** *Predictors of Positive Affectivity After One Year of the COVID-19 Pandemic*

	$\beta$	t	p	F	R <sup>2</sup>
				20.34	.260
Intercept		17.102	< .001		
Gender	-.105	-4.026	< .001		
Living in a “red zone”	-.063	-2.454	.014		
Healthcare student	.068	2.647	.008		
Personal susceptibility	-.013	-.464	.643		
Comparative susceptibility	-.028	-1.029	.304		
Confidence in information on COVID-19	.047	1.774	.076		
Fear of COVID-19	-.011	-.385	.700		
Concern about university career	-.340	-12.844	< .001		
Support from religion	.051	1.922	.055		
Family support	.165	5.779	< .001		
Support from friends	.103	3.787	< .001		
Age	-.020	-.569	.570		
degree=Postgraduate	-.018	-.604	.546		
degree=Out-of-course	-.049	-1.729	.084		
degree=PhD	.018	.700	.484		
Adherence to restrictive measures	.132	4.960	< .001		
Agreement with Government measures	-.039	-1.435	.152		

### 3.5. Discussion

This study aimed to conduct a comparative analysis of the experiences of a large sample of Sicilian university students one year after the outbreak of the COVID-19 pandemic. Specifically, we evaluated students' health risk perception and psychological effects of the pandemic first in the period between April 22 and May 2, 2020 (the first lockdown for COVID-19 in Italy) and then one year later, during the second wave of the pandemic, from March 22 to April 13, 2021 (a period characterized by less stringent measures but still proportionate to the level of contagion). Furthermore, the study investigated students' opinions and beliefs regarding COVID-19 prevention measures, their confidence in the information received concerning the pandemic, and their views on distance education and its impact on their well-being and academic experience.

Below, the main implications of the study results based on the research questions we set out to answer will be discussed.

*What was the level of perceived risk related to COVID-19 and fear of the disease among university students, and were there any differences after one year of the pandemic? What sociodemographic variables influenced the perceived risk and fear of COVID-19?*

University students in this study showed a moderate perception of the risk of contracting COVID-19. In particular, a significant increase in personal susceptibility and a decrease in comparative susceptibility could be observed after one year. Fear and worry about the risk of contracting the disease were also significantly higher in the second phase of the pandemic. These data are particularly interesting because they show increased awareness of the threat

posed by COVID-19 among university students of our sample, resulting in increased concern and perception of personal risk related to the disease. However, the decrease in perceived risk relative to others after one year is another finding to consider. This discrepancy has already been widely confirmed in the literature on health risk perception, which shows that an individual's risk perceptions regarding the same disease can be simultaneously pessimistic and optimistic, depending on whether it is intended in absolute or comparative terms (Ferrer & Klein, 2015; Shepperd et al., 2013). According to the literature, the implications may be different. In fact, according to some studies, excessive optimism may lead to lower motivation to adopt preventive behaviors (Dillard et al., 2006; Dillard et al., 2009).

Conversely, other studies say unrealistic optimism may be associated with positive health outcomes (Ferrer & Klein, 2015; Hevey et al., 2012). In the case of our study, university students tended to be more pessimistic about their personal risk but more optimistic about the risk perceived in comparative terms than people of the same age and gender. However, this discrepancy does not seem to have affected adherence to restriction measures to contain infections, which did not change significantly one year later.

According to our findings, female students expressed a higher perceived susceptibility and tended to be more concerned about the disease than males. These results also agree with the literature data on the perception of university students' risks in the event of pandemics (Dolinski et al., 2020; Tooher et al., 2013). In this regard, a study by Akan et al. (2010) on university students' knowledge of and attitudes toward the pandemic influenza A/H1N1 demonstrated that 40.5% of the participants perceived their risk as "moderate" and that the risk perception of males was significantly lower than that of females, as reported in this study.



Another interesting finding is that students in the age group 21-23 years reported higher personal susceptibility scores than students in the other age groups; similarly, during the second wave, they reported higher personal and comparative susceptibility scores. Contrary to the literature that shows that health risk perception increases with age (Commodari et al., 2020; Han et al., 2021), younger students in our sample had higher risk perception than older students. A possible interpretation is that the younger population, in general, appears to be more negatively affected by the COVID-19 pandemic (Novotný et al., 2020; Simon et al., 2021) and that students at the initial stages of their university career have more doubts and uncertainties about their future which were dramatically amplified by such an unexpected and unpredictable event as the pandemic (Browning et al., 2021; Ebrahim et al., 2022). Consequently, this more significant impact may be associated with a higher risk perception than older students.

*What were the knowledge and opinions of university students regarding COVID-19 and the restrictive measures imposed, and how did they change across the first two waves of the pandemic?*

University students in our sample were informed about COVID-19 with good confidence regarding the information received on the pandemic. In line with the data reported by similar studies on the topic (Akan et al., 2010; Carducci et al., 2019; Kristiansen et al., 2007), in this sample of university students, the primary sources of information used in the two stages of the pandemic were television and the Internet: television was most used during the first wave of the pandemic, while the Internet during the second wave. We also found significant differences concerning some sociodemographic variables. In particular,

females used television more to inform themselves while males preferred the Internet. This finding is slightly different from those reported in the literature in which males use mass media more, while females prefer the Internet and social networks (Akan et al., 2010; Carducci et al., 2019). The imbalance of the sample with a clear predominance of females over males may have influenced these results.

Instead, in line with the literature (Akan et al., 2010), health students in our sample tended to inform themselves more through the Internet than students in other degree programs.

Regarding confidence in the information received about the pandemic, male and older students exhibited higher levels of trust in COVID-19 information, according to the results of other studies conducted in the context of other pandemics (Akan et al., 2010; Carducci et al., 2019; Kristiansen et al., 2007).

A significant finding was a reduction over a year of the agreement with the government measures to contrast the pandemic, which did not, however, correspond to a decrease in adherence to restrictive measures. This trend is also confirmed by the significant change in opinions on the actions needed in the later stages of the pandemic to avoid the increase in infections. In fact, during the first wave of the pandemic, university students were more in agreement with measures such as avoiding using public transport or avoiding closed places such as bars and restaurants. In addition, females and students residing in areas with more severe restrictions (“red zones”) had a greater degree of agreement with the restrictions, likely due to the higher perceived risk related to COVID-19. On the contrary, younger students (18-20 years old) were more in disagreement with the ban on meeting non-cohabitants, confirming the more substantial impact of the restrictions on younger people, especially as regards the loss of sociality (Keijsers & Bülow, 2021; Rana & Govender, 2022).

*What were the experiences of university students in distance education across the first two waves of the pandemic?*

Our results confirmed the significant impact of the pandemic and the transition to distance learning on the well-being of university students. Compared to the first period of the pandemic, after one year, the students interviewed complained of a more significant workload, greater difficulties in studying and greater concerns for their university career and future. As expected, female and younger students reported the most significant challenges, as they are the categories most affected by the impact of the COVID-19 pandemic from a psychological and emotional point of view (Aristovnik et al., 2020; Browning et al., 2021).

Furthermore, our results confirmed the significant increase in academic workload over a pandemic year, as already highlighted in other studies on the topic (Aristovnik et al., 2020). This data certainly requires particular attention as it raises a question relating to the organization of university activities in the post-pandemic period to prevent students from continuing to be overloaded and experiencing the consequent difficulty in studying without excessive stress.

The university students in our sample were highly concerned about their careers after a year of the COVID-19 pandemic, confirming the highly traumatic impact of the pandemic in a group like that of university students who are already confronted with feelings of uncertainty about studies, job security and financial stability (Křeménková et al., 2021).

Contrary to the literature that highlights a more significant impact of the pandemic and the transition to distance learning among healthcare students (Hakami et al., 2020; Harries et al., 2021; Lyons et al., 2020), our results showed that healthcare students reported fewer difficulties than those attending other degree courses. This data can be explained by a

different organization of the degree courses in the health area in Italy compared to other countries in the world or by the influence of other variables not considered in this study.

Despite the negative impact of the new university teaching, most of the sample still considered it appropriate to continue with online education in the subsequent phases of the pandemic to avoid the resurgence of infections. However, after one year, the percentage of students who would like to resume regular activities in the presence has increased significantly. In particular, students aged 18-20 disagreed more with the option to continue with all online activities, probably due to their greater need for sociality and more significant difficulties in organizing their study with distance learning.

*What psychological experiences and social needs did university students report during the pandemic, and how did they after one year?*

Our results indicated significant psychological effects of the pandemic period on university students. In particular, a considerable increase in the scores related to negative affectivity can be observed after one year of the pandemic. As reported by other similar studies, this data contrasts with the data relating to the general population in which psychological distress decreased slightly in the second wave of the pandemic (Křeménková et al., 2021). This discrepancy can be explained by the fact that, compared to the general population, university students have experienced the effects of the COVID-19 pandemic more directly as it affected the different areas of their daily lives much more markedly (Browning et al., 2021; Ebrahim et al., 2022; Křeménková et al., 2021).

These results align with other studies examining the mental state of university students during the pandemic period. A recent study at the University of Valladolid (Spain) showed

higher anxiety, stress, and depression levels among students and administrative staff (Odriozola-Gonzalez et al., 2020). Similarly, another recent study in Greece reported the quarantine's detrimental psychological effects on university students' mental health (Kaparounaki et al., 2020). A cross-sectional web-based survey conducted on 476 university students living in Bangladesh during the COVID-19 pandemic confirmed that university students experienced heightened depression and anxiety.

However, despite the significant increase in the negative affectivity score in the second phase of the pandemic, there was also a slight increase in the positive affectivity score. This result confirms that positive and negative affectivity are two independent dimensions that do not necessarily vary together in the same way (Watson & Clark, 1984) and highlights that university students can rely on protective factors that maintain a good level of positive affectivity. Among these, the support of family and friends is associated with better levels of positive affectivity, as has already been widely pointed out in the literature (Buijs et al., 2022; Coverdale & Long, 2015).

Finally, we evaluated the main predictors of positive and negative affectivity one year after the pandemic outbreak, drawing a kind of identikit of the university student most at risk of developing psychological distress due to the effects of the COVID-19 pandemic. Students at risk of experiencing significant negative affectivity are very concerned about their academic career, were very worried about COVID-19, were female, and may rely on limited family support. In addition, they lived in areas under stricter restriction measures, did not attend health-related degree programs, perceived themselves at less risk of contracting the disease than others, and had more difficulty sharing and complying with government-imposed restriction measures.

In contrast, students who were unconcerned about their university career, male, complied with pandemic restriction measures with less difficulty, and can count on good

support from family and friends experienced more positive affectivity during the pandemic. Furthermore, these students tended not to attend health area courses and did not live in red zones.

In conclusion, this study confirms that university students are particularly at risk of suffering from the psychological impact of the COVID-19 pandemic and related restrictive measures. In fact, during the first year of the pandemic, Sicilian university students in our sample showed significant deterioration in their psychological well-being and university experience. However, we found factors that can help promote positive affect and better psychological well-being, including support from family and friends and reduced concern for one's university career.

In light of these results, the psychological well-being of university students should be carefully considered. Therefore, it is necessary to provide adequate crisis-oriented psychological services to support this specific population in addressing the uncertainty associated with the pandemic, as well as to reduce the long-term psychological consequences of this unpredictable event, according to the recommendations of the literature on the topic (Di Giacomo, 2020; Koffman et al., 2020a; Koffman et al., 2020b).

One of the main strengths of this study is the large sample of subjects enrolled over a pandemic year to provide a comprehensive overview of the impact of COVID-19 on the experience of university students in Italy. Furthermore, compared to other studies already published on the topic, we analyzed little investigated variables that may influence the psychological experiences of university students during the pandemic, such as health risk perception.

However, this study also has limitations that should be considered. First, convenience sampling by sharing an online questionnaire did not balance the sample with respect to sociodemographic variables, such as sex and age. Second, using an online questionnaire may

have created bias as it was not possible to ensure the participants' accuracy in answering the questions. Furthermore, our sample is composed only of students from southern Italy so it would be interesting to conduct new studies on larger and more representative samples from the different Italian regions. Finally, the cross-sectional design of this study did not allow the changes in psychological experiences within a year. For this purpose, a longitudinal design would have allowed a better understanding of the effects of COVID-19 on university students but was difficult to apply due to the difficulties caused by the pandemic period.

## CHAPTER 4

### **Becoming Mother During the COVID-19 Pandemic:**

### **A 3-Years Analysis of Maternal Experiences in Italy**

#### *4.1. Background*

Pregnancy is a critical point in the psychological life of a woman and the couple, and the importance of this experience across the human life cycle requires special attention also from a lifespan perspective. In particular, pregnancy and childbirth can be considered a sequence of developmental tasks and the way in which they are mastered will be predictive of adaption to future adult and parental roles (R. L. Cohen, 1988; Valentine, 1982).

Therefore, pregnancy and postpartum are periods of great vulnerability during which non-normative events such as the COVID-19 pandemic can have a significant impact. (Almeida et al., 2020; Hessami et al., 2022).

According to the literature, pregnant women are more vulnerable to adverse psychological outcomes during the COVID-19 pandemic (Caparros-Gonzalez & Alderdice, 2020; Kotlar et al., 2021; Saccone et al., 2020; Wu et al., 2020; Yan et al., 2020). In particular, restrictions aiming to contain the spread of the virus, such as quarantine, social isolation, and lockdown were associated with a high occurrence of post-traumatic stress symptoms, anxiety, depression, and low well-being in pregnant women (Brooks et al., 2020; Ceulemans et al., 2021; Ecker & Minkoff, 2020; Lebel et al., 2020; Milne et al., 2020).



Because of the COVID-19 pandemic, hospitals worldwide have also adopted strict restraints on pregnant women and their partners (Schmiedhofer et al., 2022). As a result, women were alone at follow-up visits during pregnancy (Bailey & Nightingale, 2020; Coxon et al., 2020). In the hospitals, birthing women were afraid of contracting the virus, while those who were positive for COVID-19 reported a negative birthing experience due to a lack of adequate support (Bender et al., 2020). Furthermore, although fathers' involvement and active participation in the birth process are considered critical to a positive childbirth experience, the pandemic restrictions forced partners to leave women alone during visits and especially at the time of labor and delivery (Lista & Bresesti, 2020; Oddo-Sommerfeld et al., 2022).

Literature underlined that partners or accompanying persons play an important role by providing emotional support during labour and delivery and contributing to decision making (Ecker & Minkoff, 2020). In addition, previous studies have shown that social support has a positive effect on the physical health and psychological well-being of women during labour (Bohren et al., 2017; Britton, 2008; Cohen & Wills, 1985; Peter et al., 2017; Reblin & Uchino, 2008), and it serves as a protective factor against antepartum and postpartum anxiety, post-traumatic stress, and depression (Ford & Ayers, 2011; Ford et al., 2010; Surkan et al., 2006).

Consequently, it can be assumed that women who experienced pregnancy during the pandemic and were forced to give birth alone without their partners are more at risk of adverse psychological outcomes in the postpartum period.

It is therefore of paramount importance to investigate the psychological impact of the pandemic and related restrictions on the childbirth experience to prevent the occurrence of psychopathological disorders in the postpartum and to promote a positive attachment relationship between mother and infant as well as an adequate adaptation to the parental role.

## *4.2. Aims and Hypotheses*

Based on these considerations, the study presented in this chapter aims to investigate the effects of the COVID-19 pandemic and the restrictions adopted during childbirth on the psychological well-being of Italian mothers.

Several risk and protective factors are presumed to influence the development of adverse psychological outcomes. Therefore, other variables will be investigated in addition to psychological outcomes, including quality of relationship with the partner, perceived social support, knowledge and sharing of restriction measures against COVID-19, and obstetric outcomes.

More specifically, we purposed to investigate the following research hypotheses:

*H1:* Giving birth without the partner during the pandemic is associated with adverse mothers' psychological outcomes in postpartum.

*H2:* Women who gave birth in the early stages of the pandemic during the most severe lockdown periods report higher levels of traumatic stress, anxiety and postpartum depression, and worse psychological well-being. They also perceive less social support than women who gave birth under less severe restrictions.

*H3:* Traumatic stress related to the birth experience during the COVID-19 pandemic is associated with postpartum anxiety and depression.

*H4:* Good social support is associated with better psychological outcomes.

*H5:* Fear of COVID-19 correlates with higher levels of traumatic stress, postpartum anxiety and depression, and psychological distress.

*H6:* A high degree of agreement with restrictions against COVID-19 is associated with better psychological outcomes.

*H7:* Social support is a mediator of the impact of birth-related traumatic stress on anxiety, depression, and psychological well-being.

*H8:* It is possible to construct a model to identify risk and protective factors for the development of postpartum depression, postpartum anxiety, and psychological distress in women who gave birth during the COVID-19 pandemic.

### *4.3. Materials and Methods*

#### *4.3.1. Study Design and Participants*

This cross-sectional, observational study was conducted between April 2020 and April 2022 starting from data collected in a preliminary study conducted on a sample of German women and published by Oddo-Sommerfeld et al. (2022).

Participants were Italian women who gave birth during the COVID-19 pandemic and were subject to the restrictions imposed on hospitals to contain the spread of the infection. Women with previous psychiatric comorbidities and/or undergoing psychopharmacological therapy were excluded from the sample.

Due to the containment measures related to the COVID-19 pandemic and the difficulty accessing healthcare institutions in the area, the study was conducted through an online questionnaire. The survey was shared in the main Facebook groups dedicated to the mothers of the province of Catania and with the women who gave birth in clinics and hospitals in the Catania area during the study. Participants completed the survey anonymously, voluntarily and without any remuneration. An online informed consent was obtained from all study

participants. The study protocol was approved by the Ethics Committee of the Department of Educational Sciences of the University of Catania.

#### *4.3.2. Measures*

The survey included a socio-demographic section in which the participants provided information about age, nationality, marital status, education, employment, parity, date and mode of delivery.

A few obstetric variables were collected in the second section, including infant Apgar index, risk factors and hospitalizations during pregnancy, complications during delivery, previous miscarriages, and preterm deliveries.

Then, mothers participating in the study answered a series of questions about the quality of their relationship with their partner, the presence of their partner during labour and delivery, their knowledge of and degree of agreement with restraint measures against COVID-19 at the time of delivery, their concerns related to COVID-19, and the importance they gave to their partner's presence and support during delivery.

Finally, participants completed a battery of standardized questionnaires to assess perceived social support, the presence of post-traumatic stress symptoms related to the birth experience during the COVID-19 pandemic, postpartum anxiety and depression, and the overall level of well-being. In the following paragraphs, we describe the scales used in the study.

#### *4.3.2.1. Impact of Event Scale (IES)*

The IES (Creamer et al., 2003) is the most widely used questionnaire for assessing distress following exposure to traumatic events (Sundin & Horowitz, 2002, 2003). It consists of 22 items rated on a 5-point scale ranging from 0 (*Not at all*) to 4 (*Extremely*). The questionnaire assesses the total post-traumatic stress score and scores on three subscales corresponding to the three main clusters of post-traumatic stress disorder (i.e., intrusion, avoidance, and hyperarousal). A score  $\geq 24$  is considered indicative of the presence of traumatic stress. The Italian version of the questionnaire (Craparo et al., 2013) was used in this study, and each item was adapted to the specific event of the birth during the COVID-19 pandemic (e.g., "Any reminders brought back feelings about birth").

#### *4.3.2.2. Edinburgh Postnatal Depression Scale (EPDS)*

The EPDS (Cox et al., 1987) is the most widely used and recommended tool for screening postpartum depression. It consists of 10 items (e.g., "I have been able to laugh and see the funny side of things", "I have looked forward with enjoyment to things") that the woman can answer on a 4-point Likert scale referring to how she felt in the last week. Scores  $\geq 13$  are the recommended cut-off to identify women with clinically relevant depressive symptoms. The Italian adaptation of the EPDS was validated by Carpiniello et al. (2009).

#### 4.3.2.3. *Postpartum Specific Anxiety Scale (PSAS)*

The PSAS (Fallon et al., 2016) evaluates the frequency of postpartum anxiety experienced by women across the first year of their infants' life. The original version of the questionnaire consists of 51 items. It assesses four domains of anxiety specific to the postpartum period (Maternal Competence and Attachment Anxieties, Infant Safety and Welfare Anxieties, Practical Infant Care Anxieties, Psychosocial Adjustment to Motherhood). This study administered the Italian version of the 12-items short form validated for global crisis periods (PSAS-IT-RSF-C) (Silverio et al., 2021). Each item (e.g., "I have worried about my baby's weight", "I have felt unconfident or incapable of meeting my baby's basic care needs") is graded on a 4-point Likert scale, and the total score ranges from 1 to 48. Higher scores correspond to higher levels of postpartum anxiety. In particular, the optimal cut-off PSAS-RSF-C score for detecting clinical anxiety levels was 26 (Silverio et al., 2021).

#### 4.3.2.4. *5-Item World Health Organization Well-Being Index (WHO-5)*

The WHO-5 is one of the most widely used questionnaires to assess subjective psychological well-being (Topp et al., 2015). First published in 1998, it has been translated into 30 different languages (including Italian) and used in numerous studies worldwide. It consists of 5 items (e.g., "Over the past two weeks I have felt cheerful and in good spirits", "Over the past two weeks I have felt calm and relaxed") that the subject is asked to answer on a 6-point Likert scale from 0 (*At no time*) to 5 (*All of the time*) considering the last 14 days. The raw score is calculated by summing the responses to the five items. The raw score

ranges from 0 to 25, where 0 represents the worst possible quality of life and 25 represents the best possible quality of life. According to the literature, a score below 13 indicates a poor state of psychological well-being (Cedrone et al., 2017; Christensen et al., 2015; Topp et al., 2015).

#### *4.3.2.5. Maternity Social Support Scale (MSSS)*

The MSSS (Webster et al., 2000) is a 6-item self-administered scale for assessing social support during pregnancy and postpartum. Each item (e.g., "My family is always there for me", "My husband/partner helps me a lot") was measured on a five-point Likert scale from 1 (*Never*) to 5 (*Always*). Scores range from 6 to 30, and higher scores correspond to higher levels of perceived social support. The Authors also proposed cut-offs to distinguish different levels of maternity social support: scores below 18 indicate low social support, scores between 19 and 24 indicate medium social support, and scores above 24 indicate an adequate level of social support. The Italian translation of the scale was used in this study (Dabrassi et al., 2009).

#### *4.3.3. Statistical Analyses*

Statistical analyses were conducted with The Statistical Package for the Social Sciences (SPSS) version 25.0 (IBM Corporation, Armonk, NY).

Cronbach's  $\alpha$  was calculated to evaluate the internal consistency of the scales used in this study. Mean (M) and standard deviation (SD) were used for continuous variables, while

categorical variables were expressed as frequencies and percentages. The Kolmogorov-Smirnov test was applied to verify the normal distribution of the variables.

Correlations between continuous variables were evaluated using Pearson's correlation coefficient. Student's *t*-test was used to compare the means between two groups and the effect size was calculated using Hedges's *g* formula (Hedges, 1981), with 0.20 indicating a small effect, 0.50 a medium effect, and 0.80 a large effect (J. Cohen, 1988). One-way ANOVA with Games Howell post hoc tests was used to evaluate statistical differences among the means of two or more groups. The effect size was measured using eta squared ( $\eta^2$ ), with 0.01 indicating a small effect, 0.06 a medium effect, and 0.14 a large effect (J. Cohen, 1988). Finally, the Chi-square test was used to assess the association between categorical variables.

Furthermore, mediation analyses were conducted using PROCESS macro for SPSS (Hayes, 2015) to assess if social support mediated the association between birth-related traumatic stress, postpartum depression, postpartum anxiety, and psychological well-being.

Finally, multiple regressions were run to identify which variables predict adverse psychological outcomes in women who gave birth during the COVID-19 pandemic. More specifically, EPDS, PSAS, and WHO-5 scores were the dependent variables of the regression models. The predictors that were entered into the model were mother's age, obstetric variables, presence of partner at the time of delivery, satisfaction with the relationship with the partner, evaluation of support from the partner, concern about COVID-19, knowledge of restrictions against COVID-19 adopted during delivery, and scores on the scales MSSS and IES-R.



#### 4.4. Results

##### 4.4.1. Sociodemographic Characteristics of the Sample

A total of 2,155 women answered the survey. Participants with past ( $n = 325$ ) and current ( $n = 174$ ) psychiatric comorbidities were excluded from the sample. In addition, women taking psychopharmacological therapy at the time of the study ( $n = 5$ ) were also excluded from the sample. Therefore, the final sample included 1,651 mothers. The mean age of the participants was 32.45 ( $SD = 4.38$ , range = 19-50). The majority of the sample had a high school diploma (42.3%) and worked as an employee (37.1%). Furthermore, almost all participants currently had a partner (99.3%), and more than half were married (59.1%). The average length of the relationship with the partner was 10.02 years ( $SD = 4.84$ , range = 1-28), and the majority of women considered their relationship happy (36.4%) or very happy (46.7%).

Table 4.1 reports all the sample socio-demographic characteristics.

**Table 4.1. Sociodemographic Characteristics of the Sample**

Sociodemographic variables		
Age		32.45 ± 4.38
Nationality	Italian	1633 (98.9)
	Not Italian	18 (1.1)
Highest educational level	No educational qualification	1 (0.1)
	Primary school	3 (0.2)
	Middle school	83 (5.0)
	High school	699 (42.3)
	Bachelor's degree	346 (21.0)
	Master's degree	375 (22.7)
	Post-graduate degree	144 (8.7)
Employment	Unemployed	222 (13.4)
	Seeking first employment	20 (1.2)
	Student	27 (1.6)
	Armed forces	9 (0.5)
	Craftsman	32 (1.9)
	Employee	613 (37.1)
	Entrepreneur	38 (2.3)
	Freelancer	162 (9.8)
	Healthcare personnel	173 (10.5)
	Housekeeper	168 (10.2)
	Merchant	50 (3.0)
	School personnel	137 (8.3)
	In a couple's relationship	Yes
No		12 (0.7)
Married	Yes	969 (59.1)
	No	670 (40.9)
Years of couple relationship		10.02 ± 4.84
Quality of the couple's relationship	Not at all happy	17 (1.0)
	Somewhat unhappy	38 (2.3)
	Neither happy nor unhappy	222 (13.5)
	Somewhat happy	596 (36.4)
	Totally happy	766 (46.7)

*Note.* N = 1,651. Categorical variables were expressed as frequencies (%), and continuous variables were expressed as mean ± SD.

#### *4.4.2. Obstetric Characteristics in the Sample*

Table 4.2 shows the main obstetric characteristics of the sample.

The majority of the sample gave birth in 2021 (58.3%). Overall, neonatal outcomes at birth in our sample were positive (weight:  $3244.11 \pm 485.90$ ; Apgar score:  $8.45 \pm 2.26$ ). Most women delivered by spontaneous vaginal delivery (54.8%), while 27% by cesarean section. Of these, 17.1% were unplanned cesarean sections.

Parity shows a significant disproportion in favor of primiparas (74.9%). Most reported no risk factors during pregnancy (70.2%) and complications during delivery (79.0%). 19.4% of the sample reported experiencing one or more miscarriages, while only 1.8% reported having one or more preterm deliveries.

**Table 4.2. Obstetric Characteristics in the Sample**

Obstetric characteristics		
Date of birth	Year 2020	392 (23.7)
	Year 2021	962 (58.3)
	Year 2022	297 (18.0)
Weight of baby (g)		3244.11 ± 485.90
Apgar score		8.45 ± 2.26
Mode of delivery	Spontaneous vaginal delivery	904 (54.8)
	Vaginal delivery with episiotomy	301 (18.2)
	Planned cesarean delivery	164 (9.9)
	Unplanned cesarean delivery	282 (17.1)
Parity	Primipara	1236 (74.9)
	Multipara	415 (25.1)
Number of children	1	353 (20.1)
	2	54 (3.1)
	3	6 (0.3)
	> 3	2 (0.2)
Risk factors during pregnancy	Yes	492 (29.8)
	No	1159 (70.2)
Complications during delivery	Yes	347 (21.0)
	No	1304 (79.0)
Previous miscarriages	Yes, one	253 (15.3)
	Yes, more than one	67 (4.1)
	No, none	1331 (80.6)
Previous preterm deliveries	Yes, one	26 (1.6)
	Yes, more than one	3 (0.2)
	No, none	1622 (98.2)

*Note.* N = 1,651. Categorical variables were expressed as frequencies (%), and continuous variables were expressed as mean ± SD.

#### 4.4.3. Opinions on COVID-19 Restrictions During Delivery

As reported in Table 3.3, 33.9% of women in our sample gave birth alone without their partners. In most cases, the partner's absence at the time of delivery was due to reasons unrelated to COVID-19 restrictions (39.8%) or hospital dispositions (38.4%). In addition, most women who underwent cesarean delivery gave birth alone (94.0%).

Regarding knowledge of the restrictions during childbirth adopted in the hospital, 93.7% of the sample was aware of them, and 72.7% would still have given birth in the same hospital despite them. Furthermore, 71.4% of the women surveyed said restrictions during childbirth did not affect their relationship with their partner, while for 19.3%, it affected negatively.

As reported in Table 4.4, women in our sample were moderately concerned about COVID-19 ( $M = 3.19$ ;  $SD = 1.06$ ) and bothered by the restrictions imposed in the hospital for delivery ( $M = 3.19$ ;  $SD = 1.06$ ). Furthermore, the degree of agreement with ward restriction measures was not particularly high ( $M = 2.71$ ;  $SD = 1.34$ ). Finally, partner's support at the time of delivery ( $M = 4.06$ ;  $SD = 1.39$ ) and during admission to the ward ( $M = 4.57$ ;  $SD = 0.93$ ) was considered very important.

**Table 4.3.** *Answers to Questions on COVID-19 Restrictions During Delivery*

		N (%)
Was your partner present during delivery?	Yes	1092 (66.1)
	No	559 (33.9)
Why was your partner not present during delivery?	He did not have a Green Pass to access the ward	86 (15.4)
	He had the COVID-19	25 (4.5)
	Other reasons unrelated to COVID-19	223 (39.8)
	Hospital dispositions	215 (38.4)
	Mother positive for COVID-19	11 (2.0)
Was your partner in the operating room with you in case of cesarean delivery?	Yes	33 (6.0)
	No	521 (94.0)
Was your partner in the delivery room before or after the cesarean section?	Before	47 (13.0)
	After	173 (47.9)
	Both before and after	141 (39.1)
Before your hospitalization, were you aware of the visitation restrictions that apply to partners and relatives after childbirth?	Yes	1547 (93.7)
	No	104 (6.3)
Would you still have given birth in the same hospital if your partner was banned from entering the delivery room because of COVID-19?	Yes	451 (27.3)
	No	1200 (72.7)
Did restrictions on ward visits in the childbirth period affect the quality of your relationship with your partner?	Yes, positively	152 (9.3)
	Yes, negatively	317 (19.3)
	No	1170 (71.4)

**Table 4.4.** *Opinions on COVID-19 Restrictions and Partner's Support During Delivery*

	Mean	Median	SD	Minimum	Maximum
1. How concerned are you about COVID-19?	3.19	3	1.064	1	5
2. Did limited visiting dispositions on the ward during or after delivery bother you?	3.76	4	1.406	1	5
3. How important do you consider your partner's support during delivery?	4.06	5	1.392	1	5
4. How important do you consider your partner's support in the ward?	4.57	5	0.934	1	5
5. How appropriate do you think the limitations on ward visits are?	2.71	3	1.347	1	5

#### 4.4.4. Questionnaire Scores and Correlations

Table 4.5 reports the Cronbach's  $\alpha$  values for each scale and the mean scores of the questionnaires in the sample.

Apart from the MSSS, which has a Cronbach's  $\alpha$  value just below the acceptability cut-off ( $< .70$ ), all scales used in the study have good reliability.

On average, the sample reports scores above the clinical cut-off on the scales of birth-related traumatic stress ( $> 24$ ) and postpartum anxiety ( $> 26$ ). Furthermore, the WHO-5 mean score is below the cut-off for psychological well-being ( $< 13$ ), while the mean MSSS score indicates adequate social support. Finally, the mean EPDS score is below the cut-off for postpartum depression ( $> 13$ ).

Figures 4.1-4.5 show the prevalence rates of the variables investigated based on the cut-offs of the questionnaires.

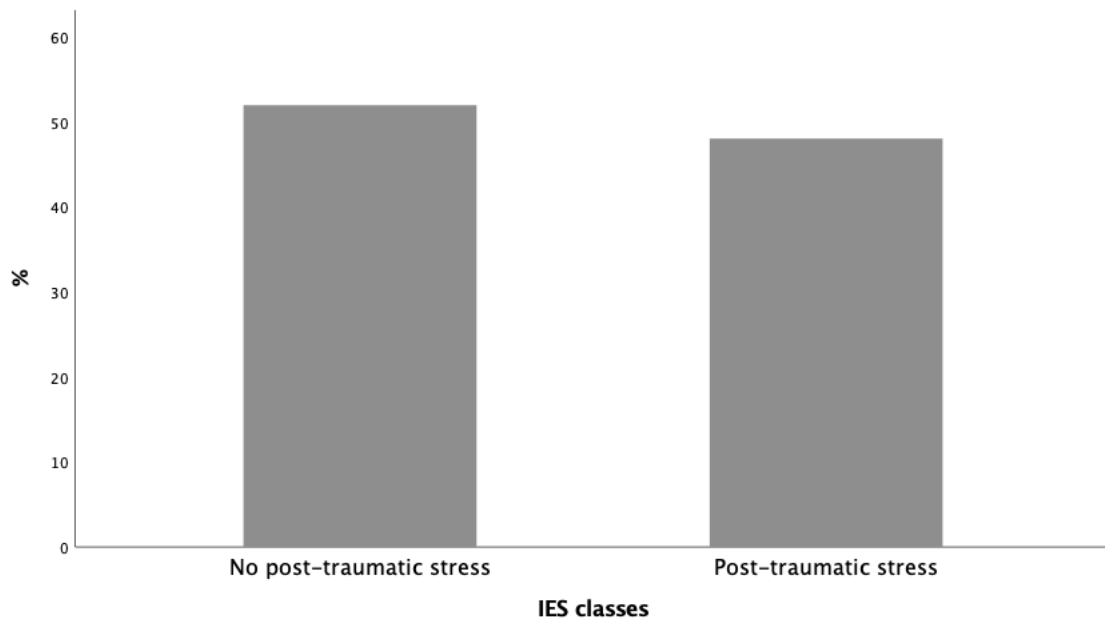
**Table 4.5.** Reliability and Mean Scores of the Questionnaires Used in the Study

	Mean	SD	Minimum	Maximum	Cronbach's $\alpha$
IES	26.62	16.79	0.00	88.0	0.917
EPDS	9.59	5.52	0.00	30.0	0.863
PSAS	30.61	3.56	22.00	42.0	0.771
WHO-5	11.87	5.08	0.00	25.0	0.859
MSSS	24.62	3.30	8.00	30.0	0.672

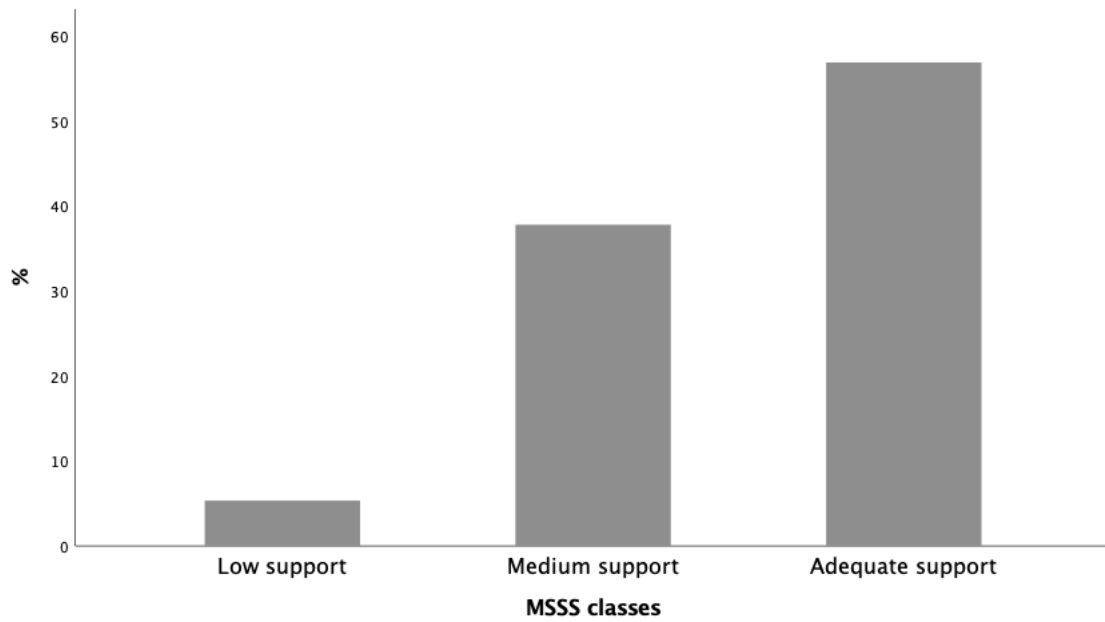
*Note.* IES = Impact of Event Scale; EPDS = Edinburgh Postnatal Depression Scale; PSAS = Postpartum Specific Anxiety Scale; WHO-5 = 5-item World Health Organization Well-Being Index; MSSS = Maternity Social Support Scale.



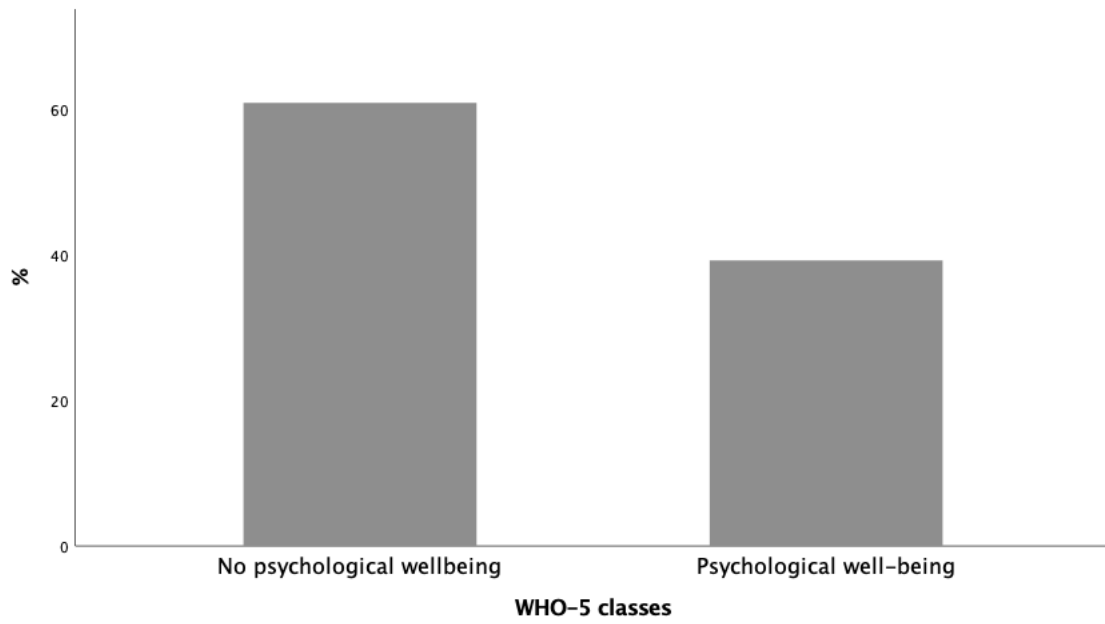
**Figure 4.1.** *Prevalence of Post-Traumatic Stress According to the IES Cut-Off*



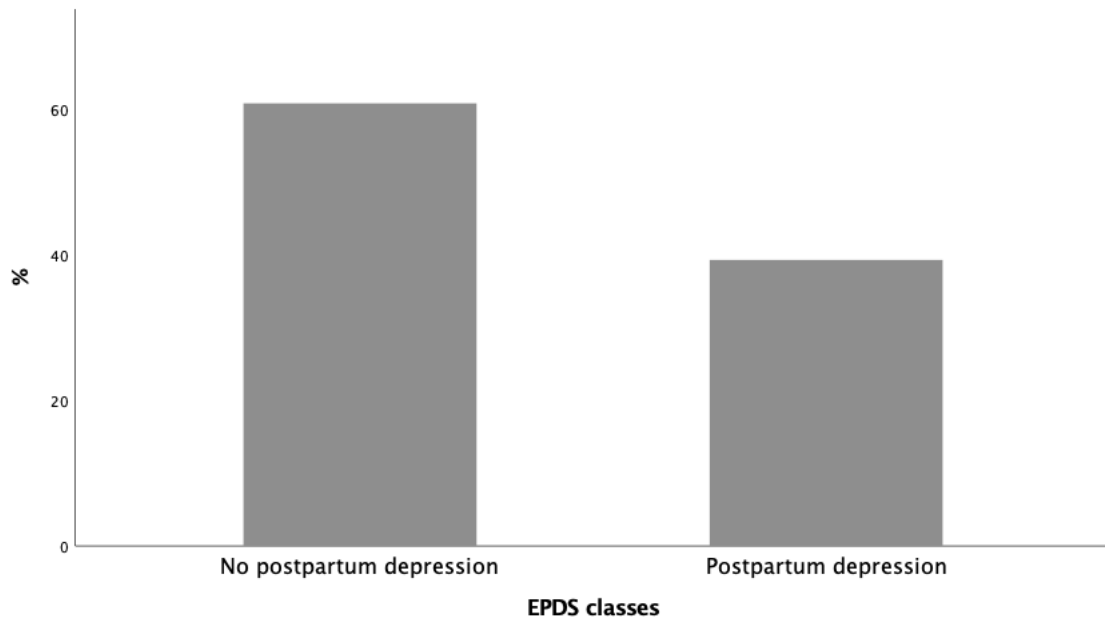
**Figure 4.2.** *Social Support Classes According to the MSSS Cut-Off*



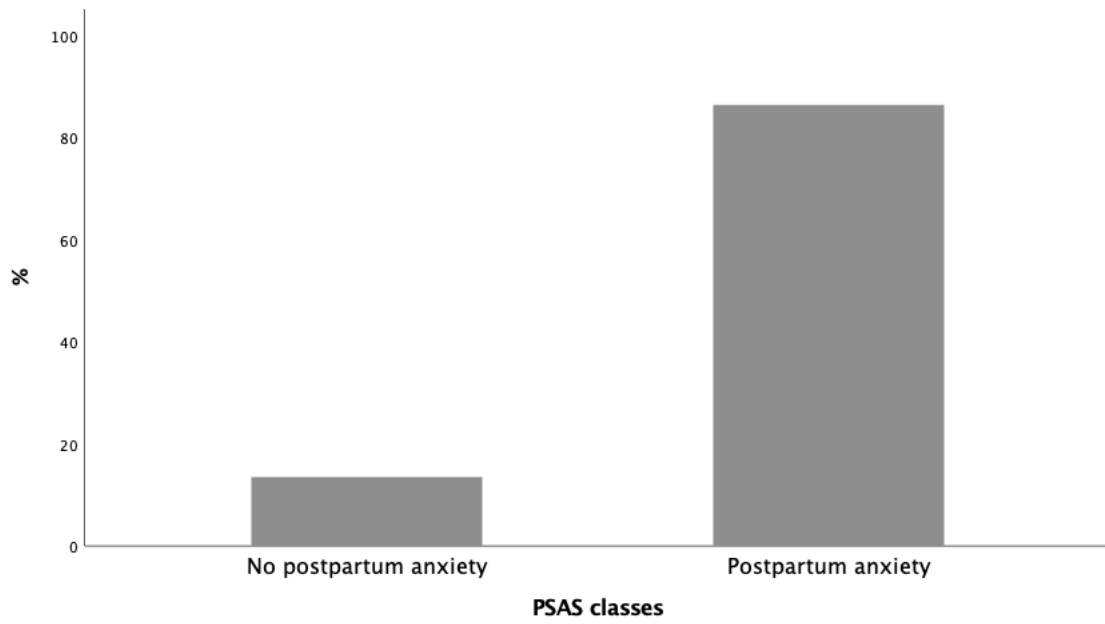
**Figure 4.3.** *Prevalence of Psychological Well-Being According to the WHO-5 Cut Off*



**Figure 4.4.** *Prevalence of Postpartum Depression According to the EPDS Cut-Off*



**Figure 4.5.** *Prevalence of Postpartum Anxiety According to the PSAS Cut-Off*



Statistically significant, strong positive correlations were found between all the study variables, as reported in Table 4.6.

**Table 4.6.** *Correlations for Study Variables*

	IES	EPDS	PSAS	WHO-5	MSSS
IES	—				
EPDS	0.524 ***	—			
PSAS	0.195 ***	0.154 ***	—		
WHO-5	-0.307 ***	-0.606 ***	-0.008	—	
MSSS	-0.219 ***	-0.470 ***	0.013	0.428 ***	—

*Note.* IES = Impact of Event Scale; EPDS = Edinburgh Postnatal Depression Scale; PSAS = Postpartum Specific Anxiety Scale; WHO-5 = 5-item World Health Organization Well-Being Index; MSSS = Maternity Social Support Scale.

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

#### 4.4.5. Research Hypotheses

*H1: Giving birth without the partner during the pandemic is associated with adverse mothers' psychological outcomes in postpartum*

The chi-square test of independence showed a significant association between giving birth alone and adverse psychological outcomes. Women who gave birth alone are more likely to report the presence of post-traumatic stress ( $\chi^2 = 11.45, p = .001$ ), postpartum depression ( $\chi^2 = 16.90, p < .001$ ), postpartum anxiety ( $\chi^2 = 4.22, p = .04$ ), and psychological distress ( $\chi^2 = 8.31, p = .004$ ).

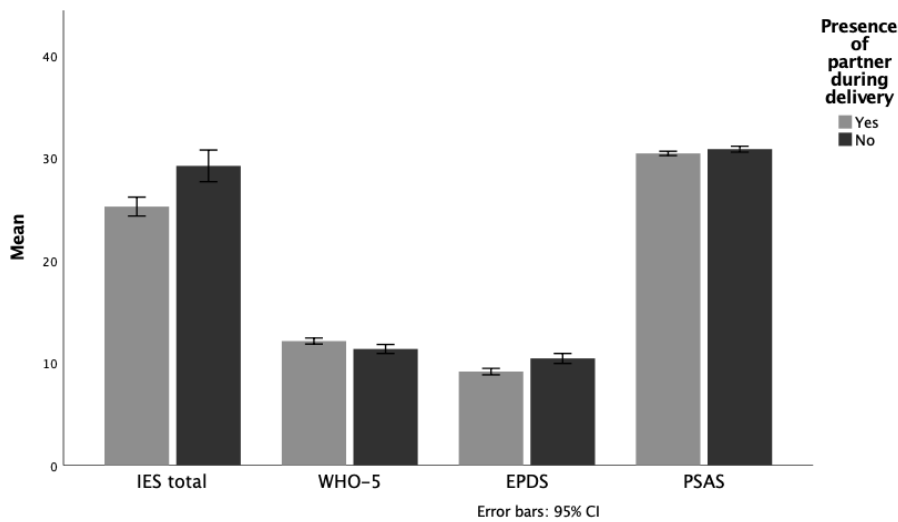
*T*-test showed a significant difference in the questionnaire scores, as reported in Table 4.7. Specifically, women who gave birth alone reported significantly higher scores in all questionnaires, as shown in Figure 4.6. However, the effect sizes were small.

**Table 4.7.** *T-Test Statistics for Study Variables Based on the Presence of the Partner During Delivery*

	<i>t</i>	df	<i>p</i>	Hedges' <i>g</i>	95% CI	
					Lower	Upper
IES	-4.58	1649	< .001	-0.238	-0.340	-0.136
WHO-5	2.93	1649	0.003	0.152	0.050	0.255
EPDS	-4.49	1649	< .001	-0.233	-0.335	-0.131
PSAS	-2.23	1649	0.026	-0.116	-0.218	-0.014

*Note.* IES = Impact of Event Scale; WHO-5 = 5-item World Health Organization Well-Being Index; EPDS = Edinburgh Postnatal Depression Scale; PSAS = Postpartum Specific Anxiety Scale.

**Figure 4.6.** *Differences in Psychological Outcomes Based on the Presence of the Partner During Delivery*



*H2: Women who gave birth in the early stages of the pandemic during the most severe lockdown periods report higher levels of traumatic stress, anxiety and postpartum*

*depression, and worse psychological well-being. They also perceive less social support than women who gave birth under less severe restrictions*

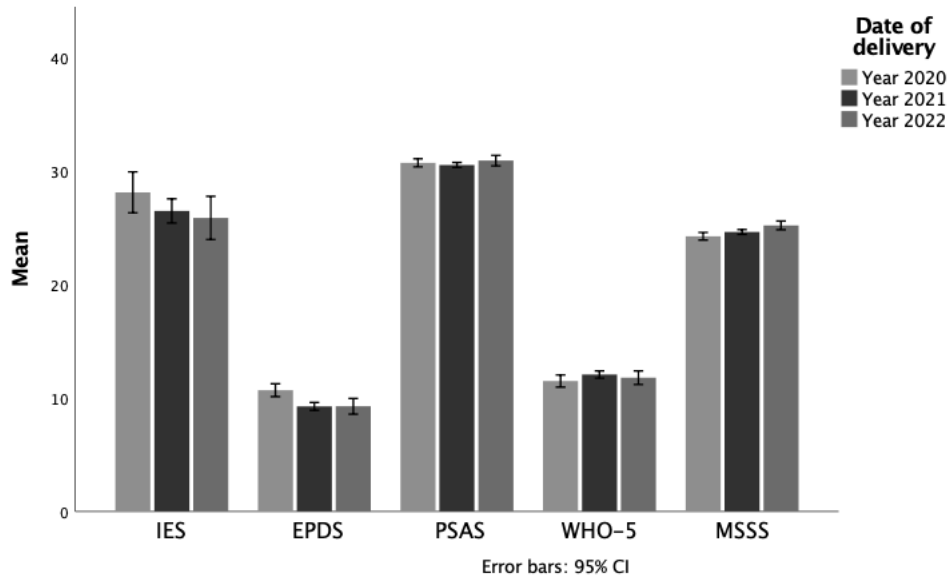
To verify this hypothesis, we classified the women in our sample into three groups based on the time they gave birth. The first group included women who gave birth from January 1 to December 31, 2020, during the most challenging period of the restrictions; the second group included women who gave birth from January 1 to December 31, 2021, during a period of gradual relaxation of COVID-19 rules; the third group included women who gave birth from January 1 to June 13, 2022, a period characterized by a gradual return to normalcy with more limited restrictions.

The chi-square test of independence showed a significant association between the period when women gave birth and postpartum depression. Women who gave birth during the first year of the pandemic characterized by severe COVID-19 restrictions are more likely to report the presence of postpartum depression ( $\chi^2 = 17.06, p < .001$ ). No significant differences were found regarding postpartum anxiety ( $\chi^2 = 1.05, p = .59$ ), birth-related traumatic stress ( $\chi^2 = 1.34, p = .51$ ), and psychological well-being ( $\chi^2 = 5.64, p = .06$ ). Regarding perceived social support, we did not find a significant association between date of delivery and level of social support ( $\chi^2 = 8.99, p = .06$ ).

Furthermore, one-way ANOVA showed significant differences in the postpartum depression and perceived social support scores according to the delivery period, as reported in Table 4.8. Specifically, Games-Howell post-hoc test shows that EPDS scores were significantly higher in women who gave birth in 2020 than in women who gave birth in 2021 ( $p < .001$ ) and 2022 ( $p = .004$ ). However, the effect size was small ( $\eta^2 = 0.01$ ). These women also reported lower MSSS scores than women who gave birth in 2022 ( $p = .001$ ), and the

effect size was small ( $\eta^2 = 0.008$ ). No significant differences were found regarding IES, PSAS, and WHO-5 scores. One-way ANOVA results are reported in Figure 7.

**Figure 4.7.** *Differences in Questionnaire Scores According to the Date of Delivery*



**Table 4.8.** *One-Way ANOVA Statistics for Study Variables According to the Date of Delivery*

	F	df1	df2	<i>p</i>	$\eta^2$
IES	1.87	2	604	0.155	0.002
EPDS	10.01	2	586	< .001	0.013
PSAS	1.31	2	581	0.270	0.002
WHO-5	1.68	2	599	0.186	0.002
MSSS	6.91	2	602	0.001	0.008

*Note.* IES = Impact of Event Scale; EPDS = Edinburgh Postnatal Depression Scale; PSAS = Postpartum Specific Anxiety Scale; WHO-5 = 5-item World Health Organization Well-Being Index; MSSS = Maternity Social Support Scale.

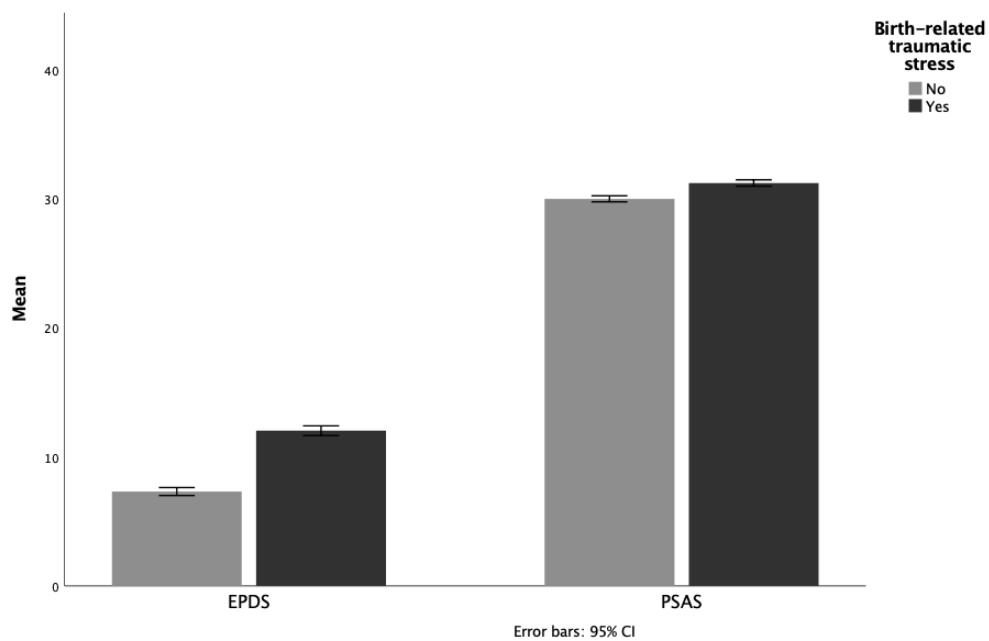


*H3: Traumatic stress related to the birth experience during the COVID-19 pandemic is associated with postpartum anxiety and depression*

There was a significant association between birth-related traumatic stress during the pandemic and the presence of postpartum anxiety and depression. Women with birth-related traumatic stress were more likely to report the presence of postpartum depression ( $\chi^2 = 207.39, p < .001$ ), and postpartum anxiety ( $\chi^2 = 20.10, p < .001$ ).

T-test showed a significant difference in the questionnaire scores according to the presence of birth-related traumatic stress, as reported in Table 4.9. Specifically, women with birth-related traumatic stress reported significantly higher scores in EPDS and PSAS, as shown in Figure 4.8. The effect size for postpartum depression was large ( $g = -0.94$ ), while the effect size for postpartum anxiety was small ( $g = -0.35$ ).

**Figure 4.8.** *Differences in EPDS and PSAS Scores Based on the Presence of Birth-Related Traumatic Stress*



**Table 4.9.** *T-Test Statistics for EPDS and PSAS Scores Based on the Presence of Traumatic Stress*

	<i>t</i>	df	p	Hedge's <i>g</i>	95% CI	
					Lower	Upper
EPDS	-19.17	1649	< .001	-0.944	-1.045	-0.842
PSAS	-7.10	1649	< .001	-0.350	-0.447	-0.252

*Note.* EPDS = Edinburgh Postnatal Depression Scale; PSAS = Postpartum Specific Anxiety Scale.

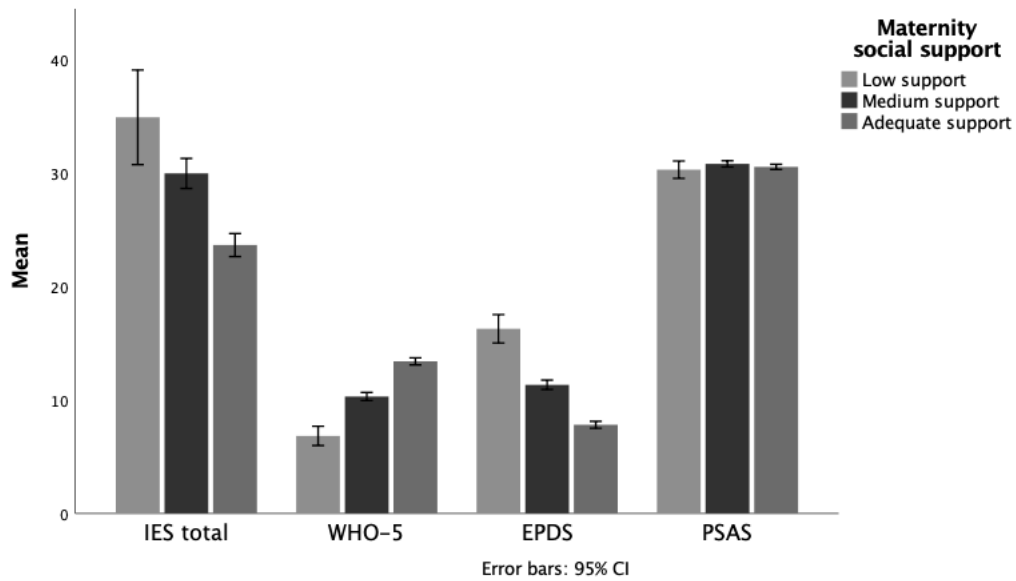
*H4: High levels of social support are associated with better psychological outcomes*

There was a significant association between the level of perceived social support during the pandemic and the psychological outcomes. Women with low levels of social support were more likely to report the presence of birth-related traumatic stress ( $\chi^2 = 50.70, p < .001$ ), postpartum depression ( $\chi^2 = 189.43, p < .001$ ), and psychological distress ( $\chi^2 = 146.68, p < .001$ ). No significant association was found between social support and postpartum anxiety ( $\chi^2 = 3.78, p = .15$ ).

One-way ANOVA showed significant differences in the questionnaire scores according to the level of perceived social support, as reported in Table 4.10. Specifically, Games-Howell post-hoc test shows that IES scores were significantly higher in women with low levels of perceived social support than in women with medium ( $p < .001$ ) and adequate support ( $p < .001$ ). The effect size was small ( $\eta^2 = 0.05$ ). Furthermore, WHO-5 scores were significantly higher in women with an adequate level of perceived social support than in women with low ( $p < .001$ ) or medium ( $p < .001$ ) support and the effect size was large ( $\eta^2 = 0.14$ ). Finally, women with low levels of social support also reported higher EPDS scores than women with medium ( $p < .001$ ) and adequate ( $p < .001$ ) support. The effect size was

large ( $\eta^2 = 0.17$ ). No significant differences were found regarding PSAS scores ( $p = .25$ ). One-way ANOVA results are shown in Figure 4.9.

**Figure 4.9.** Differences in Questionnaires Scores Based on the Level of Maternity Social Support



**Table 4.10.** One-Way ANOVA Statistics for Study Variables According to the Level of Social Support

	F	df1	df2	<i>p</i>	$\eta^2$
IES	36.30	2	232	< .001	0.046
WHO-5	151.18	2	250	< .001	0.140
EPDS	153.62	2	232	< .001	0.175
PSAS	1.40	2	239	0.248	0.002

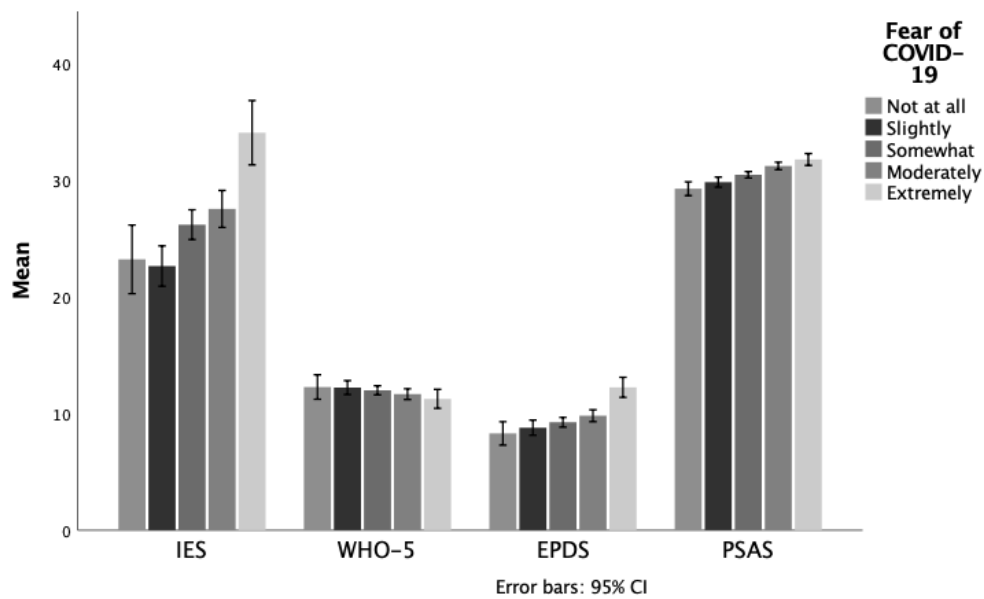
*Note.* IES = Impact of Event Scale; WHO-5 = 5-item World Health Organization Well-Being Index; EPDS = Edinburgh Postnatal Depression Scale; PSAS = Postpartum Specific Anxiety Scale.

*H5: Fear of COVID-19 correlates with higher levels of traumatic stress, postpartum anxiety and depression, and psychological distress*

There was a significant association between the concern about COVID-19 and the psychological outcomes. Women with higher concern about COVID-19 were more likely to report the presence of birth-related traumatic stress ( $\chi^2 = 33.92, p < .001$ ), postpartum depression ( $\chi^2 = 47.28, p < .001$ ), and postpartum anxiety ( $\chi^2 = 22.75, p < .001$ ). No significant association was found between concern about COVID-19 and psychological well-being ( $\chi^2 = 7.88, p = .09$ ).

One-way ANOVA showed significant differences in the questionnaire scores according to the level of concern about COVID-19, as reported in Table 4.11. Specifically, the post hoc test underlined that women with higher levels of fear for COVID-19 reported significantly higher scores in IES, EPDS and PSAS questionnaires than women with low fear for COVID-19 ( $p < .001$ ), as shown in Figure 4.10. However, the effect sizes were small. No significant differences were found regarding WHO-5 scores ( $p = .26$ ).

**Figure 4.10.** Differences in Questionnaires Scores Based on the Level of Fear of COVID-19



**Table 4.11.** One-Way ANOVA Statistics for Study Variables According to the Level of Fear of COVID-19

	F	df1	df2	p	$\eta^2$
IES	13.70	4	497	< .001	0.035
WHO-5	1.32	4	488	0.260	0.004
EPDS	13.09	4	493	< .001	0.035
PSAS	16.92	4	501	< .001	0.038

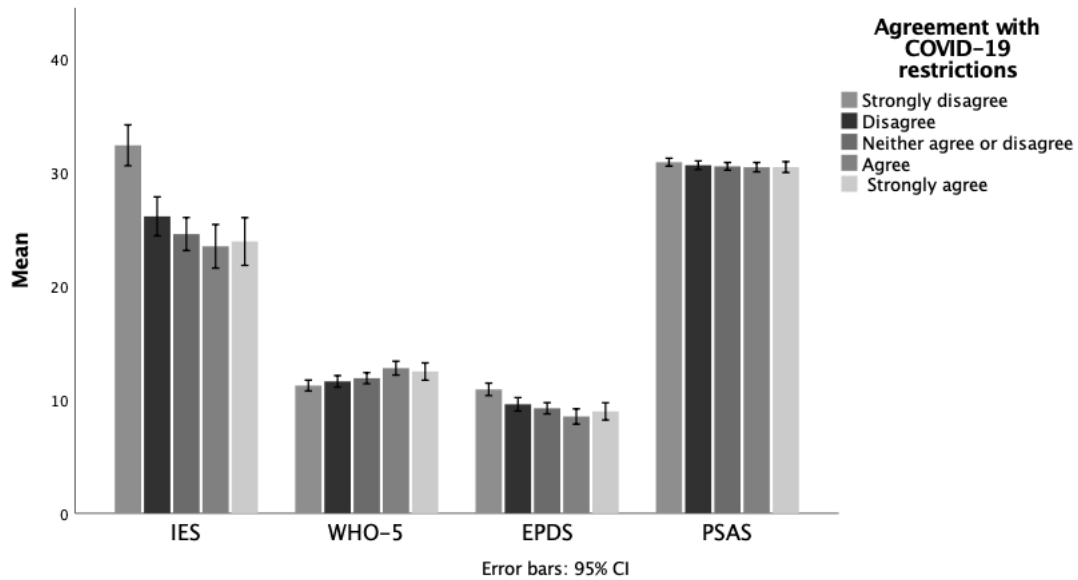
*Note.* IES = Impact of Event Scale; WHO-5 = 5-item World Health Organization Well-Being Index; EPDS = Edinburgh Postnatal Depression Scale; PSAS = Postpartum Specific Anxiety Scale.

*H6: A high degree of agreement with COVID-19 restrictions is associated with better psychological outcomes*

There was a significant association between the agreement with COVID-19 restrictions in the hospital and the psychological outcomes. Women who strongly disagreed with the restrictions adopted in the hospital were more likely to report the presence of birth-related traumatic stress ( $\chi^2 = 37.99, p < .001$ ), postpartum depression ( $\chi^2 = 20.40, p < .001$ ), and psychological distress ( $\chi^2 = 16.17, p = .003$ ). No significant association was found between agreement with COVID-19 restrictions and postpartum anxiety ( $\chi^2 = 2.49, p = .64$ ).

One-way ANOVA showed significant differences in the questionnaire scores according to the level of agreement with COVID-19 restrictions, as reported in Table 4.12. Specifically, post hoc tests underlined that women who strongly disagreed with COVID-19 restrictions reported significantly higher scores in IES ( $p < .001$ ), EPDS ( $p < .001$ ) and PSAS ( $p < .001$ ) questionnaires, as shown in Figure 4.11. However, the effect sizes were small. No significant differences were found regarding WHO-5 scores ( $p = .46$ ).

**Figure 4.11.** Differences in Questionnaires Scores Based on the Level of Agreement With COVID-19 Restrictions



**Table 4.12.** One-Way ANOVA Statistics for Study Variables According to the Level of Agreement With COVID-19 Restrictions

	F	df1	df2	p	$\eta^2$
IES	15.659	4	737	<.001	0.043
WHO-5	4.647	4	727	0.001	0.011
EPDS	9.204	4	730	<.001	0.023
PSAS	0.909	4	736	0.458	0.002

*Note.* IES = Impact of Event Scale; WHO-5 = 5-item World Health Organization Well-Being Index; EPDS = Edinburgh Postnatal Depression Scale; PSAS = Postpartum Specific Anxiety Scale.

*H7: Social support is a mediator of the impact of birth-related traumatic stress on anxiety, depression, and psychological well-being*

Figure 4.12 shows the first mediation model to evaluate the impact of birth-related traumatic stress on postpartum depression and determine if social support mediates this relationship. The results showed that birth-related traumatic stress positively predicted postpartum depression ( $B = 0.17$ ,  $Z = 23.80$ ,  $p < .001$ ). The indirect effects revealed that social support significantly mediated the relationship between traumatic stress and postpartum depression ( $B = 0.02$ ,  $Z = 7.77$ ,  $p < .001$ ). Traumatic stress negatively affected social support ( $B = -0.04$ ,  $Z = -8.64$ ,  $p < .001$ ) and social support, in turn, negatively affected postpartum depression ( $B = -0.62$ ,  $Z = -17.79$ ,  $p < .001$ ). The results also suggested that even after accounting for the mediating role of social support, traumatic stress significantly affected postpartum depression ( $B = 0.14$ ,  $Z = 21.18$ ,  $p < .001$ ).

**Figure 4.12.** Path Model of the Relationship Between Traumatic Stress and Postpartum Depression Mediated by Social Support

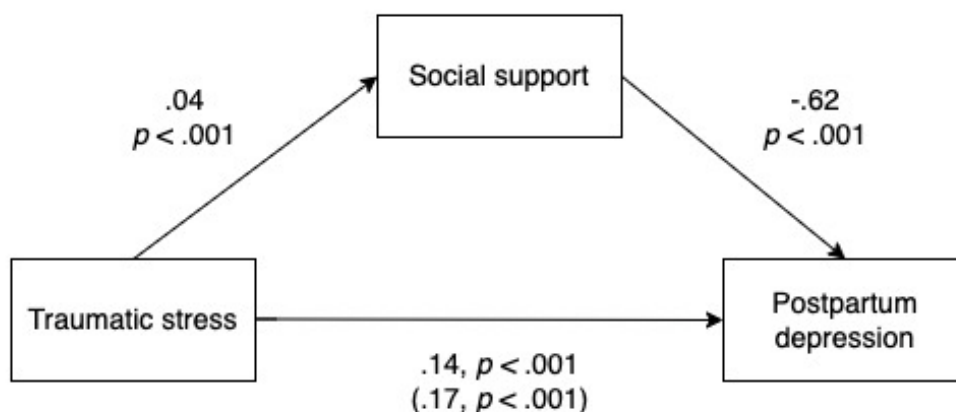




Figure 4.13 shows the second mediation model to evaluate the impact of birth-related traumatic stress on postpartum anxiety and determine if social support mediates this relationship. The results showed that birth-related traumatic stress positively predicted postpartum anxiety ( $B = 0.04$ ,  $Z = 7.67$ ,  $p < .001$ ). The indirect effects revealed that social support was not a significant mediator of the relationship between traumatic stress and postpartum anxiety ( $B = -0.06$ ,  $Z = -2.29$ ,  $p = .53$ ).

**Figure 4.13.** *Path Model of the Relationship Between Traumatic Stress and Postpartum Anxiety Mediated by Social Support*

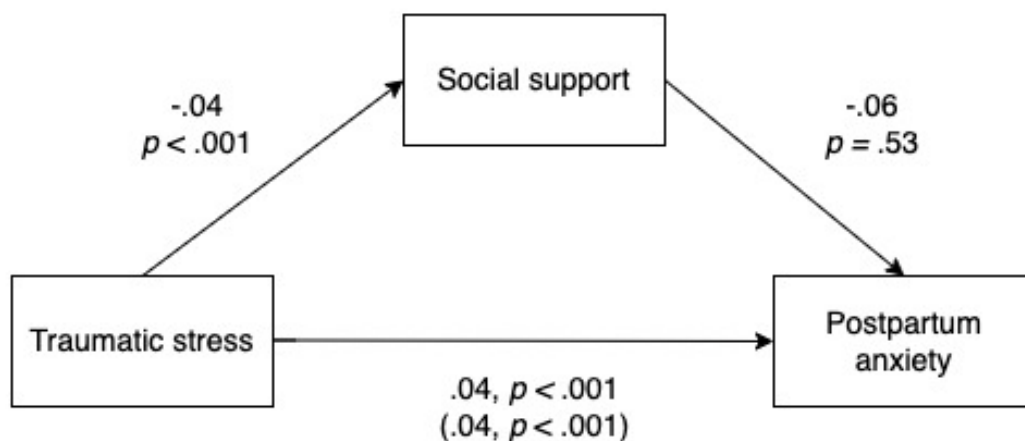
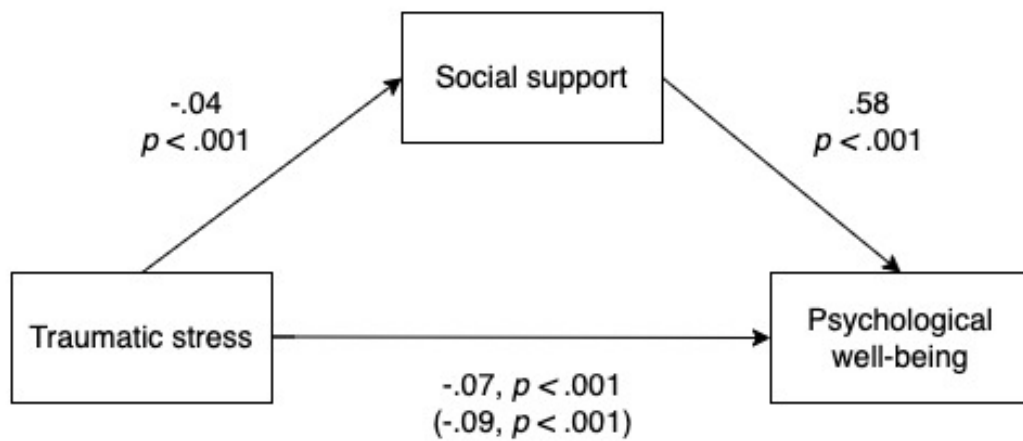


Figure 4.14 shows the third mediation model to evaluate the impact of birth-related traumatic stress on psychological well-being and determine if social support mediates this relationship. The results showed that birth-related traumatic stress was a negative predictor of psychological well-being ( $B = -0.09$ ,  $Z = -13.29$ ,  $p < .001$ ). The indirect effects revealed that social support significantly mediated the relationship between traumatic stress and psychological well-being ( $B = -0.02$ ,  $Z = -7.85$ ,  $p < .001$ ). Traumatic stress negatively affected social support ( $B = -0.04$ ,  $Z = -8.65$ ,  $p < .001$ ) and social support, in turn, positively affected psychological well-being ( $B = 0.58$ ,  $Z = 18.09$ ,  $p < .001$ ). The results also suggested

that even after accounting for the mediating role of social support, traumatic stress negatively affected psychological well-being ( $B = -0.06$ ,  $Z = -10.02$ ,  $p < .001$ ).

**Figure 4.14.** *Path Model of the Relationship Between Traumatic Stress and Psychological Well-Being Mediated by Social Support*



*H8: It is possible to construct a model to identify risk and protective factors for the development of postpartum depression, postpartum anxiety, and psychological distress in women who gave birth during the COVID-19 pandemic*

To test the hypothesis, we conducted a series of multiple regression models to identify the main predictors of postpartum depression, postpartum anxiety, and psychological distress in women who gave birth during the COVID-19 pandemic. Socio-demographic and obstetrics variables, variables related to COVID-19 restrictions during childbirth, variables related to couple relationship and partner's support, traumatic stress, and social support were used as independent variables, while postpartum depression, postpartum anxiety, and psychological well-being scores were the dependent variables.

Regarding postpartum depression, the regression model explained 44% of the variance ( $R^2 = .443$ ,  $F = 74.62$ ,  $p < .001$ ). Specifically, the independent variables that contributed most to explaining postpartum depression score were birth-related traumatic stress ( $\beta = .42$ ,  $p < .001$ ), social support ( $\beta = -.25$ ,  $p < .001$ ), quality of couple relationship ( $\beta = -.18$ ,  $p < .001$ ), fear of COVID-19 ( $\beta = .12$ ,  $p < .001$ ).

Regarding postpartum anxiety, the regression model explained 9% of the variance ( $R^2 = .092$ ,  $F = 9.54$ ,  $p < .001$ ). Specifically, the independent variables that contribute most to explaining postpartum anxiety score are fear of COVID-19 ( $\beta = .16$ ,  $p < .001$ ), birth-related traumatic stress ( $\beta = .15$ ,  $p < .001$ ), and weight of baby at birth ( $\beta = -.11$ ,  $p < .001$ ).

Finally, regarding psychological well-being, the regression model explained 26% of the variance ( $R^2 = .092$ ,  $F = 33.06$ ,  $p < .001$ ). Specifically, the independent variables that contribute most to explaining postpartum anxiety score are social support ( $\beta = .25$ ,  $p < .001$ ), birth-related traumatic stress ( $\beta = -.23$ ,  $p < .001$ ), and quality of couple relationship ( $\beta = .18$ ,

$p < .001$ ). Table 4.12 shows all the regression analysis results and each independent variable's contribution.

**Table 4.12.** Predictors of EPDS, PSAS and WHO-5 Scores in the Sample

	EPDS score		PSAS score		WHO-5 score	
	$\beta$	<i>P</i>	$\beta$	<i>p</i>	$\beta$	<i>p</i>
(Intercept)		< .001		< .001		< .001
Age	-0.029	.13	-0.047	.06	-0.012	.60
Weight of baby (g)	-0.020	.30	-0.110	< .001	0.014	.53
Apgar score	-0.025	.19	0.028	.25	0.021	.35
Mode of delivery=planned cesarean delivery	0.010	.64	0.016	.54	0.019	.42
Mode of delivery=unplanned cesarean delivery	0.049	.03	0.041	.16	0.057	.37
Mode of delivery= vaginal delivery with episiotomy	0.012	.56	-0.025	.32	0.008	.71
Risk factors during pregnancy [yes/no]	0.003	.86	0.036	.15	0.000	.98
Hospitalization during pregnancy [yes/no]	0.016	.39	-0.022	.36	-0.008	.71
Complications during delivery [yes/no]	0.007	.73	0.016	.55	-0.018	.46
Quality of couple relationship	-0.181	< .001	0.066	.04	0.180	< .001
Fear of COVID-19	0.121	< .001	0.161	< .001	-0.054	.01
Agreement with COVID-19 restrictions	-0.052	.008	-0.021	.39	0.055	.01
Presence of partner during delivery [yes/no]	-0.040	.08	-0.035	.24	0.024	.37
Importance of partner's support during delivery	0.018	.44	0.037	.23	0.005	.86
Importance of partner's support during hospitalization	0.022	.55	0.035	.20	0.022	.37
MSSS score	-0.253	< .001	-0.020	.53	0.249	< .001
IES score	0.423	< .001	0.157	< .001	-0.232	< .001
R <sup>2</sup>	0.443	< .001	0.092	< .001	0.260	< .001

#### *4.5. Discussion*

This study aimed to explore opinions, experiences, and risk of adverse psychological outcomes in Italian women who gave birth during the first three years of the COVID-19 pandemic. In particular, we investigated the prevalence of birth-related traumatic stress, postpartum anxiety and depression, and psychological well-being in a sample of Italian mothers and the relationship between these variables and the COVID-19 restrictions during delivery and maternal social support.

The study's results confirmed the pandemic's negative psychological impact on mothers who gave birth during this period, especially during the first lockdown characterized by stricter restrictive measures.

Women in our sample reported a significantly higher prevalence of childbirth-related traumatic stress (48.03%), postpartum depression (39.25%), and postpartum anxiety (86.49%) than the general population. Furthermore, a significant percentage of mothers (60.81%) reported low psychological well-being. These data are in line with the international literature on the psychological impact of the pandemic on the postpartum period, which shows that women who gave birth during the pandemic reported adverse mental health outcomes, especially traumatic childbirth and psychological distress (Mayopoulos et al., 2021; Oskovi-Kaplan et al., 2020; Ostacoli et al., 2020). Furthermore, the preliminary study conducted in Germany in the early stages of the pandemic also confirms that women who gave birth during that period reported significantly higher levels of traumatic stress, anxiety, depression, and psychological discomfort (Oddo-Sommerfeld et al., 2022). In this regard, we did not find significant differences between the experiences of Italian mothers and those of other countries.

According to our hypothesis (H1), the partner's presence at the delivery time is an essential factor influencing maternal psychological outcomes during the pandemic. Indeed, according to our results, women who gave birth alone without their partner reported the presence of post-traumatic stress, postpartum depression and anxiety, and psychological distress more frequently than women who gave birth with their partner at their side. In the sample of German women, the absence of a partner during childbirth is also associated with increased psychological distress. It is, therefore, a significant risk factor for developing psychopathological disorders in the postpartum period (Oddo-Sommerfeld et al., 2022). This finding confirms the importance of partner support in the postpartum period. As pointed out earlier, during labour, the partner has an essential role in providing information and emotional support and facilitating communication between mothers and health professionals (Ecker & Minkoff, 2020). It is no coincidence that literature in the field of perinatal and developmental psychology has long emphasized that the father's presence during childbirth is essential and is often underestimated. According to the Italian psychoanalyst Franco Fornari (1977), the father's task is to provide a place of containment for the fears that run through the woman and the child coming into the world. In this sense, the birth event implies not only the involvement of the mother-child couple but of the family 'triad'. Therefore, it is crucial to ensure partner support for the woman during labor and delivery, even during the pandemic period, to reduce the potentially traumatic impact of this experience.

We also analyzed the relationship between the delivery period and the maternal psychological outcomes (H2). As hypothesized, giving birth during the first year of the pandemic with more severe restrictions was associated with higher levels of postpartum depression but not traumatic stress, postpartum anxiety, and psychological distress. Furthermore, women who gave birth in the first year of the pandemic reported lower social support scores than those who gave birth in the last year with less severe restrictions.

This finding is interesting as it highlights that giving birth during the most severe lockdown periods is mainly associated with depressive rather than anxious symptoms. A possible interpretation concerns the increased experience of isolation and reduced social support during this period because of the more severe COVID-19 restrictions associated with more marked depressive feelings (Jones et al., 2022).

As the literature has already highlighted, a traumatic birth experience is a significant risk factor for the onset of anxiety and depressive symptoms in the postpartum period (Johansson et al., 2020; Türkmen et al., 2020). In our sample, women who had reported a traumatic birth experience had higher levels of anxiety and postpartum depression. In particular, the association is robust for depression as the effect size is large. However, as confirmed by the mediation analyses conducted in our study, social support plays an essential role in influencing the relationship between traumatic stress and psychological outcomes, especially concerning depression and psychological well-being. Furthermore, women with low social support reported higher scores of postpartum depression and lower psychological well-being scores than women with adequate social support. In addition, the effect size was large for both variables.

Thus, these data confirm the important role of good social support in mitigating the potentially traumatic impact of the pandemic event on the mental health of pregnant and postpartum women. In this regard, Terada et al. (2021) showed that low social support was a significant predictive factor for postpartum depression during the COVID-19 pandemic. Similarly, Zhou et al. (2021) reported a decreased social support in postpartum women during the COVID-19 pandemic, which was associated with poorer mental health. Therefore, it is highly recommended to identify women who suffered from reduced social support during the pandemic to improve social support and prevent the onset of psychological disorders during the postpartum period.



Regarding the specific impact of COVID-19 and the restrictive measures taken in hospitals to contain the infection on maternal mental health outcomes, our study confirmed that fear of COVID-19 is associated with higher levels of traumatic stress, anxiety and depression. Furthermore, women who disagreed with the restrictive measures taken at the hospital against the pandemic reported higher levels of traumatic stress, anxiety and depression. However, for both variables, the effect sizes were small. This finding seems to indicate that the impact of the pandemic on women's mental health in the postpartum period is not so much related to the disease but the traumatic experience of childbirth and the reduced social support caused by the COVID-19 restrictive measures.

Finally, we identified models that would allow us to identify the main risk and protective factors in postpartum concerning the onset of anxiety, depression, and psychological distress.

Women at risk of postpartum depression report high levels of traumatic stress, increased fear of COVID-19, reduced social support, and a poor quality of their couple relationship. Furthermore, agreement with restriction measures reduces the risk of postpartum depression, while giving birth with an unplanned caesarean section is another risk factor for depression. This model is particularly good because it explained 44% of the variation in postpartum depression scores. The risk factors identified in this model are already widely confirmed by the literature on postpartum depression (Della Corte et al., 2022; Zhao & Zhang, 2020) as well as unscheduled cesarean delivery, which has already been identified as a predictor of the risk of adverse psychological outcomes in German women during the COVID-19 pandemic (Oddo-Sommerfeld et al., 2022).

Postpartum anxiety is significantly predicted by fear of COVID-19, birth-related traumatic stress, and the baby's low weight at delivery. Furthermore, the poor quality of the couple's relationship is a risk factor for postpartum anxiety. However, this model was less

robust than that related to postpartum depression as it explained only 9% of the variation in postpartum anxiety scores. Finally, the most significant predictors of psychological well-being in postpartum are low levels of traumatic stress, adequate social support, and good relationship quality with the partner. Furthermore, less fear of COVID-19 and a higher agreement with restrictions against the disease are significant predictors of better psychological well-being. The predictive model is good because it explains 26% of the variance of the psychological well-being score.

These data are particularly important because they provide evidence from a very large sample that allows the identification of women most at risk of poor mental health after childbirth. Indeed, considering the potentially traumatic impact of the pandemic on the experience of becoming a mother, it is essential to implement specific interventions to support women in the postpartum period and the early stages of the relationship with the infant.

However, some limitations of this study should be considered. First, the social distancing rules to contain the contagion imposed to use an internet-based survey with self-reported measures. Although the questionnaires administered in this study are highly standardized and showed good reliability and internal consistency, self-report measures are subject to several risks, such as the social desirability and the falsification of answers. Furthermore, due to the cross-sectional nature of the study, it is not possible to assess the exact causal relationship between the study variables.

In conclusion, this study confirms that becoming a mother during the COVID-19 pandemic was a complex challenge, especially during the first lockdown characterized by highly severe restrictions. For this reason, maternal mental health during the pandemic is a public health issue of primary importance. Therefore, it is necessary to promote and implement measures to prevent the risk of psychopathological disorders in postpartum and

treat situations of distress that can jeopardize the well-being of the child and the couple. However, further studies will have to explore the impact of the COVID-19 pandemic on postpartum attachment, fathers' mental health and family functioning.

## **CHAPTER 5**

### **The Impact of the COVID-19 on Family Well-Being:**

#### **A Cross-Sectional Study in an Italian Sample**

#### **During the Second Wave of the Pandemic**

##### *5.1. Background*

A family is a basic unit of vital importance for the individual's development (Brown & Brown, 2014). Indeed, previous studies underlined that the structure and quality of family support influence social and emotional development across the lifespan (Fuller-Iglesias et al., 2015).

According to a systemic-relational perspective, the individual experience influences the whole family system, as the family represents a unit of interacting people worth more than the sum of its members (Olson, 2008). In turn, the quality of relationships within the family system affects the well-being of individual members.

In this sense, the concept of family quality of life highlights the close interdependence between the individual and the family system. Family quality of life can be defined as «a dynamic sense of well-being of the family, collectively and subjectively defined and informed by its members, in which individual and family-level needs interact» (Zuna et al., 2010, p. 262).

Several factors contribute to determining family well-being: family structure, family conflict, family self-efficacy, family coping and resilience.

As already pointed out in Chapter 1, according to the Olson model, the degree of family functionality depends on three dimensions: cohesion, flexibility, and communication.

Cohesion is defined as the emotional bond between family members; flexibility is defined as the quality and expression of leadership and organizations, role relationships and relationship rules; communication refers to the positive communication skills adopted within the family system, and it is a facilitating dimension that can improve family cohesion and flexibility (Olson, 2008).

Family quality of life is also influenced by conflict, which refers to active opposition between family members (Marta & Alfieri, 2014). The impact of conflict on the well-being of the family system depends on how the conflict is managed and the quality of family functioning.

Family efficacy refers to «members' beliefs in the capabilities of their family to work together to promote each other's development and well-being, maintain beneficial ties to extrafamilial systems, and exhibit resilience to adversity» (Bandura et al., 2011, p. 424). The construct of family efficacy underlines that family members work together as an interconnected unit to overcome difficult situations and conflicts. Although family efficacy significantly impacts the quality of relationships within the family (Kao & Caldwell, 2017), it is still an under-investigated construct.

Family quality of life is also influenced by the resilience and coping skills of the family system. Family resilience can be defined as «familial traits that lead to successful adaptation and coping in response to a significant stressor or adversity» (Kao & Caldwell, 2017, p. 2). The family's ability to cope with stressful and crisis events in its life cycle by adopting adaptive strategies oriented towards problem-solving and not avoidance is the primary

expression of family resilience. Family resilience is influenced by family efficacy beliefs and family system functioning and contributes significantly to determining the family quality of life, especially in times of crisis.

Several studies investigated the family quality of life and the different dimensions of family functioning in stressful situations, such as in the case of families with a child with physical and/or cognitive disabilities or immigrant families (Kao & Caldwell, 2017; Lei, 2018; Wang et al., 2022).

The COVID-19 pandemic indeed can be considered as a stressor, a nonnormative life event with the potential to produce change in the family system, due to challenges related to social changes, insecurity, overload, and stress caused by the lockdown (Fernandes et al., 2021). However, few studies have investigated the family quality of life during the pandemic. In this regard, a recent study on family functioning in a sample of Portuguese families showed that some families are more vulnerable to stress than others (Fernandes et al., 2021). Other studies underlined two opposite consequences of the pandemic on family quality of life: family conflict increased but family cohesion represented an essential protective factor that could mitigate stress consequences and protect family well-being and resilience (Behar-Zusman et al., 2020; Zeng et al., 2021). Another family functioning dimension that can relieve stress consequences is communication, which represents an efficacy coping strategy to face the COVID-19 pandemic (Hall et al., 2022; Zeng et al., 2021). Regarding the family coping strategies adopted during the pandemic, only a few qualitative studies have investigated this dimension of family functioning. These studies descriptively classify different coping strategies, not allowing an adequate results generalization.

In light of these considerations, it is essential to investigate how families coped with COVID-19 and how this affected their functioning and quality of life. In particular, the

impact of the pandemic should be assessed considering the specificity of the Italian socio-cultural context compared to other countries characterized by different ways of viewing the family and the relationships between individual members.

### *5.2. Aims and Hypotheses*

This study aimed to investigate the impact of the COVID-19 pandemic on individual and family quality of life in a sample of Italian subjects. In particular, the purpose of the study was to assess the relationship between individual psychological well-being and perceived family quality of life and how this relationship is influenced by the main dimensions of family functioning (cohesion, flexibility, communication, and conflict). Moreover, the study analyzed family coping strategies and perceived family efficacy during the pandemic and the impact of these variables on individual and family well-being.

Specifically, we hypothesized a significant interdependence between the well-being of the family and its members, whereby better individual psychological well-being will be associated with a better family quality of life and vice versa. Furthermore, we hypothesized that better family efficacy and adaptive coping strategies to face pandemic-related stress would be associated with improved individual and family well-being.

### *5.3. Material and Methods*

#### *5.3.1. Study Design and Participants*

This cross-sectional, observational study was conducted between June 6 and December 26, 2021, during the second wave of the COVID-19 pandemic in Italy. During this period, the restriction measures varied according to the virus's spread rates in different regions, vaccination status, and Green Pass possession. Participants were subjects resident in the province of Catania (Sicily) who agreed to answer an online survey disseminated through active Facebook groups of the territory. Participation in the research was voluntary, anonymous and without remuneration. An online informed consent was completed before answering the questionnaire.

The study protocol was drafted according to the Declaration of Helsinki, the Ethical Code for Italian psychologists (L. 18.02.1989, n. 56), Italian law for data privacy (DLGS 196/2003), and the Ethical Code for Psychological Research (March 27, 2015) approved by the Italian Psychologists Association. Furthermore, the Ethics Committee of the Department of Educational Sciences of the University of Catania approved the study.

#### *5.3.2. Measures*

The online questionnaire consists of 71 multiple-choice questions and requires about 15 minutes to complete.

The first section consists of 11 sociodemographic questions about gender, age, marital status, education, employment, online work during the pandemic, having contracted



COVID-19, COVID-19 cases in the family, hospitalisation for COVID-19 of participants and family members, and family bereavements due to the COVID-19.

The second section consists of 60 items. Participants were asked to respond on a 5-point Likert scale from 1 (*Much less than before the pandemic*) to 5 (*Much more than before the pandemic*) to a set of items drawn from validated questionnaires to investigate the following variables:

- Eighteen items on positive and negative affectivity during the COVID-19 pandemic (e.g., “I feel physically well”, “I am irritable and lose my patience easily”) were selected from the *Questionnaire on positive and negative emotions related to the COVID-19 pandemic experience* (Commodari & La Rosa, 2020), which has already extensively described in Chapters 2 and 3.
- Eight items on the individual perception of family quality of life (e.g., “I am overall satisfied with the health status of my family members”, “I consider family relationships important for my family’s quality of life”) were selected from the Italian version of the *Family Quality of Life Survey* (Brown et al., 2006) and adapted to the COVID-19 pandemic context.
- Sixteen items on the three main dimensions of family structure were selected from the Italian adaptation of the *Flexibility and Cohesion Evaluation Scale – IV edition* (Olson, 2011; Visani et al., 2014). Specifically, six items assessed cohesion (e.g., “In my family we support each other, especially in difficult moments”, “We feel too close to each other”); six items assessed flexibility (e.g., “In my family, rules are established together”, “In my family, it is important to follow the rules”); four items assessed communication (e.g., “I feel I can freely express my problems to my family”, “Each of us tries to understand the feelings of other family members”).

- Four items on family conflict (e.g., “In my family we argue a lot”, “In my family, we often put down each other”) were selected from the *Brief Family Relationship Scale* (Fok et al., 2011).
- Ten items on family coping strategies were selected from the *Coping Orientations to Problem Experienced - New Italian Version* (Sica et al., 2008) and adapted to the family context. Items were chosen as follows: two items for social support strategies, which consist of sharing the resolution of problems with both family members and the external environment (“We seek support from each other”, “We ask for help from those who have had similar experiences to ours”); two items for avoidance strategies, which consist of behavioral and mental detachment to escape the critical situations (“We recognize that we cannot deal with the situation and abandon all attempts to act to solve the problem”, “We pretend it did not happen”); two items for positive attitude strategies, which consist of the attitude of acceptance and positive reinterpretation of stressful events (“We try to learn something from experience”, “We try to find something positive in what happens”); two items for problem orientation strategies, which consist of planning and using appropriate problem solving strategies (“We are deeply committed to cope with the problem”, “We try to devise strategies on what to do”); two items for transcendent orientation strategies, which consist of using humor and religion to cope with difficult situations (“We try to find comfort in religion”, “We joke about the situation”).
- Four items on the individual perception of family efficacy were selected from the *General Self-Efficacy Scale* (Schwarzer & Jerusalem, 1995) and adapted to family context (e.g., “We easily achieve shared goals”, “We deal effectively with even the most unexpected events”).

### 5.3.3. Statistical Analyses

Confirmatory Factor Analysis (CFA) was conducted to test each scale's measurement model. Goodness-of-fit was assessed through the Root Mean Square Error of Approximation (RMSEA < 0.05) (Hu & Bentler, 1999), the Standardized Root Mean Square Residual (SRMR < 0.08) (Hu & Bentler, 1999), and the Comparative Fit Index and Tucker-Lewis Index (CFI and TLI > 0.90) (van de Schoot et al., 2012).

Cronbach's  $\alpha$  was used to evaluate scales' reliability, which was considered acceptable when  $\alpha > .70$  (DeVellis, 2021).

The scale scores were obtained by summing the answers given to the single items. Higher scores represent higher levels of the variables. Median cut-off points were used to distinguish low versus high scores for each variable.

The Kolmogorov-Smirnov test was used to assess the normal distribution of the variables. Continuous variables with normal distribution were presented as mean (M) and standard deviation (SD), while frequencies and percentages were used to describe categorical variables. Scores were divided into high and low assuming the median as cut-off.

Correlations between continuous variables were evaluated using Pearson's correlation coefficient. Student's *t*-test was used to compare the means between two groups, and the effect size was calculated using Hedges's *g* formula (Hedges, 1981), with .20 indicating a small effect, .50 a medium effect, and .80 a large effect (J. Cohen, 1988). One-way ANOVA with Games Howell post hoc tests was used to evaluate statistical differences among the means of two or more groups. The effect size was measured using eta squared ( $\eta^2$ ), with .01 indicating a small effect, .06 a medium effect, and .14 a large effect (J. Cohen, 1988).

Multiple regressions were run to identify predictors of individual well-being and family quality of life during the COVID-19 pandemic. More specifically, individual affectivity and family quality of life scores were the dependent variables of the regression models. The predictors entered into the model were sociodemographic and family functioning variables.

All statistical analyses were conducted using The Statistical Package for the Social Sciences (SPSS) version 25.0 (IBM Corporation, Armonk, NY).

#### *5.4. Results*

##### *5.4.1. Sample Characteristics*

A total of 404 subjects answered the questionnaire. 65.6% of the participants were women and the average age was 36.52 ( $SD = 15.43$ , range = 18-76). Most of the sample had a high school diploma (43.8%) or a degree (40.6%) and was a student (34.7%). Furthermore, 54.0% of the sample were single and 40.8% married or cohabiting. Only 14.9% had contracted COVID-19 during the study period and of these only five were hospitalized. 33.9% reported cases of COVID-19 in their families of which 27 hospitalized. Finally, 7.7% had family losses due to COVID-19.

Table 5.1 reports all the sample socio-demographic characteristics.

**Table 5.1. Sociodemographic Characteristics of the Sample**

Sociodemographic variables		N (%)
Gender	Male	139 (34.4)
	Female	265 (65.6)
Age groups	18-28	183 (45.3)
	29-49	111 (27.5)
	> 50	110 (27.2)
Marital status	Single	218 (54.0)
	Married/cohabiting	165 (40.8)
	Separated/divorced	16 (4.0)
	Widowed	5 (1.2)
Highest educational level	No qualification	5 (1.2)
	Primary school	1 (0.2)
	Middle school	57 (14.1)
	High school	177 (43.8)
	Degree	164 (40.6)
	Post-graduate degree	0 (0.0)
Employment	Unemployed	32 (7.9)
	Student	140 (34.7)
	Craftsman/dealer	11 (2.7)
	Worker	20 (5.0)
	Employee	60 (14.9)
	Entrepreneur	4 (1.0)
	Freelancer	22 (5.4)
	Healthcare personnel	21 (5.2)
	Housekeeper	22 (5.4)
	School personnel	62 (15.3)
	Retired	10 (2.5)
Working online during the pandemic	Yes	298 (73.8)
	No	106 (26.2)
Affected by COVID-19	Yes	185 (45.8)
	No	219 (54.2)
Hospitalized for COVID-19	Yes	5 (2.7)
	No	180 (97.3)
Family members affected by COVID-19	Yes	227 (56.2)
	No	177 (43.8)
Family members hospitalized by COVID-19	Yes	27 (11.9)
	No	200 (88.1)
Family losses due to COVID-19	Yes	31 (7.7)
	No	373 (92.3)

#### 5.4.2. Psychometric Characteristics of the Scales and Sample Scores

The CFA results confirmed that all scales used in this study were valid and reliable measures of the respective constructs. In fact, goodness of fit and reliability indices were satisfactory for all scales, as reported in Table 5.2.

**Table 5.2.** *Psychometric Characteristics of the Scales*

Scale	CFI	TLI	RMSEA	SRMR	Cronbach's $\alpha$
Positive affectivity	.96	.93	.06	.03	.75
Negative affectivity	.93	.91	.076	.04	.81
Family quality of life	.95	.94	.06	.08	.80
Family cohesion	.98	.98	.03	.05	.86
Family flexibility	.99	.99	.03	.05	.83
Family communication	.97	.91	.05	.02	.84
Family conflict	.92	.98	.04	.04	.78
Family efficacy	.94	.93	.03	.04	.86
Family coping	.97	.93	.06	.06	.77

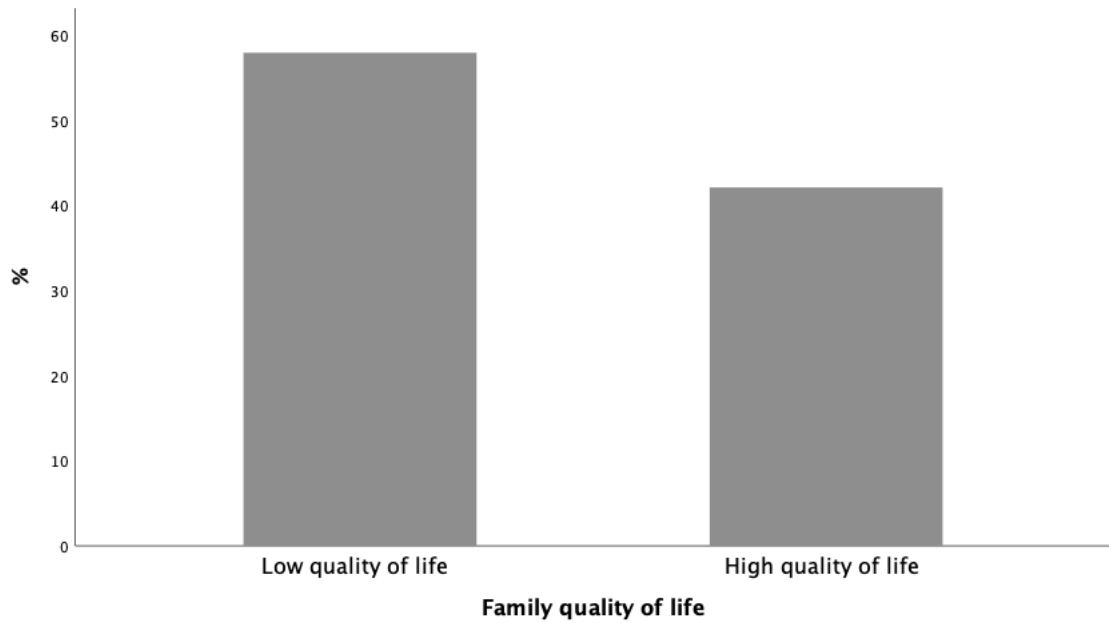
Table 5.3 reports the mean scores of the scales in the sample.

**Table 5.3.** *Descriptive Statistics for Study Variables*

	Mean	Median	SD	Minimum	Maximum
Positive affectivity	24.78	25.00	4.70	11.00	40.0
Negative affectivity	32.12	32.00	6.79	12.00	50.0
Family quality of life	30.57	31.00	4.99	8.00	40.0
Family cohesion	18.97	19.00	2.81	9.00	30.0
Family flexibility	18.62	18.00	2.73	11.00	28.0
Family communication	13.61	13.00	3.17	4.00	20.0
Family conflict	11.62	12.00	2.98	4.00	20.0
Family efficacy	14.30	14.00	3.24	4.00	20.0
<i>Family coping strategies</i>					
Social support	7.23	7.00	1.66	2.00	10.0
Avoidance	5.87	6.00	1.54	2.00	10.0
Positive attitude	7.12	7.00	1.71	2.00	10.0
Problem orientation	6.87	7.00	1.55	2.00	10.0
Transcendent orientation	6.38	6.00	1.72	2.00	10.0

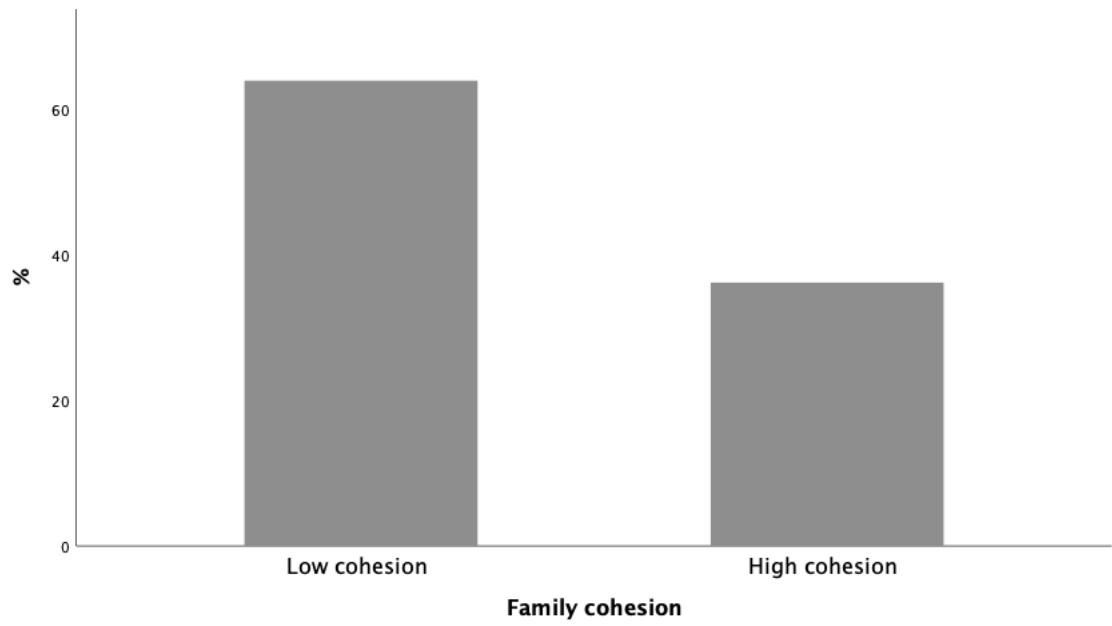
Based on median cut-off points of the questionnaire scores, most of the sample reported low family quality of life (Figure 5.1), low family functioning (Figures 5.2 - 5.4), and low family efficacy (Figure 5.5).

**Figure 5.1.** *Family Quality of Life Groups Based on the Median Cut-Off*

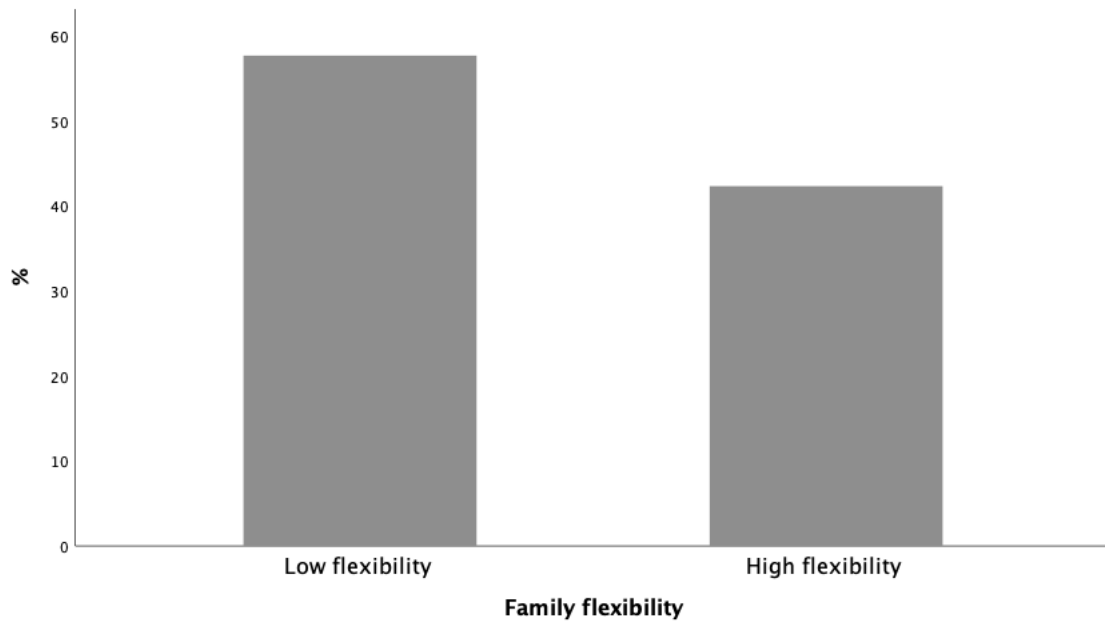




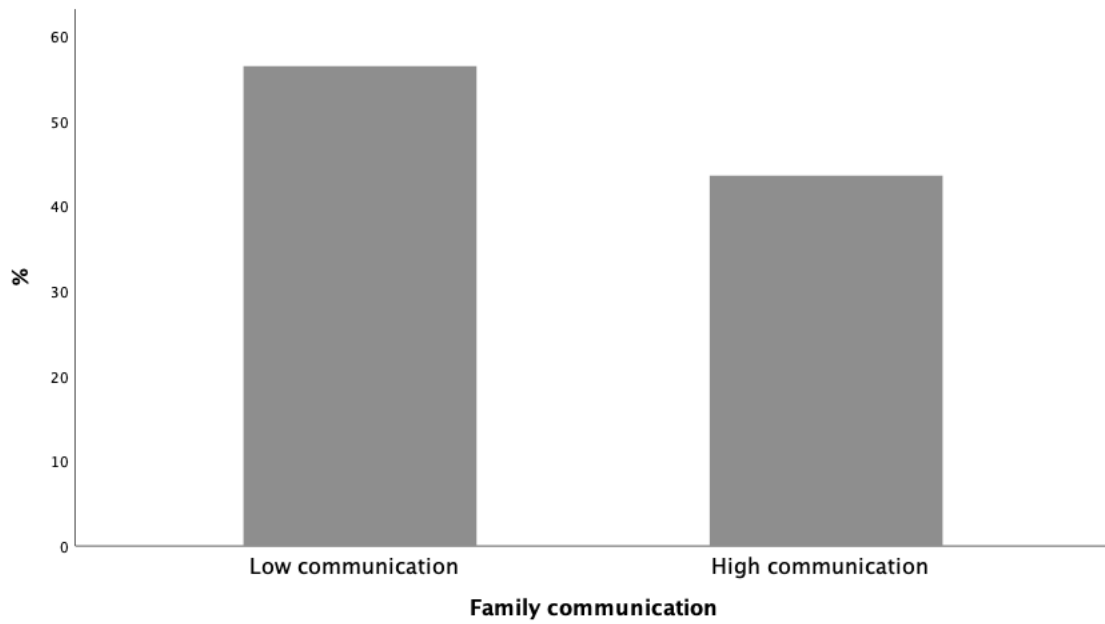
**Figure 5.2.** *Family Cohesion Groups Based on the Median Cut-Off*



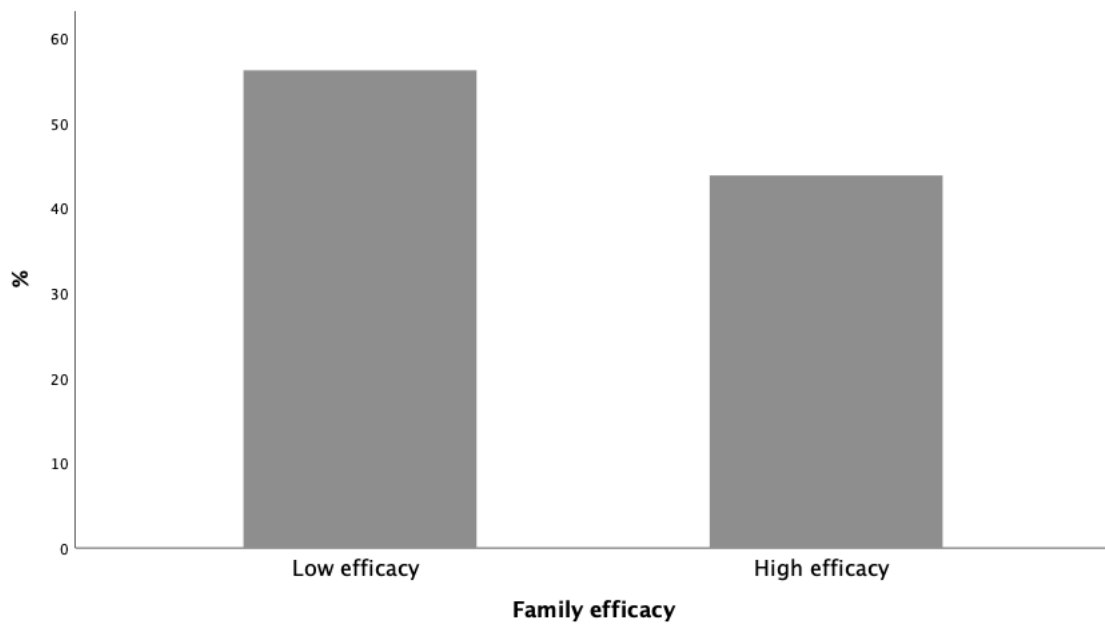
**Figure 5.3.** *Family Flexibility Groups Based on the Median Cut-Off*



**Figure 5.4.** *Family Communication Groups Based on the Median Cut-Off*

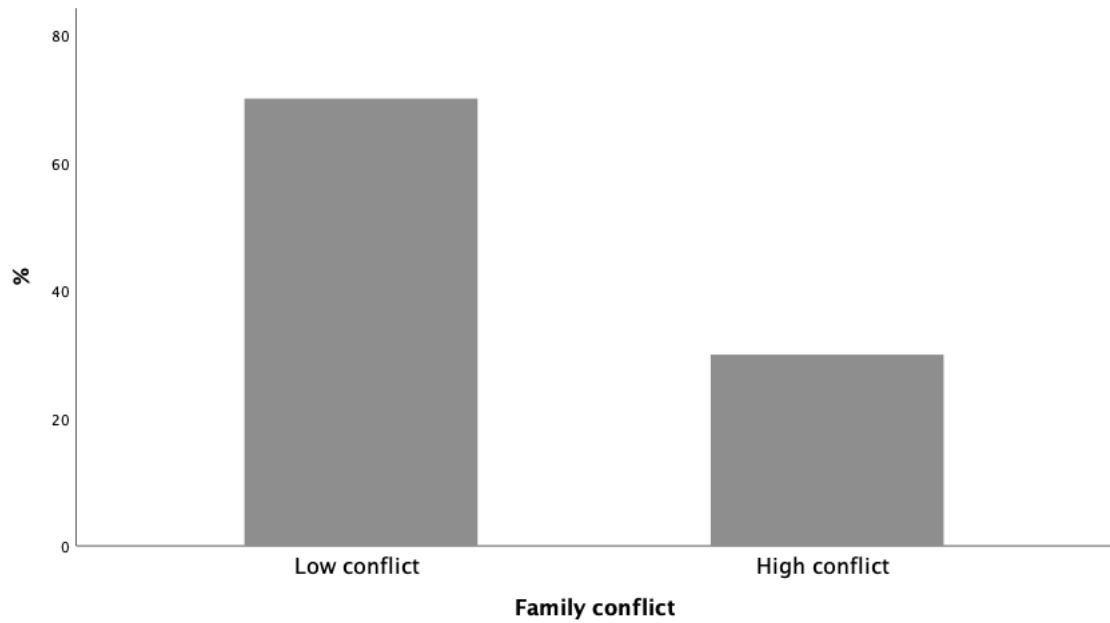


**Figure 5.5.** *Family Efficacy Groups Based on the Median Cut-Off*

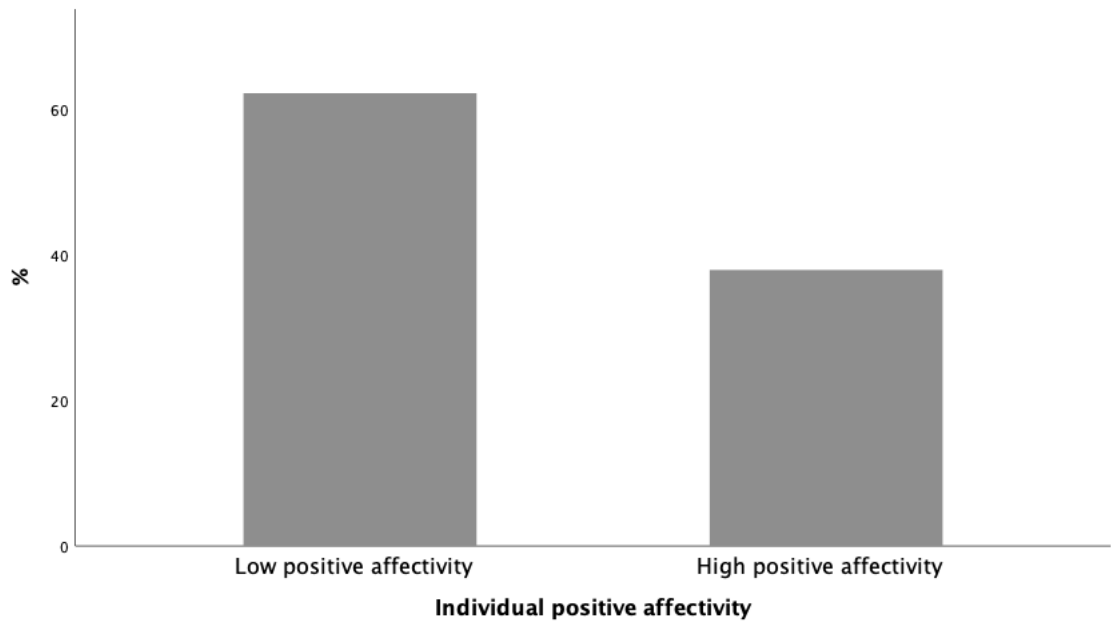


As shown in Figure 5.6, most of the sample reported low levels of family conflict (70.0%). Regarding individual well-being, 62.1% reported low positive affectivity, while 47.0% reported high negative affectivity (Figures 5.7 and 5.8).

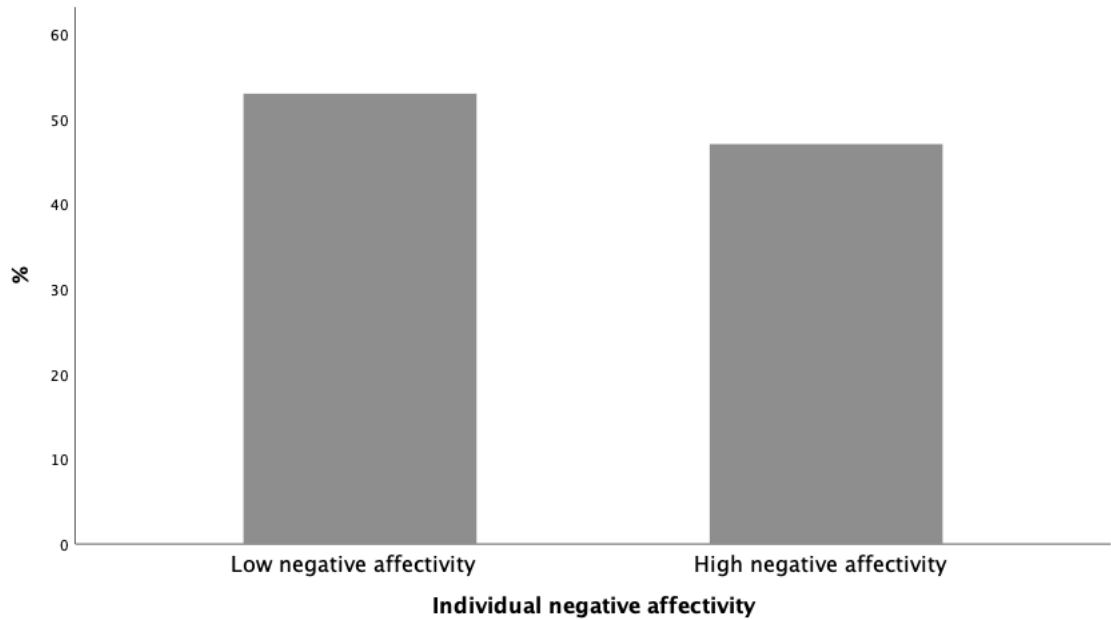
**Figure 5.6.** *Family Conflict Groups Based on the Median Cut-Off*



**Figure 5.7.** *Positive Affectivity Groups Based on the Median Cut-Off*



**Figure 5.8.** *Negative Affectivity Groups Based on the Median Cut-Off*



The variables investigated were all significantly correlated with each other, as shown in Table 5.4. In particular, the most significant correlations were observed between family quality of life and family communication ( $r = 0.554, p < .001$ ), family quality of life and family efficacy ( $r = 0.507, p < .001$ ), family cohesion and family flexibility ( $r = 0.591, p < .001$ ), family communication and family efficacy ( $r = 0.680, p < .001$ ), family communication and social support coping strategies ( $r = 0.592, p < .001$ ), family communication and problem orientation coping strategies ( $r = 0.559, p < .001$ ), family efficacy and adaptive coping strategies (social support:  $r = 0.659, p < .001$ , positive attitude:  $r = 0.628, p < .001$ , problem orientation:  $r = 0.731, p < .001$ ).

**Table 5.4.** *Correlation Matrix for Study Variables*

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
1. Positive affectivity	—												
2. Negative affectivity	-0.350 ***	—											
3. Family quality of life	0.357 ***	-0.075	—										
4. Family cohesion	0.169 ***	0.137 **	0.285 ***	—									
5. Family flexibility	0.171 ***	0.124 *	0.156 **	0.591 ***	—								
6. Family communication	0.318 ***	-0.119 *	0.554 ***	0.468 ***	0.221 ***	—							
7. Family conflict	-0.183 ***	0.361 ***	-0.292 ***	0.028	-0.200 ***	-0.447 ***	—						
8. Family efficacy	0.364 ***	-0.147 **	0.507 ***	0.391 ***	0.211 ***	0.680 ***	-0.320 ***	—					
<i>Family coping strategies</i>													
9. Social support	0.245 ***	-0.015	0.401 ***	0.438 ***	0.272 ***	0.592 ***	-0.184 ***	0.659 ***	—				
10. Avoidance	0.001	0.284 ***	-0.082	-0.356 ***	-0.455 ***	-0.008	0.314 ***	-0.013	-0.126 *	—			
11. Positive attitude	0.300 ***	-0.001	0.348 ***	0.376 ***	0.218 ***	0.477 ***	-0.191 ***	0.628 ***	0.520 ***	0.138 **	—		
12. Problem orientation	0.316 ***	-0.107 *	0.413 ***	0.391 ***	0.206 ***	0.559 ***	-0.197 ***	0.731 ***	0.564 ***	0.104 *	0.681 ***	—	
13. Transcendent orientation	0.226 ***	-0.032	0.182 ***	0.321 ***	0.222 ***	0.249 ***	-0.111 *	0.369 ***	0.364 ***	0.296 ***	0.434 ***	0.435 ***	—

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

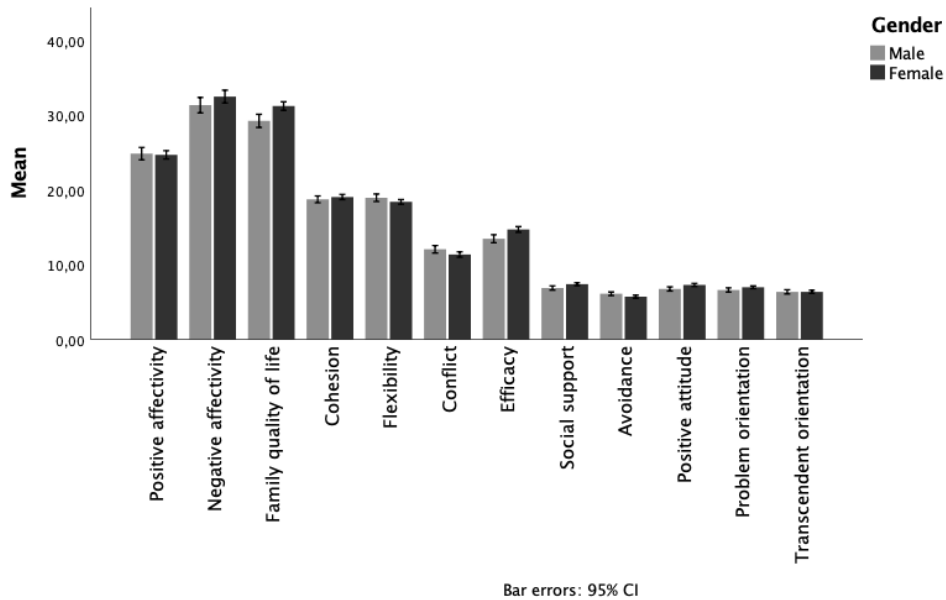
5.4.3. Relationship Between Individual and Family Variables and Sociodemographic Characteristics

T-test showed significant differences in family quality of life, conflict, efficacy, and coping strategies according to gender, as reported in Table 5.5. Specifically, women reported higher scores of family quality of life ( $p < .001$ ), family efficacy ( $p < .001$ ), social support ( $p = .004$ ), positive attitude ( $p = .003$ ), and problem orientation ( $p = .026$ ) than men. Furthermore, women reported lower scores of family conflict ( $p = .024$ ). and avoiding coping strategies ( $p = .014$ ) than men, as shown in Figure 5.9. The effect sizes were small.

**Table 5.5.** Independent Samples T-Test Statistics for Study Variables Based on Gender

	t	df	p	Hedges' g	95% CI	
					Lower	Upper
Positive affectivity	0.325	402	0.745	0.034	-0.171	0.239
Negative affectivity	-1.625	402	0.105	-0.170	-0.375	0.036
Family quality of life	-3.868	402	< .001	-0.404	-0.611	-0.197
Family cohesion	-1.077	402	0.282	-0.113	-0.318	0.093
Family flexibility	1.939	402	0.053	0.203	-0.003	0.408
Family communication	-1.943	402	0.053	-0.203	-0.409	0.003
Family conflict	2.262	402	0.024	0.237	0.030	0.442
Family efficacy	-3.721	402	< .001	-0.389	-0.596	-0.182
<i>Family coping strategies</i>						
Social support	-2.930	402	0.004	-0.306	-0.512	-0.100
Avoidance	2.457	402	0.014	0.257	0.051	0.463
Positive attitude	-3.027	402	0.003	-0.316	-0.523	-0.110
Problem orientation	-2.229	402	0.026	-0.233	-0.439	-0.027
Transcendent orientation	-0.020	402	0.984	-0.002	-0.207	0.203

**Figure 5.9.** Differences in Study Variables Based on Gender



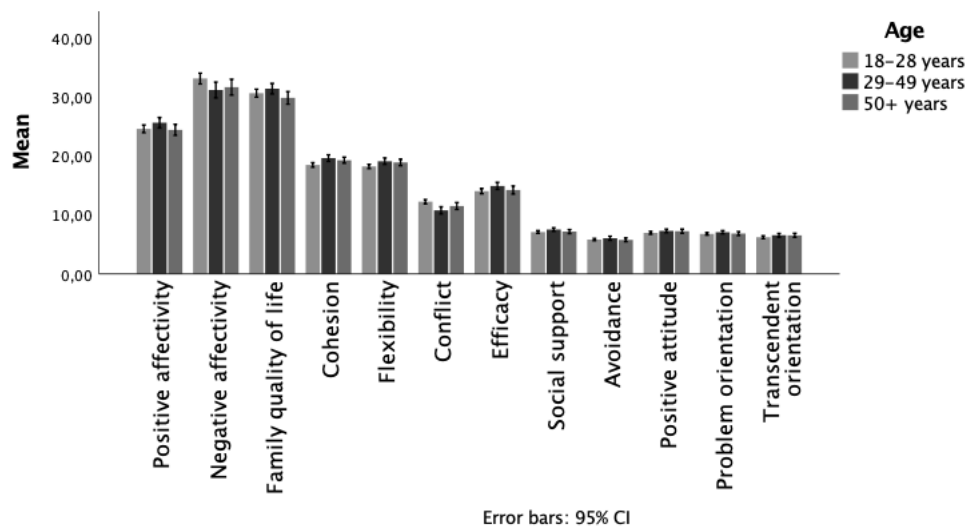
Regarding age, we found significant differences in questionnaire scores between age groups, as reported in Table 5.6. In particular, post hoc test showed that the 18-28 age group reported significantly higher scores of negative affectivity than the 29-49 age group ( $p = .04$ ). Furthermore, the 18-28 age group reported lower scores of family cohesion than the 29-49 ( $p = .003$ ) and the  $> 50$  ( $p = .03$ ) groups and lower scores of family flexibility and communication than the 29-49 age group ( $p < .001$ ). Finally, they reported higher scores of family conflict than the 29-49 age group ( $p < .001$ ). Figure 5.10 shows group comparisons between age groups.



**Table 5.6.** One-Way ANOVA Statistics for Study Variables According to Age

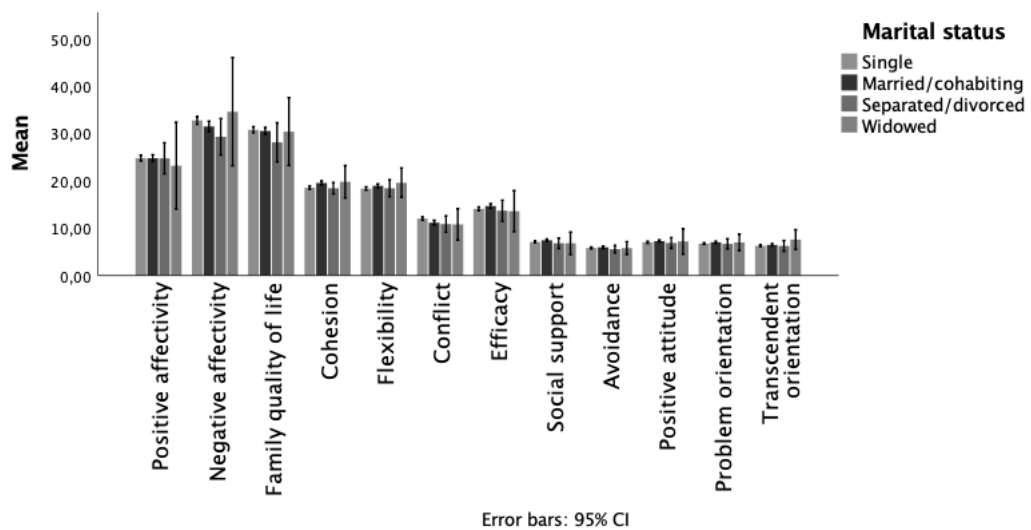
	F	df1	df2	p	$\eta^2$
Positive affectivity	2.257	2	401	0.106	0.011
Negative affectivity	3.314	2	401	0.037	0.016
Family quality of life	2.696	2	401	0.069	0.013
Family cohesion	6.798	2	401	0.001	0.033
Family flexibility	4.291	2	401	0.014	0.021
Family communication	5.997	2	401	0.003	0.029
Family conflict	8.888	2	401	< .001	0.042
Family efficacy	2.655	2	401	0.072	0.013
<i>Family coping strategies</i>					
Social support	2.299	2	401	0.102	0.011
Avoidance	0.924	2	401	0.398	0.005
Positive attitude	1.584	2	401	0.206	0.008
Problem orientation	1.151	2	401	0.317	0.006
Transcendent orientation	1.879	2	401	0.154	0.009

**Figure 5.10.** Differences in Study Variables Based on Age



One-way ANOVA showed significant differences in cohesion and communication scores according to the marital status, as reported in Table 5.7. Specifically, Games-Howell post-hoc test showed that single people reported lower family cohesion scores than married or cohabiting people ( $p = .003$ ). The effect size was small ( $\eta^2 = 0.03$ ). Furthermore, family communication scores were significantly lower in single people than in married or cohabiting people ( $p = .018$ ) and the effect size was small ( $\eta^2 = 0.03$ ). Finally, single people reported higher scores of family conflict than married or cohabiting people ( $p = .029$ ) with a small effect size ( $\eta^2 = 0.02$ ). Figure 5.11 shows comparisons between groups.

**Figure 5.11.** *Differences in Study Variables Based on Marital Status*



**Table 5.7.** *One-Way ANOVA Statistics for Study Variables According to Marital Status*

	F	df1	df2	p	$\eta^2$
Positive affectivity	0.190	3	400	0.903	0.001
Negative affectivity	2.256	3	400	0.081	0.017
Family quality of life	1.441	3	400	0.230	0.011
Family cohesion	4.522	3	400	0.004	0.033
Family flexibility	1.648	3	400	0.178	0.012
Family communication	3.822	3	400	0.010	0.028
Family conflict	3.162	3	400	0.025	0.023
Family efficacy	1.429	3	400	0.234	0.011
<i>Family coping strategies</i>					
Social support	1.823	3	400	0.142	0.013
Avoidance	0.441	3	400	0.724	0.003
Positive attitude	0.846	3	400	0.470	0.006
Problem orientation	1.066	3	400	0.363	0.008
Transcendent orientation	1.199	3	400	0.310	0.009

No significant differences were found in the questionnaire scores according to educational level and employment.

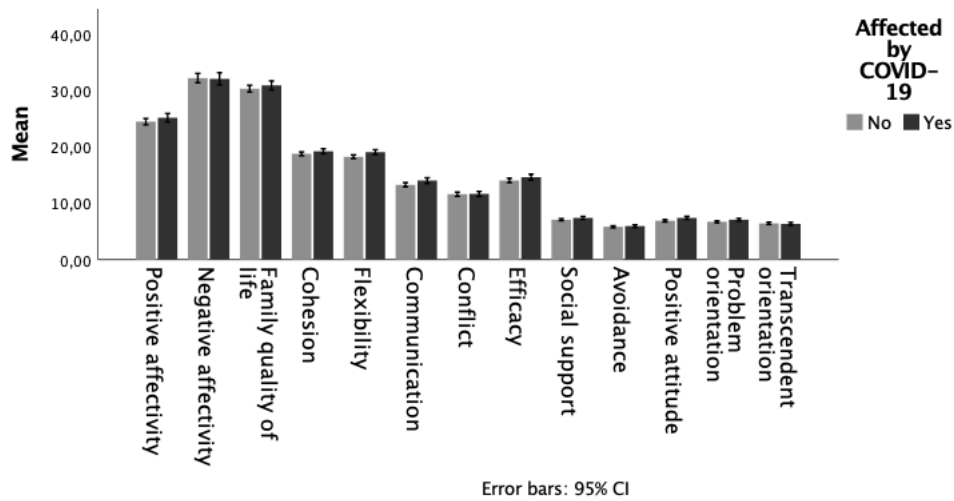
#### 5.4.4. Relationship Between Individual and Family Variables and COVID-19 Variables

*T*-test showed significant differences in family variables between those who have been affected by COVID-19 and those who have not, as reported in Table 5.8. Specifically, people who have contracted COVID-19 reported higher scores of family flexibility ( $p = .003$ ) and communication ( $p = .017$ ) than those who have not contracted the disease. The effect sizes were small. Furthermore, regarding family coping strategies, they reported higher scores of positive attitude ( $p = .002$ ) and problem orientation ( $p = .023$ ) than people who have not contracted COVID-19 and the effect sizes were small (Figure 5.12).

**Table 5.8.** *Independent Samples T-Test Statistics for Study Variables Based on Having Contracted COVID-19*

	t	p	Hedges' g	95% CI	
				Lower	Upper
Positive affectivity	-1.505	0.133	-0.150	-0.346	0.046
Negative affectivity	0.175	0.861	0.017	-0.178	0.213
Family quality of life	-1.155	0.249	-0.115	-0.311	0.081
Family cohesion	-1.586	0.114	-0.158	-0.354	0.038
Family flexibility	-3.031	0.003	-0.302	-0.499	-0.105
Family communication	-2.386	0.017	-0.238	-0.434	-0.041
Family conflict	-0.185	0.853	-0.018	-0.214	0.177
Family efficacy	-1.814	0.070	-0.181	-0.377	0.015
<i>Family coping strategies</i>					
Social support	-1.897	0.059	-0.189	-0.385	0.007
Avoidance	0.766	0.444	0.076	-0.272	0.120
Positive attitude	-3.107	0.002	-0.310	-0.506	-0.113
Problem orientation	-2.289	0.023	-0.228	-0.424	-0.032
Transcendent orientation	0.580	0.562	0.058	-0.138	0.254

**Figure 5.12.** Differences in Study Variables Based on Having Contracted COVID-19



Furthermore, people who had cases of COVID-19 in their families reported higher positive attitude scores than people who had not ( $p = .028$ ). The effect size was small ( $g = -0.22$ ). No other significant differences were found based on the presence of COVID-19 cases in the family. The presence of bereavements in the family due to COVID-19 was also not associated with significant differences in the study variables.

Finally, people who worked online at home during the pandemic reported lower cohesion and flexibility scores than those who did not work at home, as reported in Table 5.9.

**Table 5.9.** *Independent Samples T-Test Statistics for Study Variables Based on Working Online at Home During the Pandemic*

	t	df	p	Hedges' g	95% CI	
					Lower	Upper
Positive affectivity	-0.737	402	0.462	-0.083	-0.305	0.139
Negative affectivity	0.214	402	0.830	0.024	-0.197	0.246
Family quality of life	-1.210	402	0.227	-0.137	-0.358	0.085
Family cohesion	2.233	402	0.026	0.252	0.030	0.474
Family flexibility	3.043	402	0.002	0.343	0.120	0.566
Family communication	-0.019	402	0.985	-0.002	-0.224	0.219
Family conflict	0.205	402	0.838	0.023	-0.199	0.245
Family efficacy	-0.044	402	0.965	-0.005	-0.227	0.217
<i>Family coping strategies</i>						
Social support	0.109	402	0.913	0.012	-0.209	0.234
Avoidance	0.488	402	0.626	0.055	-0.167	0.277
Positive attitude	0.804	402	0.422	0.091	-0.131	0.312
Problem orientation	-0.372	402	0.710	-0.042	-0.264	0.180
Transcendent orientation	1.142	402	0.254	0.129	-0.093	0.351

#### *5.4.5. Relationship Between Individual and Family Well-Being and Dimensions of Family Functioning*

Table 5.10 reports the differences in scores of individual well-being, family quality of life, conflict, efficacy, and coping based on the dimensions of family functioning.

Cohesion, flexibility, and communication significantly influenced both individual and family well-being variables. Higher levels of family cohesion, flexibility and communication are associated with better individual well-being, higher levels of quality of life and family efficacy, and lower levels of family conflict. The effect sizes were medium or large.

**Table 5.10.** *Influence of Dimensions of Family Functioning on Individual and Family Well-Being*

	Family cohesion				Family flexibility				Family communication			
	Low	High	<i>p</i>	<i>g</i>	Low	High	<i>p</i>	<i>g</i>	Low	High	<i>p</i>	<i>g</i>
Positive affectivity	24.21 ± 4.24	25.77 ± 5.28	.001	-0.334	23.86 ± 4.97	23.98 ± 4.33	< .001	-0.407	23.69 ± 4.35	26.18 ± 4.78	< .001	-0.546
Negative affectivity	33.30 ± 7.05	31.45 ± 6.56	.009	0.273	32.19 ± 7.14	32.06 ± 6.54	.849	0.019	32.52 ± 6.12	31.61 ± 7.56	.185	0.133
Family quality of life	29.16 ± 4.70	33.06 ± 4.50	< .001	-0.842	29.46 ± 4.84	32.07 ± 4.78	< .001	-0.541	28.32 ± 4.37	33.48 ± 4.17	< .001	-1.203
Family conflict	11.74 ± 3.17	11.54 ± 2.86	.517	0.067	11.26 ± 2.72	12.09 ± 3.23	.005	-0.282	12.43 ± 2.51	10.56 ± 3.19	< .001	0.664
Family efficacy	13.39 ± 2.94	15.91 ± 3.11	< .001	-0.839	13.56 ± 2.96	15.31 ± 3.33	< .001	-0.560	12.66 ± 2.52	16.43 ± 2.81	< .001	-1.415
<i>Family coping strategies</i>												
Social support	6.74 ± 1.52	8.09 ± 1.53	< .001	-0.886	6.79 ± 1.48	7.83 ± 1.69	< .001	-0.658	6.47 ± 1.40	8.21 ± 1.44	< .001	-1.231
Avoidance	6.33 ± 1.75	5.60 ± 1.33	< .001	0.483	6.31 ± 1.67	5.54 ± 1.35	< .001	0.515	5.88 ± 1.20	5.85 ± 1.89	.828	0.022
Positive attitude	6.67 ± 1.47	7.91 ± 1.81	< .001	-0.770	6.76 ± 1.55	7.61 ± 1.78	< .001	-0.515	6.51 ± 1.36	7.91 ± 1.79	< .001	-0.892
Problem orientation	6.45 ± 1.35	7.59 ± 1.60	< .001	-0.785	6.56 ± 1.39	7.28 ± 1.65	< .001	-0.473	6.21 ± 1.21	7.72 ± 1.52	< .001	-1.104
Transcendent orientation	6.05 ± 1.54	6.96 ± 1.85	< .001	-0.541	6.22 ± 1.58	6.61 ± 1.87	.024	-0.228	6.06 ± 1.53	6.80 ± 1.85	< .001	-0.440

#### 5.4.6. Family Coping Strategies and the Relationship With Family Conflict and Efficacy

Independent samples *t*-test showed a significant association between family coping strategies, family conflict, and family efficacy.

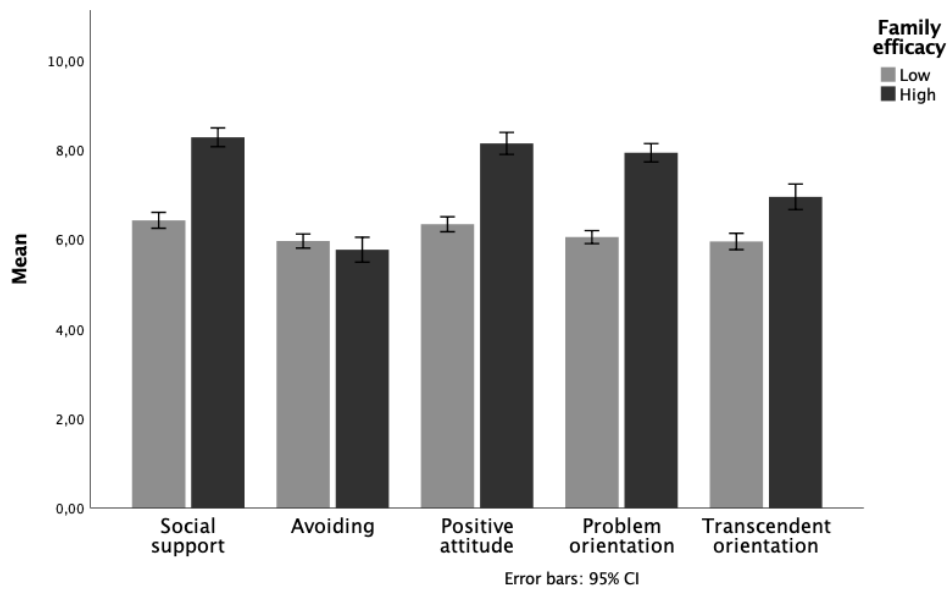
As shown in Table 5.11 and Figure 5.13, there was a significant association between adaptive family coping strategies and family efficacy. In particular, high family efficacy was associated with higher scores of social support ( $p < .001$ ), positive attitude ( $p < .001$ ), problem orientation ( $p < .001$ ), and transcendent orientation ( $p < .001$ ). All the effect sizes were large.

**Table 5.11.** *Independent Samples T-Test Statistics for Family Coping Strategies Based on Family Efficacy Levels*

	t	df	p	Hedges' g	95% CI	
					Lower	Upper
Social support	-13.365	402	< .001	-1.338	-1.554	-1.120
Avoidance	1.253	402	0.211	0.125	-0.071	0.322
Positive attitude	-12.373	402	< .001	-1.238	-1.452	-1.023
Problem orientation	-15.220	402	< .001	-1.523	-1.746	-1.300
Transcendent orientation	-6.038	402	< .001	-0.604	-0.805	-0.403



**Figure 5.13.** Differences in Family Coping Strategies Based on Family Efficacy Levels

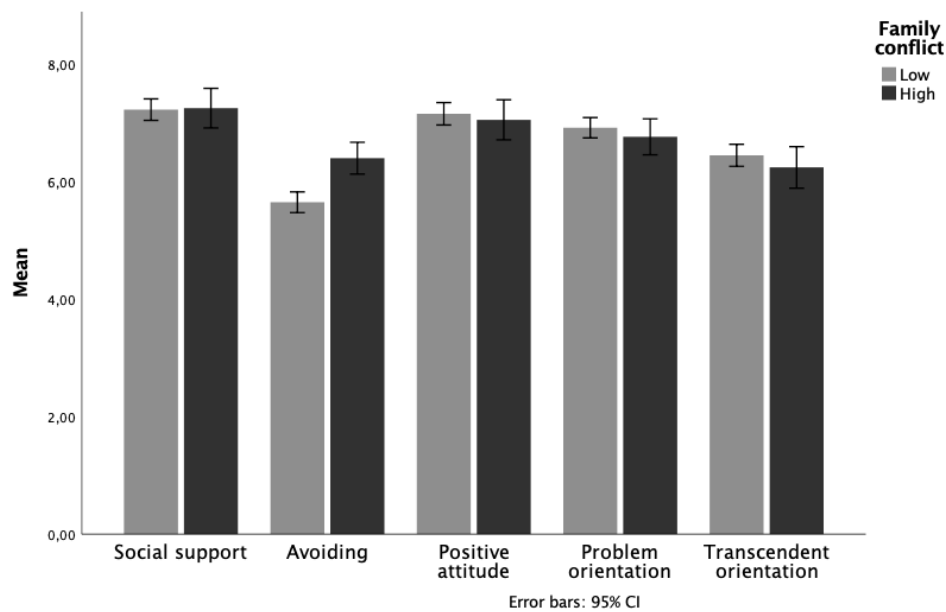


Furthermore, as reported in Table 12 and Figure 5.14, high levels of family conflict were associated with higher scores of avoidance strategies and the effect size was medium ( $p < .001$ ,  $g = -0.50$ ).

**Table 5.12.** Independent Samples T-Test Statistics for Family Coping Strategies Based on Family Efficacy Levels

	t	df	p	Hedges' g	95% CI	
					Lower	Upper
Social support	-0.140	402	0.888	-0.015	-0.228	0.198
Avoidance	-4.596	402	< .001	-0.498	-0.714	-0.282
Positive attitude	0.551	402	0.582	0.060	-0.153	0.273
Problem orientation	0.922	402	0.357	0.100	-0.113	0.313
Transcendent orientation	1.103	402	0.271	0.120	-0.094	0.333

**Figure 5.14.** Differences in Family Coping Strategies Based on Family Conflict Levels



#### 5.4.7. Relationship Between Individual Well-Being and Family Variables

Independent-samples *t*-tests were conducted to compare the family variables scores for low and high levels of positive and negative affectivity.

As shown in Table 5.13, positive affectivity has a significant impact on family variables. Participants with high positive affectivity reported significantly higher scores of family quality of life ( $t = -6.12, p < .001$ ), cohesion ( $t = -2.41, p = .01$ ), flexibility ( $t = -2.33, p = .02$ ), communication ( $t = -5.41, p < .001$ ), and efficacy ( $t = -6.49, p < .001$ ). Furthermore, there was a significant effect of positive affectivity on the use of adaptive family coping strategies. In particular, participants with high positive affectivity showed significantly higher scores of social support ( $t = -4.61, p < .001$ ), positive attitude ( $t = -5.24, p < .001$ ), problem orientation ( $t = -5.28, p < .001$ ), and transcendent orientation ( $t = -3.41, p < .001$ )

than participants with low positive affectivity. The effect sizes for these differences were small to medium.

Regarding negative affectivity, there was a significant effect for family cohesion, flexibility, and conflict. Participants with high negative affectivity reported lower scores of family cohesion ( $t = 3.18, p = .002$ ) and flexibility ( $t = 2.42, p = .01$ ), and higher scores of family conflict ( $t = -6.21, p < .001$ ) than participants with low negative affectivity. The effect sizes for these differences were small to medium. Furthermore, high negative affectivity was associated with higher scores of coping avoidance strategy ( $t = -6.21, p < .001$ ) with a medium effect size.

**Table 5.13.** *Influence of Individual Positive and Negative Affectivity on Family Functioning*

	Positive affectivity				Negative affectivity			
	Low	High	<i>p</i>	<i>g</i>	Low	High	<i>p</i>	<i>g</i>
Family quality of life	29.43 ± 4.68	32.43 ± 4.92	< .001	-0.626	30.82 ± 5.07	30.35 ± 4.92	.340	0.095
Family cohesion	18.70 ± 2.60	19.40 ± 3.07	.016	-0.247	19.44 ± 2.78	18.56 ± 2.77	.002	0.317
Family flexibility	18.37 ± 2.51	19.02 ± 3.01	.020	-0.239	18.96 ± 2.83	18.31 ± 2.60	.016	0.241
Family communication	12.96 ± 2.90	14.67 ± 3.32	< .001	-0.554	13.74 ± 3.02	13.46 ± 3.33	.385	0.087
Family conflict	11.83 ± 2.78	11.27 ± 3.26	.069	0.186	10.79 ± 2.91	12.55 ± 2.77	< .001	-0.618
Family efficacy	13.53 ± 3.12	15.58 ± 3.03	< .001	-0.665	14.34 ± 2.90	14.26 ± 3.59	.810	0.024
<i>Family coping strategies</i>								
Social support	6.94 ± 1.64	7.71 ± 1.58	< .001	-0.472	7.33 ± 1.81	7.14 ± 1.51	.273	0.109
Avoidance	5.90 ± 1.48	5.83 ± 1.63	.675	0.043	5.57 ± 1.47	6.20 ± 1.55	< .001	-0.417
Positive attitude	6.78 ± 1.61	7.67 ± 1.73	< .001	-0.536	7.26 ± 1.81	6.99 ± 1.60	.116	0.157
Problem orientation	6.56 ± 1.55	7.37 ± 1.41	< .001	-0.540	6.90 ± 1.48	6.84 ± 1.63	.696	0.039
Transcendent orientation	6.16 ± 1.63	6.75 ± 1.80	< .001	-0.349	6.36 ± 1.62	6.40 ± 1.82	.812	-0.024

#### 5.4.8. Predictors of Family Quality of Life and Individual Well-Being

Multiple regression analyses were used to investigate predictor variables of family quality of life and individual positive and negative affectivity. Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, multicollinearity, and homoscedasticity.

Regarding family quality of life, the regression model explained 41% of the variance ( $R^2 = .410$ ,  $F = 12.54$ ,  $p < .001$ ). The independent variables that contribute to explaining family quality of life score were family communication ( $\beta = .32$ ,  $p < .001$ ), positive affectivity ( $\beta = .19$ ,  $p < .001$ ), gender ( $\beta = .12$ ,  $p = .006$ ), avoidance coping strategy ( $\beta = -.11$ ,  $p = .038$ ). Table 5.14 shows all the regression analysis results and each independent variable's contribution.

The second regression model explained 22.4% of the variance in individual positive affectivity score ( $R^2 = .224$ ,  $F = 5.50$ ,  $p < .001$ ). Family quality of life ( $\beta = .22$ ,  $p < .001$ ), family flexibility ( $\beta = .13$ ,  $p = .04$ ), and gender ( $\beta = -.10$ ,  $p = .04$ ) were the significant predictors of positive affectivity score. The third regression model explained 22.3% of the variance in individual negative affectivity score ( $R^2 = .224$ ,  $F = 5.50$ ,  $p < .001$ ). The independent variables that contribute to explaining negative affectivity score were family conflict ( $\beta = .29$ ,  $p < .001$ ), avoidance coping strategy ( $\beta = .21$ ,  $p < .001$ ), gender ( $\beta = .14$ ,  $p = .005$ ), and positive attitude ( $\beta = .13$ ,  $p = .04$ ). Table 5.15 shows all the regression analysis results and each independent variable's contribution.

**Table 5.14.** *Multiple Regression Analysis on The Predictors of Family Quality of Life*

	$\beta$	t	P	F	R <sup>2</sup>
				12.54	.410
(Intercept)		5.207	< .001		
Age	.021	.314	.754		
Gender [female]	.117	2.741	.006		
Marital status: Married/cohabiting	-.124	-1.931	.054		
Marital status: Separated/divorced	-.092	-1.970	.050		
Marital status: Widowed	-.012	-.287	.774		
Working online during the pandemic [yes]	.007	.150	.881		
Affected by COVID-19 [yes]	-.044	-.814	.416		
COVID-19 cases in the family [yes]	.040	.743	.458		
Family losses due to COVID-19 [yes]	-.030	-.737	.462		
Positive affectivity	.194	4.164	< .001		
Negative affectivity	.078	1.642	.101		
Family cohesion	.039	.668	.505		
Family flexibility	.067	1.229	.220		
Family communication	.320	4.905	< .001		
Family conflict	-.076	-1.471	.142		
Social support	.021	.360	.719		
Avoidance	-.106	-2.085	.038		
Positive attitude	-.047	-.786	.432		
Problem orientation	.083	1.255	.210		
Transcendent orientation	-.012	-.252	.801		
Family efficacy	.118	1.621	.106		

**Table 5.15.** *Multiple Regression Analysis on the Predictors of Positive and Negative Affectivity*

	Positive affectivity			Negative affectivity		
	$\beta$	$t$	$p$	$\beta$	$t$	$p$
(Intercept)		5.202	< .001		5.421	< .001
Age	-.040	-.523	.601	-.011	-.150	.881
Gender [female]	-.101	-2.076	.039	.137	2.814	.005
Marital status: Married/cohabiting	.009	.126	.899	-.071	-.961	.337
Marital status: Separated/divorced	.037	.691	.490	-.069	-1.279	.202
Marital status: Widowed	-.032	-.660	.510	.044	.900	.369
Working online during the pandemic [yes]	.043	.847	.398	-.035	-.677	.499
Affected by COVID-19 [yes]	.102	1.641	.102	-.051	-.820	.413
COVID-19 cases in the family [yes]	-.096	-1.540	.124	.029	.472	.637
Family losses due to COVID-19 [yes]	-.032	-.680	.497	.004	.087	.931
Family cohesion	-.071	-1.071	.285	.118	1.767	.078
Family flexibility	.128	2.056	.040	-.065	-1.044	.297
Family communication	.022	.282	.778	.057	.742	.458
Family conflict	-.063	-1.106	.269	.288	5.029	< .001
Social support	-.054	-.830	.407	.045	.693	.489
Avoidance	-.045	-.784	.433	.213	3.705	< .001
Positive attitude	.093	1.380	.168	-.135	-2.007	.045
Problem orientation	.025	.326	.745	-.134	-1.756	.080
Transcendent orientation	.104	1.858	.064	-.078	-1.394	.164
Family efficacy	.155	1.868	.063	-.133	-1.604	.110
Family quality of life	.220	3.827	< .001	.015	.258	.796
R <sup>2</sup>	.224		< .001	.223		< .001

### *5.5. Discussion*

This study aimed to explore the impact of the COVID-19 pandemic on the family life cycle and individual well-being, trying to understand how the non-normative event of the pandemic changed the family structure and the quality of family relationships and how these changes affected the psychological well-being of family members.

Overall, our results confirmed the significant event of the COVID-19 pandemic on the family well-being. In fact, the majority of our sample reported low levels of family quality of life as well as low levels of family cohesion, flexibility, communication. Furthermore, the levels of family efficacy in our sample are low, confirming a reduced sense of family cohesion during the pandemic that does not allow the family to work collectively to achieve shared goals (Kao & Caldwell, 2017).

Therefore, during the pandemic, family structure and quality of family relationships tend to be perceived as more negative than during the pre-pandemic period. In particular, comparison of the mean scores on the questionnaire showed that people with COVID-19 reported lower scores of perceived family flexibility and communication. The pandemic, in particular the direct experience of the COVID-19 within the family, has a significant impact on family organization due to uncertainty and new rules to be observed, and on communication between family members, which is more difficult due to tension and fear over the possible outcomes of the disease (Ferrara et al., 2021; Prime et al., 2020; Soejima, 2021). Furthermore, participants who had contracted COVID-19 reported less use of adaptive family coping strategies such as positive attitude and problem orientation, confirming that the disease also affects family ways of coping with stress with negative consequences on the well-being of both the individual and the entire family system (Prime et al., 2020). Interestingly, people who had cases of COVID-19 in their families reported



higher positive attitude scores than people who had not. It would therefore seem that when COVID-19 affects other family members, the individual perception of family coping is different and more adaptive. Future research will have to address this point more in detail.

The presence of bereavements in the family for COVID-19 does not seem to have a significant impact on the variables investigated in our study. This result contrasts with literature data that underline how the family experience of mourning was profoundly altered during the pandemic, especially during the lockdown. In fact, especially in the early stages of the pandemic, family members infected with COVID-19 died alone and funerals were forbidden for some time. Families were thus prevented from sharing their grief and elaborating it through symbolic rituals. However, in our sample, the rather small number of reported bereavements may have influenced our results and limited their generalizability beyond the study sample. Furthermore, the study was conducted at a later stage of the pandemic when bans on funerals were no longer in force, favoring a more adaptive management of family mourning.

Family functioning in our sample was also influenced by the way of working during the pandemic. In particular, people who worked online at home during the pandemic reported lower cohesion and flexibility scores than those who did not. Our findings are consistent with previous studies in other countries showing that work–family conflicts have increased during the COVID-19 pandemic with a consequent impact on the dimensions of family functioning (Reimann et al., 2022). It would be interesting to explore this finding further by considering a few factors that could affect the conflict between work and family functioning during the pandemic, such as the presence of children at home and gender.

However, contrary to expectations, the levels of perceived family conflict in our sample were mostly low. This finding is certainly interesting and in contrast to the literature on the topic which shows that lockdown and long periods of forced family cohabitation are

responsible for a significant increase in family conflict (Fosco et al., 2021; Sinko et al., 2021). One possible interpretation of this finding is that the family coping strategies used in our sample are mainly adaptive and this may represent a protective factor for the risk of escalation of family conflict.

Regarding individual well-being, the majority of the sample reported low levels of positive affectivity compared to the pre-pandemic period, but there was no significant increase in negative affectivity. These results also deserve attention as they suggest the presence of both individual and family protective factors that mitigate the risk of a deterioration of individual psychological well-being.

In this regard, regression models showed that good family quality of life and family flexibility are significant predictors of positive affectivity, confirming that living in a family with adequate organization and respect for rules and a good level of general well-being leads to higher levels of positive affectivity during the pandemic. Similarly, high levels of family conflict and greater use of dysfunctional family coping strategies such as avoidance than adaptive strategies such as positive attitude significantly predict high levels of negative affectivity (anxiety, tension, depressive feelings). It is therefore clear, as has already been widely confirmed in the literature, that family functioning and the quality of relationships within the family are closely intertwined with the individual well-being of family members.

Women reported a higher family efficacy and quality of life and lower family conflict than men. Furthermore, women reported more adaptive family coping strategies than men. However, at the same time, being female was found to be a risk factor for lower levels of positive affectivity and higher levels of negative affectivity. The perception of family and individual well-being is thus conflicting in the women of our sample. This result can be interpreted in a socio-cultural perspective related to the greater involvement of Italian women in family life (Rania et al., 2022), even at the expense of their individual well-being

(Epifanio et al., 2021). For this reason, women in our sample might perceive lower individual psychological well-being but good family functioning during the pandemic as well as use more adaptive family coping strategies than men.

Contrary to the data from the study by Fernandes et al. (2021), in our sample, subjects in the 18-28 age group reported higher levels of negative affectivity and a worse perceived family functioning and quality of life. However, this finding is in line with the literature on the psychological consequences of the pandemic, underlining the more detrimental impact on young people who experience a greater sense of uncertainty about their future than adults. Furthermore, the tendency of young Italians to live with their families for longer due to the greater difficulties in joining the labour market compared to young people in other countries (Manacorda & Moretti, 2006; Menniti et al., 2000), could explain their more negative perception of family relationships as well as higher levels of conflict within the family during the pandemic.

Single people reported lower family cohesion and communication scores than married or cohabiting people. Furthermore, they reported higher family conflict than married or cohabiting people. This data confirms the findings reported by Fernandes et al. (2021), according to which Portuguese singles reported lower values of family functioning during the COVID-19 pandemic. This result can also be explained by considering the family structure in countries such as Italy and Portugal. In fact, in these countries, family is characterized by strong ties and is based on mutual aid of all its members. The family units are very different but they generally tend to be small and nuclear (Amaro & Neves, 2016; Luciano et al., 2012). Therefore, this may explain the worse perception of the quality of family relationships in singles than in married or cohabiting persons. This data should be further investigated also by comparison with other countries characterized by a different family culture.

Our results underlined the strong association between family structure and individual and family well-being. In particular, the large effect sizes confirmed that good levels of cohesion, flexibility, and communication were associated with better individual well-being, higher levels of quality of life and family efficacy, and lower levels of family conflict.

Similarly, individual well-being strongly influenced family functioning since participants with high positive affectivity reported better family quality of life and more adaptive family coping strategies. Furthermore, individuals with high negative affectivity reported increased family conflict associated with the use of avoidance family coping strategies. Again, medium to large effect sizes confirm the strength of the relationship between these variables.

Regarding resilience and family coping, we found a significant association between family coping strategies, efficacy, and conflict. In our sample, high levels of family conflict were associated with an increased tendency to use avoidance strategies, while high levels of family efficacy were associated with the use of adaptive coping strategies (social support, positive attitude, problem orientation, and transcendent orientation). Family efficacy beliefs are therefore an important variable in influencing family well-being, while high levels of conflict that are not managed positively can undermine the quality of life of the family system. Despite the significant impact of family efficacy on the quality of relationships within the family, this construct is still under-investigated while research has mainly focused on the efficacy beliefs of family sub-systems such as parents and children. In this regard, it has been shown that parenting efficacy is related to lower levels of family stress (Kao & Caldwell, 2017), while adolescent filial efficacy, is related to family satisfaction, open communication, and lower level of family conflicts (Bandura et al., 2011). Further studies will be needed to further explore the role of this variable in family functioning during the COVID-19 pandemic.

According to the results of regression model, family communication is the family variable that is the strongest predictor of family quality of life in our sample. Furthermore, high levels of positive affectivity and lower use of avoidance coping strategies predict high levels of family quality of life. Therefore, in the light of these results, it is important to provide supportive interventions for the most distressed families during the pandemic to promote open communication and the use of adaptive family coping strategies.

In conclusion, this study confirms that family is a system of interconnected individuals that is, at the same time, more than the sum of its individuals. In fact, our results underline that the quality of family relationships influences the well-being of family members and vice versa the well-being of family members influences the quality of life of the family system. Therefore, the COVID-19 pandemic can be a stressful event, but at the same time it can be a transitional event that can promote the maturation of the individual and his family as it allows the reorganization of relationships and the development of new and more adaptive ways of coping with stress.

However, some limitations of this study should be highlighted. First, the convenience sampling did not allow for an adequate balance of the sample with respect to socio-demographic variables such as gender, marital status, and employment. Second, the sample is limited to subjects from southern Italy, and it would be interesting to replicate the study on a larger representative sample from the whole of Italy. Furthermore, the use of an online questionnaire may have led to bias by not reaching older people with greater difficulties in using electronic devices. Finally, the study was based on the quality of family relationships perceived by the participants but did not compare the assessment of individuals belonging to the same households. Further studies will be needed to better investigate family functioning at the time of COVID-19, considering the role of further variables such as the

presence of children, family members with physical and/or intellectual disabilities, elderly people to care for.

## Conclusions

This thesis set out to investigate the psychological effects of the COVID-19 pandemic from a developmental as well as a clinical perspective, presenting a series of studies that looked at the impact of the pandemic on groups that, according to the literature, are most at risk of experiencing adverse psychological outcomes such as adolescents, college students, pregnant women, and families. Furthermore, these studies aimed to investigate the effects of the pandemic in the Italian context and specifically in the Sicilian territory, which is characterized by different socio-cultural influences and a different perception of the restrictions related to the containment of contagion.

The results confirm that the pandemic was a traumatic event that disrupted the Italian population's everyday life, habits, and sociality. However, at the same time, the pandemic can be considered a nonnormative event, a *psychosocial crisis* which Erikson (1982) defines as a challenge that a person must negotiate and face to grow and develop. Therefore, this crisis has empowered individuals to mobilize new resources and coping strategies to cope with the stress and changes posed by this historical and social contingency.

All groups investigated in our studies (adolescents, university students, women who gave birth, and families) expressed intense distress and a significant increase in negative affectivity in response to the pandemic. These effects were particularly significant in the youngest segment of the population, confirming that adolescents and young adults represent one of the groups most at risk of long-term negative psychological consequences after the pandemic. This finding can be explained in several ways. First, adolescents and young adults were affected by the pandemic at susceptible stages of their development, characterized by more rapid changes and greater feelings of uncertainty and fear for the future. Second, at

these developmental stages, the need for sociability is more pronounced since adolescents find in relationships with peers the first form of emotional autonomy from the family, and young adults attending university spend most of their time with peers with whom they share interests, anxieties, and plans. Therefore, isolation caused by lockdown and other measures of restriction and limitation of sociality have particularly affected the psychological well-being of young people, requiring special attention from institutions to activate and strengthen psychological support services for these age groups in order to prevent the pandemic event from being an obstacle to a proper development process.

However, while these developmental stages are characterized by increased vulnerability to the adverse psychological effects of the pandemic, it is important to point out that our studies also underlined the presence of protective and resilience factors that mitigated these effects. In particular, social support and a good network of family and friend relationships appear to be one of the most crucial protective factors during the pandemic. Both adolescents and university students who participated in our studies reported finding significant support in family and friends to cope with the lockdown period. Furthermore, women who gave birth during the pandemic with partner support and who reported a high level of social support and a good relationship with their partner during pregnancy and postpartum were at lower risk of adverse psychological outcomes such as postpartum depression and anxiety. Finally, individuals whose families were characterized by higher levels of cohesion and communication had lower indices of COVID-19-related distress. These findings confirmed that the relational aspect had been the most affected by the pandemic and restrictions, and the individual's social support network is a significant factor in limiting the psychological impact of COVID-19. This aspect is fundamental, especially in the phases of the life cycle in which the subject needs positive relationships to face crucial developmental tasks such as the process of growth and acquisition of autonomy from the family during adolescence, the



construction of both personal and professional life plan during the university period, or the creation of the first bond of attachment with the newborn and the assumption of parental roles in couples who have a child.

Therefore, people who, even before the outbreak of the pandemic, lived in contexts characterized by social isolation and poor affective relationships, are certainly more at risk of suffering the psychological impact of the pandemic, especially if they are in phases of their life cycle that are decisive for the future development of the individual. Institutions both at national and territorial level have the duty not to underestimate these conditions of risk and marginality which can turn into cradles of social hardship, especially among the youngest people.

Another significant finding to highlight in the conclusion of this thesis is the importance of the family in influencing the psychological well-being of the individual, especially in a context such as the Italian and especially Sicilian one in which family is characterized by strong ties and is based on mutual aid of all its members. In fact, the results of our studies highlight that family support is of paramount importance for adolescents and young adults in coping with the aftermath of the pandemic. Furthermore, single people report more significant psychological distress than married or cohabiting people, confirming the importance of family relationships in the development of the individual. In turn, the well-being of the individual members of the family contributes to determining the quality of life of the family unit in a relationship of interconnection and reciprocal influence. In light of these considerations, it is essential to promote interventions to support families, which represent an important protective factor for the well-being of individuals and the community.

In conclusion, this research aims to contribute to a more comprehensive reading of the psychological implications of COVID-19 that takes into account not only the characteristics

of the individuals but also their life context and the specific stage of development they are going through.

Future studies will have to explore the long-term consequences of COVID-19 from a lifespan perspective, with particular attention to the groups most at risk already considered in this study and to those that it was not possible to pay attention to, such as children, the elderly, subjects with psychiatric pathologies or neurodevelopmental disorders, health workers.

## References

- Aiyegbusi, O. L., Hughes, S. E., Turner, G., Rivera, S. C., McMullan, C., Chandan, J. S., Haroon, S., Price, G., Davies, E. H., Nirantharakumar, K., Sapey, E., Calvert, M. J., & TLC Study Group. (2021). Symptoms, complications and management of long COVID: a review. *Journal of the Royal Society of Medicine*, *114*(9), 428-442. <https://doi.org/10.1177/01410768211032850>
- Akan, H., Gurol, Y., Izbirak, G., Ozdatli, S., Yilmaz, G., Vitrinel, A., & Hayran, O. (2010). Knowledge and attitudes of university students toward pandemic influenza: a cross-sectional study from Turkey. *BMC Public Health*, *10*, 413. <https://doi.org/10.1186/1471-2458-10-413>
- Al-Balushi, S. M., Ambusaidi, A. K., Al-Balushi, K. A., Al-Hajri, F. H., & Al-Sinani, M. S. (2020). Student-centred and teacher-centred science classrooms as visualized by science teachers and their supervisors. *Teaching and Teacher Education*, *89*. <https://doi.org/10.1016/j.tate.2019.103014>
- Alivernini, F., Cavicchiolo, E., Girelli, L., Lucidi, F., Biasi, V., Leone, L., Cozzolino, M., & Manganelli, S. (2019). Relationships between sociocultural factors (gender, immigrant and socioeconomic background), peer relatedness and positive affect in adolescents. *Journal of Adolescence*, *76*(1), 99-108. <https://doi.org/10.1016/j.adolescence.2019.08.011>

- Almeida, M., Shrestha, A. D., Stojanac, D., & Miller, L. J. (2020). The impact of the COVID-19 pandemic on women's mental health. *Archives of Women's Mental Health, 23*(6), 741-748. <https://doi.org/10.1007/s00737-020-01092-2>
- Almhdawi, K. A., Alazrai, A., Obeidat, D., Altarifi, A. A., Oteir, A. O., Aljammal, A. H., Arabiat, A. A., Alrabbaie, H., Jaber, H., & Almousa, K. M. (2021). Healthcare students' mental and physical well-being during the COVID-19 lockdown and distance learning. *Work, 70*(1), 3-10. <https://doi.org/10.3233/WOR-205309>
- Amaro, F., & Neves, B. B. (2016). Portugal, Families in. In *Encyclopedia of Family Studies* (pp. 1-5). Wiley. <https://doi.org/10.1002/9781119085621.wbefs213>
- Arditti, J. A. (2015). *Family problems : stress, risk, and resilience*. Wiley-Blackwell.
- Aristovnik, A., Keržič, D., Ravšelj, D., Tomaževič, N., & Umek, L. (2020). Impacts of the COVID-19 Pandemic on Life of Higher Education Students: A Global Perspective. *Sustainability, 12*(20). <https://doi.org/10.3390/su12208438>
- Bacchini, D., & Magliulo, F. (2003). Self-Image and Perceived Self-Efficacy During Adolescence. *Journal of Youth and Adolescence, 32*(5), 337-349. <https://doi.org/10.1023/a:1024969914672>
- Bailen, N. H., Green, L. M., & Thompson, R. J. (2018). Understanding Emotion in Adolescents: A Review of Emotional Frequency, Intensity, Instability, and Clarity. *Emotion Review, 11*(1), 63-73. <https://doi.org/10.1177/1754073918768878>
- Bailey, E., & Nightingale, S. (2020). Navigating maternity service redesign in a global pandemic: A report from the field. *Midwifery, 89*. <https://doi.org/10.1016/j.midw.2020.102780>

- Bakioğlu, F., Korkmaz, O., & Ercan, H. (2020). Fear of COVID-19 and Positivity: Mediating Role of Intolerance of Uncertainty, Depression, Anxiety, and Stress. *International Journal of Mental Health and Addiction*, 19(6), 2369-2382. <https://doi.org/10.1007/s11469-020-00331-y>
- Bali, H., Rai, V., Khanduri, N., Tripathi, R., Adhikari, K., & Sapkota, B. (2020). Perceived Stress and Stressors among Medical and Dental Students of Bhairhawa, Nepal: A Descriptive Cross-sectional Study. *Journal of the Nepal Medical Association*, 58(226), 383-389. <https://doi.org/10.31729/jnma.4911>
- Bandura, A. (2006). Adolescent development from an agentic perspective. In F. Pajares & T. Urdan (Eds.), *Self-efficacy beliefs of adolescents* (pp. 1-43). Information Age Pub Inc.
- Bandura, A., Caprara, G. V., Barbaranelli, C., Regalia, C., & Scabini, E. (2011). Impact of Family Efficacy Beliefs on Quality of Family Functioning and Satisfaction with Family Life. *Applied Psychology*, 60(3), 421-448. <https://doi.org/10.1111/j.1464-0597.2010.00442.x>
- Barra, F., La Rosa, V. L., Vitale, S. G., Commodari, E., Altieri, M., Scala, C., & Ferrero, S. (2022). Psychological status of infertile patients who had in vitro fertilization treatment interrupted or postponed due to COVID-19 pandemic: a cross-sectional study. *Journal of Psychosomatic Obstetrics and Gynaecology*, 43(2), 145-152. <https://doi.org/10.1080/0167482X.2020.1853095>
- Behar-Zusman, V., Chavez, J. V., & Gattamorta, K. (2020). Developing a Measure of the Impact of COVID-19 Social Distancing on Household Conflict and Cohesion. *Family Process*, 59(3), 1045-1059. <https://doi.org/10.1111/famp.12579>

- Beller, J., & Wagner, A. (2018). Loneliness, social isolation, their synergistic interaction, and mortality. *Health Psychology, 37*(9), 808-813. <https://doi.org/10.1037/hea0000605>
- Bender, W. R., Srinivas, S., Coutifaris, P., Acker, A., & Hirshberg, A. (2020). The Psychological Experience of Obstetric Patients and Health Care Workers after Implementation of Universal SARS-CoV-2 Testing. *American Journal of Perinatology, 37*(12), 1271-1279. <https://doi.org/10.1055/s-0040-1715505>
- Berk, L. E. (2007). *Development through the lifespan* (4th ed.). Allyn and Bacon.
- Bivia-Roig, G., La Rosa, V. L., Gomez-Tebar, M., Serrano-Raya, L., Amer-Cuenca, J. J., Caruso, S., Commodari, E., Barrasa-Shaw, A., & Lison, J. F. (2020). Analysis of the Impact of the Confinement Resulting from COVID-19 on the Lifestyle and Psychological Wellbeing of Spanish Pregnant Women: An Internet-Based Cross-Sectional Survey. *International Journal of Environmental Research and Public Health, 17*(16). <https://doi.org/10.3390/ijerph17165933>
- Bo, H. X., Li, W., Yang, Y., Wang, Y., Zhang, Q., Cheung, T., Wu, X., & Xiang, Y. T. (2021). Posttraumatic stress symptoms and attitude toward crisis mental health services among clinically stable patients with COVID-19 in China. *Psychological Medicine, 51*(6), 1052-1053. <https://doi.org/10.1017/S0033291720000999>
- Bohren, M. A., Berger, B. O., Munthe-Kaas, H., & Tunçalp, Ö. (2019). Perceptions and experiences of labour companionship: a qualitative evidence synthesis. *The Cochrane Database of Systematic Reviews, 2019*(7). <https://doi.org/10.1002/14651858.CD012449.pub2>

- Bohren, M. A., Hofmeyr, G. J., Sakala, C., Fukuzawa, R. K., & Cuthbert, A. (2017). Continuous support for women during childbirth. *The Cochrane Database of Systematic Reviews*, 7, CD003766. <https://doi.org/10.1002/14651858.CD003766.pub6>
- Branje, S., Keijsers, L., van Doorn, M., & Meeus, W. H. J. (2011). Interpersonal and intrapersonal processes in development of relationships in adolescence. In B. Laursen & W. A. Collins (Eds.), *Relationship Pathways: From Adolescence to Young Adulthood* (pp. 257–286). SAGE Publications, Inc.
- Brewer, N. T., Weinstein, N. D., Cuite, C. L., & Herrington, J. E. (2004). Risk perceptions and their relation to risk behavior. *Annals of Behavioral Medicine*, 27(2), 125-130. [https://doi.org/10.1207/s15324796abm2702\\_7](https://doi.org/10.1207/s15324796abm2702_7)
- Britton, J. R. (2008). Maternal anxiety: course and antecedents during the early postpartum period. *Depression and Anxiety*, 25(9), 793-800. <https://doi.org/10.1002/da.20325>
- Brizio, A., Gabbatore, I., Tirassa, M., & Bosco, F. M. (2015). “No more a child, not yet an adult”: studying social cognition in adolescence. *Frontiers in Psychology*, 6, 1011. <https://doi.org/10.3389/fpsyg.2015.01011>
- Brooks, S. K., Webster, R. K., Smith, L. E., Woodland, L., Wessely, S., Greenberg, N., & Rubin, G. J. (2020). The psychological impact of quarantine and how to reduce it: rapid review of the evidence. *Lancet*, 395(10227), 912-920. [https://doi.org/10.1016/S0140-6736\(20\)30460-8](https://doi.org/10.1016/S0140-6736(20)30460-8)
- Brown, A. (2021). *Covid Babies: How Pandemic Health Measures Undermined Pregnancy, Birth and Early Parenting*. Pinter & Martin Limited.

- Brown, R. I., & Brown, I. (2014). Family Quality of Life. In *Encyclopedia of Quality of Life and Well-Being Research* (pp. 2194-2201). [https://doi.org/10.1007/978-94-007-0753-5\\_1006](https://doi.org/10.1007/978-94-007-0753-5_1006)
- Browning, M., Larson, L. R., Sharaievska, I., Rigolon, A., McAnirlin, O., Mullenbach, L., Cloutier, S., Vu, T. M., Thomsen, J., Reigner, N., Metcalf, E. C., D'Antonio, A., Helbich, M., Bratman, G. N., & Alvarez, H. O. (2021). Psychological impacts from COVID-19 among university students: Risk factors across seven states in the United States. *PLoS One*, *16*(1), e0245327. <https://doi.org/10.1371/journal.pone.0245327>
- Brug, J., Aro, A. R., Oenema, A., de Zwart, O., Richardus, J. H., & Bishop, G. D. (2004). SARS risk perception, knowledge, precautions, and information sources, the Netherlands. *Emerging Infectious Diseases*, *10*(8), 1486-1489. <https://doi.org/10.3201/eid1008.040283>
- Bruine de Bruin, W., & Isaacowitz, D. (2021). Age Differences in COVID-19 Risk Perceptions and Mental Health: Evidence From a National U.S. Survey Conducted in March 2020. *The Journals of Gerontology: Series B*, *76*(2), e24-e29. <https://doi.org/10.1093/geronb/gbaa074>
- Buijs, V. L., Jeronimus, B. F., Lodder, G. M. A., Riediger, M., Luong, G., & Wrzus, C. (2022). Interdependencies between family and friends in daily life: Personality differences and associations with affective well-being across the lifespan. *European Journal of Personality*. <https://doi.org/10.1177/08902070211072745>
- Cacioppo, J. T., Cacioppo, S., Capitanio, J. P., & Cole, S. W. (2015). The Neuroendocrinology of Social Isolation. *Annual Review of Psychology*, *66*(1), 733-767. <https://doi.org/10.1146/annurev-psych-010814-015240>



- Cacioppo, J. T., & Hawkley, L. C. (2009). Perceived social isolation and cognition. *Trends in Cognitive Sciences*, 13(10), 447-454. <https://doi.org/10.1016/j.tics.2009.06.005>
- Campbell, A. M. (2020). An increasing risk of family violence during the Covid-19 pandemic: Strengthening community collaborations to save lives. *Forensic Science International: Reports*, 2, 100089. <https://doi.org/10.1016/j.fsir.2020.100089>
- Canello, R., Soranna, D., Zambra, G., Zambon, A., & Invitti, C. (2020). Determinants of the Lifestyle Changes during COVID-19 Pandemic in the Residents of Northern Italy. *International Journal of Environmental Research and Public Health*, 17(17). <https://doi.org/10.3390/ijerph17176287>
- Caparros-Gonzalez, R. A., & Alderdice, F. (2020). The COVID-19 pandemic and perinatal mental health. *Journal of Reproductive and Infant Psychology* 38(3), 223-225. <https://doi.org/10.1080/02646838.2020.1786910>
- Carducci, A., Fiore, M., Azara, A., Bonaccorsi, G., Bortoletto, M., Caggiano, G., Calamusa, A., De Donno, A., De Giglio, O., Dettori, M., Di Giovanni, P., Di Pietro, A., Facciola, A., Federigi, I., Grappasonni, I., Izzotti, A., Libralato, G., Lorini, C., Montagna, M. T., . . . Ferrante, M. (2019). Environment and health: Risk perception and its determinants among Italian university students. *Science of The Total Environment*, 691, 1162-1172. <https://doi.org/10.1016/j.scitotenv.2019.07.201>
- Carenzo, L., Protti, A., Dalla Corte, F., Aceto, R., Iapichino, G., Milani, A., Santini, A., Chiurazzi, C., Ferrari, M., Heffler, E., Angelini, C., Aghemo, A., Ciccarelli, M., Chiti, A., Iwashyna, T. J., Herridge, M. S., Cecconi, M., & Humanitas COVID-19 Task Force. (2021). Short-term health-related quality of life, physical function and

psychological consequences of severe COVID-19. *Annals of Intensive Care*, 11(1), 91. <https://doi.org/10.1186/s13613-021-00881-x>

Caretti, V., & Crisafi, C. (2009). Fattori di rischio della depressione post partum. [Predictive factors of the postpartum depression.]. *Psichiatria e Psicoterapia*, 28(1), 3-18.

Carfi, A., Bernabei, R., Landi, F., & Gemelli Against COVID-19 Post-Acute Care Study Group. (2020). Persistent Symptoms in Patients After Acute COVID-19. *JAMA*, 324(6), 603-605. <https://doi.org/10.1001/jama.2020.12603>

Carpiniello, B., Pariante, C. M., Serri, F., Costa, G., & Carta, M. G. (2009). Validation of the Edinburgh Postnatal Depression Scale in Italy. *Journal of Psychosomatic Obstetrics & Gynecology*, 18(4), 280-285. <https://doi.org/10.3109/01674829709080700>

Casey, B. J., Jones, R. M., Levita, L., Libby, V., Pattwell, S. S., Ruberry, E. J., Soliman, F., & Somerville, L. H. (2010). The storm and stress of adolescence: insights from human imaging and mouse genetics. *Developmental Psychobiology*, 52(3), 225-235. <https://doi.org/10.1002/dev.20447>

Cedrone, F., Greco, E., & De Sio, S. (2017). Benessere nei luoghi di lavoro: valutazione della percezione attraverso la somministrazione del questionario WHO-5 Well-being Index. *Salute E Società*(3), 136-147. <https://doi.org/10.3280/ses2017-su3009>

Ceulemans, M., Foulon, V., Ngo, E., Panchaud, A., Winterfeld, U., Pomar, L., Lambelet, V., Cleary, B., O'Shaughnessy, F., Passier, A., Richardson, J. L., Hompes, T., & Nordeng, H. (2021). Mental health status of pregnant and breastfeeding women during the COVID-19 pandemic-A multinational cross-sectional study. *Acta*

*Obstetricia et Gynecologica Scandinavica*, 100(7), 1219-1229.  
<https://doi.org/10.1111/aogs.14092>

Chamberlain, S. R., Grant, J. E., Trender, W., Hellyer, P., & Hampshire, A. (2021). Post-traumatic stress disorder symptoms in COVID-19 survivors: online population survey. *BJPsych Open*, 7(2), e47. <https://doi.org/10.1192/bjo.2021.3>

Chatterjee, K., & Chauhan, V. S. (2020). Epidemics, quarantine and mental health. *Medical Journal Armed Forces India*, 76(2), 125-127.  
<https://doi.org/10.1016/j.mjafi.2020.03.017>

Cheng, E. R., Rifas-Shiman, S. L., Perkins, M. E., Rich-Edwards, J. W., Gillman, M. W., Wright, R., & Taveras, E. M. (2016). The Influence of Antenatal Partner Support on Pregnancy Outcomes. *Journal of Women's Health*, 25(7), 672-679.  
<https://doi.org/10.1089/jwh.2015.5462>

Chirico, F., Sacco, A., Nucera, G., & Magnavita, N. (2021). Coronavirus disease 2019: the second wave in Italy. *Journal of Health Research*, 35(4), 359-363.  
<https://doi.org/10.1108/jhr-10-2020-0514>

Chivers, B. R., Garad, R. M., Boyle, J. A., Skouteris, H., Teede, H. J., & Harrison, C. L. (2020). Perinatal Distress During COVID-19: Thematic Analysis of an Online Parenting Forum. *Journal of Medical Internet Research*, 22(9).  
<https://doi.org/10.2196/22002>

Christensen, K. S., Haugen, W., Sirpal, M. K., & Haavet, O. R. (2015). Diagnosis of depressed young people--criterion validity of WHO-5 and HSCL-6 in Denmark and Norway. *Family Practice*, 32(3), 359-363. <https://doi.org/10.1093/fampra/cmz011>

- Cockerham, D., Lin, L., Ndolo, S., & Schwartz, M. (2021). Voices of the students: Adolescent well-being and social interactions during the emergent shift to online learning environments. *Education and Information Technologies, 26*(6), 7523-7541. <https://doi.org/10.1007/s10639-021-10601-4>
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Routledge.
- Cohen, R. L. (1988). Developmental Tasks of Pregnancy and Transition to Parenthood. In *Psychiatric Consultation in Childbirth Settings* (pp. 51-70). [https://doi.org/10.1007/978-1-4684-5439-0\\_5](https://doi.org/10.1007/978-1-4684-5439-0_5)
- Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin, 98*(2), 310-357. <https://doi.org/10.1037/0033-2909.98.2.310>
- Collins, W. A., & Steinberg, L. (2007). Adolescent development in interpersonal context. In *Handbook of child psychology* (Vol. 3). John Wiley & Sons.
- Commodari, E. (2017). The Role of Sociodemographic and Psychological Variables on Risk Perception of the Flu. *SAGE Open, 7*(3). <https://doi.org/10.1177/2158244017718890>
- Commodari, E., & La Rosa, V. L. (2020). Adolescents in Quarantine During COVID-19 Pandemic in Italy: Perceived Health Risk, Beliefs, Psychological Experiences and Expectations for the Future. *Frontiers in Psychology, 11*, 559951. <https://doi.org/10.3389/fpsyg.2020.559951>
- Commodari, E., La Rosa, V. L., & Coniglio, M. A. (2020). Health risk perceptions in the era of the new coronavirus: Are the Italian people ready for a novel virus? A cross sectional study on perceived personal and comparative susceptibility for infectious diseases. *Public Health, 187*, 8-14. <https://doi.org/10.1016/j.puhe.2020.07.036>

- Cooper, K., Hards, E., Moltrecht, B., Reynolds, S., Shum, A., McElroy, E., & Loades, M. (2021). Loneliness, social relationships, and mental health in adolescents during the COVID-19 pandemic. *Journal of Affective Disorders, 289*, 98-104. <https://doi.org/10.1016/j.jad.2021.04.016>
- Coplan, R. J., Bowker, J. C., & Nelson, L. J. (2021). *The Handbook of Solitude: Psychological Perspectives on Social Isolation, Social Withdrawal, and Being Alone* (2nd ed.). Wiley-Blackwell.
- Cortese, S., Asherson, P., Sonuga-Barke, E., Banaschewski, T., Brandeis, D., Buitelaar, J., Coghill, D., Daley, D., Danckaerts, M., Dittmann, R. W., Doepfner, M., Ferrin, M., Hollis, C., Holtmann, M., Konofal, E., Lecendreux, M., Santosh, P., Rothenberger, A., Soutullo, C., . . . Simonoff, E. (2020). ADHD management during the COVID-19 pandemic: guidance from the European ADHD Guidelines Group. *The Lancet Child & Adolescent Health, 4*(6), 412-414. [https://doi.org/10.1016/s2352-4642\(20\)30110-3](https://doi.org/10.1016/s2352-4642(20)30110-3)
- Costa, P. T., & McCrae, R. R. (1980). Influence of extraversion and neuroticism on subjective well-being: Happy and unhappy people. *Journal of Personality and Social Psychology, 38*(4), 668-678. <https://doi.org/10.1037//0022-3514.38.4.668>
- Coverdale, G. E., & Long, A. F. (2015). Emotional wellbeing and mental health: an exploration into health promotion in young people and families. *Perspectives in Public Health, 135*(1), 27-36. <https://doi.org/10.1177/1757913914558080>
- Cox, J. L., Holden, J. M., & Sagovsky, R. (1987). Detection of postnatal depression. Development of the 10-item Edinburgh Postnatal Depression Scale. *The British Journal of Psychiatry, 150*(6), 782-786. <https://doi.org/10.1192/bjp.150.6.782>

- Coxon, K., Turienzo, C. F., Kweekel, L., Goodarzi, B., Brigante, L., Simon, A., & Lanau, M. M. (2020). The impact of the coronavirus (COVID-19) pandemic on maternity care in Europe. *Midwifery*, 88, 102779. <https://doi.org/10.1016/j.midw.2020.102779>
- Craparo, G., Faraci, P., Rotondo, G., & Gori, A. (2013). The Impact of Event Scale - Revised: psychometric properties of the Italian version in a sample of flood victims. *Neuropsychiatric Disease and Treatment*, 9, 1427-1432. <https://doi.org/10.2147/NDT.S51793>
- Craparo, G., La Rosa, V. L., Marino, G., Vezzoli, M., Cina, G. S., Colombi, M., Arcoleo, G., Severino, M., Costanzo, G., & Mangiapane, E. (2022). Risk of post-traumatic stress symptoms in hospitalized and non-hospitalized COVID-19 recovered patients. A cross-sectional study. *Psychiatry Research*, 308, 114353. <https://doi.org/10.1016/j.psychres.2021.114353>
- Creamer, M., Bell, R., & Failla, S. (2003). Psychometric properties of the Impact of Event Scale - Revised. *Behaviour Research and Therapy*, 41(12), 1489-1496. <https://doi.org/10.1016/j.brat.2003.07.010>
- Cucinotta, D., & Vanelli, M. (2020). WHO Declares COVID-19 a Pandemic. *Acta Biomedica*, 91(1), 157-160. <https://doi.org/10.23750/abm.v91i1.9397>
- Curry, L. A., & Youngblade, L. M. (2006). Negative affect, risk perception, and adolescent risk behavior. *Journal of Applied Developmental Psychology*, 27(5), 468-485. <https://doi.org/10.1016/j.appdev.2006.06.001>
- D'Addio, A. C., & Endrizzi, F. (2020). *Covid-19: How is Italy coping with school closure?* Retrieved 2 April from <https://gemreportunesco.wordpress.com/2020/04/02/covid-19-how-is-italy-coping-with-school-closure/>

- Dabrassi, F., Imbasciati, A., & Della Vedova, A. M. (2009). Il Supporto Sociale in Gravidanza: Validazione italiana e valutazione dello strumento. *Giornale di Psicologia*, 3(2), 141-151.
- Dalbudak, E., Evren, C., Aldemir, S., Coskun, K. S., Yildirim, F. G., & Ugurlu, H. (2013). Alexithymia and personality in relation to social anxiety among university students. *Psychiatry Research*, 209(2), 167-172. <https://doi.org/10.1016/j.psychres.2012.11.027>
- Davenport, M. H., Meyer, S., Meah, V. L., Strynadka, M. C., & Khurana, R. (2020). Moms Are Not OK: COVID-19 and Maternal Mental Health. *Frontiers in Global Women's Health*, 1, 1. <https://doi.org/10.3389/fgwh.2020.00001>
- De Goede, I. H. A., Branje, S. J. T., & Meeus, W. H. J. (2009). Developmental changes and gender differences in adolescents' perceptions of friendships. *Journal of Adolescence*, 32(5), 1105-1123. <https://doi.org/10.1016/j.adolescence.2009.03.002>
- de Zwart, O., Veldhuijzen, I. K., Elam, G., Aro, A. R., Abraham, T., Bishop, G. D., Voeten, H. A., Richardus, J. H., & Brug, J. (2009). Perceived threat, risk perception, and efficacy beliefs related to SARS and other (emerging) infectious diseases: results of an international survey. *International Journal of Behavioral Medicine*, 16(1), 30-40. <https://doi.org/10.1007/s12529-008-9008-2>
- de Zwart, O., Veldhuijzen, I. K., Richardus, J. H., & Brug, J. (2010). Monitoring of risk perceptions and correlates of precautionary behaviour related to human avian influenza during 2006 - 2007 in the Netherlands: results of seven consecutive surveys. *BMC Infectious Diseases*, 10, 114. <https://doi.org/10.1186/1471-2334-10-114>

- Della Corte, L., La Rosa, V. L., Cassinese, E., Ciebiera, M., Zaręba, K., De Rosa, N., Verrazzo, P., Improda, F. P., Vitale, S. G., Giampaolino, P., Commodari, E., & Bifulco, G. (2022). Prevalence and associated psychological risk factors of postpartum depression: a cross-sectional study. *Journal of Obstetrics and Gynaecology*, 42(5), 976-980. <https://doi.org/10.1080/01443615.2021.1980512>
- DeVellis, R. F. (2021). *Scale development: theory and applications* (5th ed.). SAGE.
- Di Giacomo, D. (2020). Public Health emergencies and quarantine: virtual patient engagement as challenge and opportunity for Mental Health strategy. *Mediterranean Journal of Clinical Psychology*, 8(2). <https://doi.org/https://doi.org/10.6092/2282-1619/mjcp-2533>
- Di Gialleonardo, L., Mare, M., Motroni, A., & Porcelli, F. (2020). Family ties and the pandemic: Some evidence from Sars-CoV-2. *Working Paper MEFOP*, 46, 1-34.
- Di Santo, D., Chernikova, M., Kruglanski, A. W., & Pierro, A. (2020). Does inconsistency always lead to negative affect? The influence of need for closure on affective reactions to cognitive inconsistency. *International Journal of Psychology*, 55(5), 882-890. <https://doi.org/10.1002/ijop.12652>
- Di Vita, A. M., Ciulla, A., Miano, P., & Vinciguerra, M. (2013). Maternal representations and risk factors for depression in the migration process. *Rivista di Psicologia Clinica*, 2, 96-105.
- Dib, S., Rougeaux, E., Vázquez-Vázquez, A., Wells, J. C. K., & Fewtrell, M. (2020). Maternal mental health and coping during the COVID-19 lockdown in the UK: Data from the COVID-19 New Mum Study. *International Journal of Gynecology & Obstetrics*, 151(3), 407-414. <https://doi.org/10.1002/ijgo.13397>



- Dillard, A. J., McCaul, K. D., & Klein, W. M. P. (2006). Unrealistic Optimism in Smokers: Implications for Smoking Myth Endorsement and Self-Protective Motivation. *Journal of Health Communication, 11*(Suppl 1), 93-102. <https://doi.org/10.1080/10810730600637343>
- Dillard, A. J., Midboe, A. M., & Klein, W. M. P. (2009). The Dark Side of Optimism: Unrealistic Optimism About Problems With Alcohol Predicts Subsequent Negative Event Experiences. *Personality and Social Psychology Bulletin, 35*(11), 1540-1550. <https://doi.org/10.1177/0146167209343124>
- Dolinski, D., Dolinska, B., Zmaczynska-Witek, B., Banach, M., & Kulesza, W. (2020). Unrealistic Optimism in the Time of Coronavirus Pandemic: May It Help to Kill, If So-Whom: Disease or the Person? *Journal of Clinical Medicine, 9*(5), 1464. <https://doi.org/10.3390/jcm9051464>
- Ebrahim, A. H., Dhahi, A., Husain, M. A., & Jahrami, H. (2022). The Psychological Well-Being of University Students amidst COVID-19 Pandemic: Scoping review, systematic review and meta-analysis. *Sultan Qaboos University Medical Journal, 22*(2), 179-197. <https://doi.org/10.18295/squmj.6.2021.081>
- Ecker, J. L., & Minkoff, H. L. (2020). Laboring alone? Brief thoughts on ethics and practical answers during the coronavirus disease 2019 pandemic. *American Journal of Obstetrics and Gynecology MFM, 2*(3), 100141. <https://doi.org/10.1016/j.ajogmf.2020.100141>
- Ellis, W. E., & Zarbatany, L. (2017). Understanding Processes of Peer Clique Influence in Late Childhood and Early Adolescence. *Child Development Perspectives, 11*(4), 227-232. <https://doi.org/10.1111/cdep.12248>

- Epifanio, M. S., Andrei, F., Mancini, G., Agostini, F., Piombo, M. A., Spicuzza, V., Riolo, M., Lavanco, G., Trombini, E., & La Grutta, S. (2021). The Impact of COVID-19 Pandemic and Lockdown Measures on Quality of Life among Italian General Population. *Journal of Clinical Medicine*, *10*(2), 289. <https://doi.org/10.3390/jcm10020289>
- Erikson, E. H. (1982). *The life cycle completed: a review* (1st ed.). Norton.
- Evans, S., Mikocka-Walus, A., Klas, A., Olive, L., Sciberras, E., Karantzas, G., & Westrupp, E. M. (2020). From “It Has Stopped Our Lives” to “Spending More Time Together Has Strengthened Bonds”: The Varied Experiences of Australian Families During COVID-19. *Frontiers in Psychology*, *11*, 588667. <https://doi.org/10.3389/fpsyg.2020.588667>
- Ewing, L., Hamza, C. A., & Willoughby, T. (2019). Stressful Experiences, Emotion Dysregulation, and Nonsuicidal Self-Injury among University Students. *Journal of Youth and Adolescence*, *48*(7), 1379-1389. <https://doi.org/10.1007/s10964-019-01025-y>
- Fairbrother, N., Young, A. H., Zhang, A., Janssen, P., & Antony, M. M. (2016). The prevalence and incidence of perinatal anxiety disorders among women experiencing a medically complicated pregnancy. *Archives of Women's Mental Health*, *20*(2), 311-319. <https://doi.org/10.1007/s00737-016-0704-7>
- Fallon, V., Davies, S. M., Silverio, S. A., Jackson, L., De Pascalis, L., & Harrold, J. A. (2021). Psychosocial experiences of postnatal women during the COVID-19 pandemic. A UK-wide study of prevalence rates and risk factors for clinically

- relevant depression and anxiety. *Journal of Psychiatric Research*, 136, 157-166.  
<https://doi.org/10.1016/j.jpsychires.2021.01.048>
- Fallon, V., Halford, J. C. G., Bennett, K. M., & Harrold, J. A. (2016). The Postpartum Specific Anxiety Scale: development and preliminary validation. *Archives of Women's Mental Health*, 19(6), 1079-1090. <https://doi.org/10.1007/s00737-016-0658-9>
- Fernandes, C. S., Magalhães, B., Silva, S., & Edra, B. (2021). Adaptability and cohesion of families in times of the COVID-19 pandemic. *Nursing Practice Today*, 8(3), 234-243. <https://doi.org/10.18502/npt.v8i3.5938>
- Fernández-Aranda, F., Casas, M., Claes, L., Bryan, D. C., Favaro, A., Granero, R., Gudiol, C., Jiménez-Murcia, S., Karwautz, A., Le Grange, D., Menchón, J. M., Tchanturia, K., & Treasure, J. (2020). COVID-19 and implications for eating disorders. *European Eating Disorders Review*, 28(3), 239-245. <https://doi.org/10.1002/erv.2738>
- Ferrara, P., Franceschini, G., Corsello, G., Mestrovic, J., Giardino, I., Vural, M., Pop, T. L., Namazova-Baranova, L., Somekh, E., Indrio, F., & Pettoello-Mantovani, M. (2021). Effects of Coronavirus Disease 2019 (COVID-19) on Family Functioning. *The Journal of Pediatrics*, 237, 322-323. <https://doi.org/10.1016/j.jpeds.2021.06.082>
- Ferraro, F. V., Ambra, F. I., Aruta, L., & Iavarone, M. L. (2020). Distance Learning in the COVID-19 Era: Perceptions in Southern Italy. *Education Sciences*, 10(12), 355. <https://doi.org/10.3390/educsci10120355>
- Ferrer, R., & Klein, W. M. (2015). Risk perceptions and health behavior. *Current Opinion in Psychology*, 5, 85-89. <https://doi.org/10.1016/j.copsy.2015.03.012>

- Fok, C. C. T., Allen, J., Henry, D., & People Awakening Team. (2011). The Brief Family Relationship Scale: A Brief Measure of the Relationship Dimension in Family Functioning. *Assessment*, *21*(1), 67-72. <https://doi.org/10.1177/1073191111425856>
- Ford, E., & Ayers, S. (2011). Support during birth interacts with prior trauma and birth intervention to predict postnatal post-traumatic stress symptoms. *Psychology & Health* *26*(12), 1553-1570. <https://doi.org/10.1080/08870446.2010.533770>
- Ford, E., Ayers, S., & Bradley, R. (2010). Exploration of a cognitive model to predict post-traumatic stress symptoms following childbirth. *Journal of Anxiety Disorders*, *24*(3), 353-359. <https://doi.org/10.1016/j.janxdis.2010.01.008>
- Fornari, F. (1977). Il significato psicoanalitico del parto senza violenza. *Bollettino SIPPO*, *1*, 1-2.
- Fosco, G. M., Sloan, C. J., Fang, S., & Feinberg, M. E. (2021). Family vulnerability and disruption during the COVID-19 pandemic: prospective pathways to child maladjustment. *Journal of Child Psychology and Psychiatry*, *63*(1), 47-57. <https://doi.org/10.1111/jcpp.13458>
- Freund, A. M., & Baltes, P. B. (2000). The orchestration of selection, optimization and compensation: An action–theoretical conceptualization of a theory of developmental regulation. In *Control of human behavior, mental processes, and consciousness: Essays in honor of the 60th birthday of August Flammer*. (pp. 35-58). Lawrence Erlbaum Associates Publishers.
- Fuller-Iglesias, H. R., Webster, N. J., & Antonucci, T. C. (2015). The complex nature of family support across the life span: Implications for psychological well-being. *Developmental Psychology*, *51*(3), 277-288. <https://doi.org/10.1037/a0038665>

- Gao, Z., Xu, Y., Sun, C., Wang, X., Guo, Y., Qiu, S., & Ma, K. (2021). A systematic review of asymptomatic infections with COVID-19. *Journal of Microbiology, Immunology and Infection*, 54(1), 12-16. <https://doi.org/10.1016/j.jmii.2020.05.001>
- Gayatri, M., & Irawaty, D. K. (2021). Family Resilience during COVID-19 Pandemic: A Literature Review. *The Family Journal*, 30(2), 132-138. <https://doi.org/10.1177/10664807211023875>
- Gittings, L., Toska, E., Medley, S., Cluver, L., Logie, C. H., Ralayo, N., Chen, J., & Mbithi-Dikgole, J. (2021). ‘Now my life is stuck!’: Experiences of adolescents and young people during COVID-19 lockdown in South Africa. *Global Public Health*, 16(6), 947-963. <https://doi.org/10.1080/17441692.2021.1899262>
- Gramaglia, C., Gambaro, E., Bellan, M., Balbo, P. E., Baricich, A., Sainaghi, P. P., Pirisi, M., Baldon, G., Battistini, S., Binda, V., Feggi, A., Gai, M., Gattoni, E., Jona, A., Lorenzini, L., Marangon, D., Martelli, M., Prosperini, P., Zeppegno, P., & NO-MORE COVID Group. (2021). Mid-term Psychiatric Outcomes of Patients Recovered From COVID-19 From an Italian Cohort of Hospitalized Patients. *Frontiers in Psychiatry*, 12, 667385. <https://doi.org/10.3389/fpsy.2021.667385>
- Greenberg, N., & Rafferty, L. (2021). Post-traumatic stress disorder in the aftermath of COVID-19 pandemic. *World Psychiatry*, 20(1), 53-54. <https://doi.org/10.1002/wps.20838>
- Grupe, D. W., & Nitschke, J. B. (2013). Uncertainty and anticipation in anxiety: an integrated neurobiological and psychological perspective. *Nature Reviews Neuroscience*, 14(7), 488-501. <https://doi.org/10.1038/nrn3524>

- Hakami, Z., Khanagar, S. B., Vishwanathaiah, S., Hakami, A., Bokhari, A. M., Jabali, A. H., Alasmari, D., & Aldrees, A. M. (2020). Psychological impact of the coronavirus disease 2019 (COVID-19) pandemic on dental students: A nationwide study. *Journal of Dental Education, 85*(4), 494-503. <https://doi.org/10.1002/jdd.12470>
- Hall, E. D., Earle, K., Silverstone, J., Immel, M., Carlisle, M., & Campbell, N. (2022). Changes in family communication during the COVID-19 pandemic: the role of family communication patterns and relational distance. *Communication Research Reports, 39*(1), 56-67. <https://doi.org/10.1080/08824096.2021.2025045>
- Hamaideh, S. H. (2018). Alexithymia among Jordanian university students: Its prevalence and correlates with depression, anxiety, stress, and demographics. *Perspectives in Psychiatric Care, 54*(2), 274-280. <https://doi.org/10.1111/ppc.12234>
- Hamza, C. A., & Willoughby, T. (2018). A lab-based study exploring the associations among nonsuicidal self-injury, pain, and emotion among university students. *Psychiatry Research, 269*, 462-468. <https://doi.org/10.1016/j.psychres.2018.08.096>
- Han, Q., Zheng, B., Agostini, M., Bélanger, J. J., Gützkow, B., Kreienkamp, J., Reitsema, A. M., van Breen, J. A., PsyCorona Collaboration, & Leander, N. P. (2021). Associations of risk perception of COVID-19 with emotion and mental health during the pandemic. *Journal of Affective Disorders, 284*, 247-255. <https://doi.org/10.1016/j.jad.2021.01.049>
- Hao, F., Tan, W., Jiang, L., Zhang, L., Zhao, X., Zou, Y., Hu, Y., Luo, X., Jiang, X., McIntyre, R. S., Tran, B., Sun, J., Zhang, Z., Ho, R., Ho, C., & Tam, W. (2020). Do psychiatric patients experience more psychiatric symptoms during COVID-19 pandemic and lockdown? A case-control study with service and research

- implications for immunopsychiatry. *Brain, Behavior, and Immunity*, 87, 100-106.  
<https://doi.org/10.1016/j.bbi.2020.04.069>
- Harries, A. J., Lee, C., Jones, L., Rodriguez, R. M., Davis, J. A., Boysen-Osborn, M., Kashima, K. J., Krane, N. K., Rae, G., Kman, N., Langsfeld, J. M., & Juarez, M. (2021). Effects of the COVID-19 pandemic on medical students: a multicenter quantitative study. *BMC Medical Education*, 21(1), 14.  
<https://doi.org/10.1186/s12909-020-02462-1>
- Harris, C. R., Jenkins, M., & Glaser, D. (2006). Gender differences in risk assessment: Why do women take fewer risks than men? *Judgment and Decision Making*, 1(1), 48-63.
- Harter, S. (2015). *The construction of the self: Developmental and sociocultural foundations*. Guilford Publications.
- Hawryluck, L., Gold, W. L., Robinson, S., Pogorski, S., Galea, S., & Styra, R. (2004). SARS control and psychological effects of quarantine, Toronto, Canada. *Emerging Infectious Diseases*, 10(7), 1206-1212. <https://doi.org/10.3201/eid1007.030703>
- Hayes, A. F. (2015). *The PROCESS macro for SPSS and SAS*. In [www.processmacro.org](http://www.processmacro.org)
- Hedges, L. V. (1981). Distribution Theory for Glass's Estimator of Effect size and Related Estimators. *Journal of Educational Statistics*, 6(2), 107-128.  
<https://doi.org/10.3102/10769986006002107>
- Herridge, M. S., Tansey, C. M., Matte, A., Tomlinson, G., Diaz-Granados, N., Cooper, A., Guest, C. B., Mazer, C. D., Mehta, S., Stewart, T. E., Kudlow, P., Cook, D., Slutsky, A. S., Cheung, A. M., & Canadian Critical Care Trials Group. (2011). Functional

- disability 5 years after acute respiratory distress syndrome. *The New England Journal of Medicine*, 364(14), 1293-1304. <https://doi.org/10.1056/NEJMoa1011802>
- Hessami, K., Romanelli, C., Chiurazzi, M., & Cozzolino, M. (2022). COVID-19 pandemic and maternal mental health: a systematic review and meta-analysis. *The Journal of Maternal-Fetal & Neonatal Medicine*, 35(20), 4014-4021. <https://doi.org/10.1080/14767058.2020.1843155>
- Hevey, D., McGee, H. M., & Horgan, J. H. (2012). Comparative optimism among patients with coronary heart disease (CHD) is associated with fewer adverse clinical events 12 months later. *Journal of Behavioral Medicine*, 37(2), 300-307. <https://doi.org/10.1007/s10865-012-9487-0>
- Higuchi, S., Mihara, S., Kitayuguchi, T., Miyakoshi, H., Ooi, M., Maezono, M., Nishimura, K., & Matsuzaki, T. (2020). Prolonged use of Internet and gaming among treatment seekers arising out of social restrictions related to COVID-19 pandemic. *Psychiatry and Clinical Neurosciences*, 74(11), 607-608. <https://doi.org/10.1111/pcn.13127>
- Hu, L. t., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, 6(1), 1-55. <https://doi.org/10.1080/10705519909540118>
- Hu, N., Li, Y., He, S.-S., Wang, L.-L., Wei, Y.-Y., Yin, L., & Chen, J.-X. (2020). Impact of the Family Environment on the Emotional State of Medical Staff During the COVID-19 Outbreak: The Mediating Effect of Self-Efficacy. *Frontiers in Psychology*, 11, 576515. <https://doi.org/10.3389/fpsyg.2020.576515>



- Huang, C., Huang, L., Wang, Y., Li, X., Ren, L., Gu, X., Kang, L., Guo, L., Liu, M., Zhou, X., Luo, J., Huang, Z., Tu, S., Zhao, Y., Chen, L., Xu, D., Li, Y., Li, C., Peng, L., . . . Cao, B. (2021). 6-month consequences of COVID-19 in patients discharged from hospital: a cohort study. *Lancet*, *397*(10270), 220-232. [https://doi.org/10.1016/S0140-6736\(20\)32656-8](https://doi.org/10.1016/S0140-6736(20)32656-8)
- Huang, Y., & Zhao, N. (2020). Generalized anxiety disorder, depressive symptoms and sleep quality during COVID-19 outbreak in China: a web-based cross-sectional survey. *Psychiatry Research*, *288*, 112954. <https://doi.org/10.1016/j.psychres.2020.112954>
- Ibuka, Y., Chapman, G. B., Meyers, L. A., Li, M., & Galvani, A. P. (2010). The dynamics of risk perceptions and precautionary behavior in response to 2009 (H1N1) pandemic influenza. *BMC Infectious Diseases*, *10*, 296. <https://doi.org/10.1186/1471-2334-10-296>
- Inversetti, A., Fumagalli, S., Nespoli, A., Antolini, L., Mussi, S., Ferrari, D., & Locatelli, A. (2021). Childbirth experience and practice changing during COVID-19 pandemic: A cross-sectional study. *Nursing Open*, *8*(6), 3627-3634. <https://doi.org/10.1002/nop2.913>
- Iqbal, S., Gupta, S., & Venkatarao, E. (2015). Stress, anxiety and depression among medical undergraduate students and their socio-demographic correlates. *Indian Journal of Medical Research*, *141*(3), 354-357. <https://doi.org/10.4103/0971-5916.156571>
- Islam, M. A., Barna, S. D., Raihan, H., Khan, M. N. A., & Hossain, M. T. (2020). Depression and anxiety among university students during the COVID-19 pandemic in Bangladesh: A web-based cross-sectional survey. *PLoS One*, *15*(8), e0238162. <https://doi.org/10.1371/journal.pone.0238162>

- Italian Ministry of Health. (2020). *Novel Coronavirus*. Retrieved 3 September from <http://www.salute.gov.it/portale/nuovocoronavirus/homeNuovoCoronavirus.jsp?lingua=English>
- Johansson, M., Benderix, Y., & Svensson, I. (2020). Mothers' and fathers' lived experiences of postpartum depression and parental stress after childbirth: a qualitative study. *International Journal of Qualitative Studies on Health and Well-being*, 15(1). <https://doi.org/10.1080/17482631.2020.1722564>
- Johnson, R. J., McCaul, K. D., & Klein, W. M. (2002). Risk involvement and risk perception among adolescents and young adults. *Journal of Behavioral Medicine*, 25(1), 67-82. <https://doi.org/10.1023/a:1013541802282>
- Jones, H. E., Manze, M., Ngo, V., Lamberson, P., & Freudenberg, N. (2021). The Impact of the COVID-19 Pandemic on College Students' Health and Financial Stability in New York City: Findings from a Population-Based Sample of City University of New York (CUNY) Students. *Journal of Urban Health*, 98(2), 187-196. <https://doi.org/10.1007/s11524-020-00506-x>
- Jones, K., Harrison, V., Moulds, M. L., & Lazard, L. (2022). A qualitative analysis of feelings and experiences associated with perinatal distress during the COVID-19 pandemic. *BMC Pregnancy and Childbirth*, 22(1), 572. <https://doi.org/10.1186/s12884-022-04876-9>
- Kao, T.-S. A., & Caldwell, C. H. (2017). Family Efficacy within Ethnically Diverse Families: A Qualitative Study. *Family Process*, 56(1), 217-233. <https://doi.org/10.1111/famp.12149>

- Kaparounaki, C. K., Patsali, M. E., Mousa, D. V., Papadopoulou, E. V. K., Papadopoulou, K. K. K., & Fountoulakis, K. N. (2020). University students' mental health amidst the COVID-19 quarantine in Greece. *Psychiatry Research*, *290*, 113111. <https://doi.org/10.1016/j.psychres.2020.113111>
- Keijsers, L., & Bülow, A. (2021). Growing Up in Times of COVID-19: When a Window of Opportunity is Temporarily Closed. In *The New Common* (pp. 117-123). [https://doi.org/10.1007/978-3-030-65355-2\\_17](https://doi.org/10.1007/978-3-030-65355-2_17)
- Keijsers, L., & Poulin, F. (2013). Developmental changes in parent–child communication throughout adolescence. *Developmental Psychology*, *49*(12), 2301-2308. <https://doi.org/10.1037/a0032217>
- Kharm, M. Y., Koussa, B., Aldwaik, A., Yaseen, J., Alamari, S., Alras, H., & Almech, M. (2020). Assessment of Anxiety and Stress among Dental Students to Return to Training in Dental College in COVID-19 Era. *European Journal of Dentistry*, *14*(S 01), S86-S90. <https://doi.org/10.1055/s-0040-1717052>
- King, D. L., Delfabbro, P. H., Billieux, J., & Potenza, M. N. (2020). Problematic online gaming and the COVID-19 pandemic. *Journal of Behavioral Addictions*, *9*(2), 184-186. <https://doi.org/10.1556/2006.2020.00016>
- Klaus, M. H., & Kennell, J. H. (1976). *Maternal-infant bonding*. Mosby.
- Koffman, J., Gross, J., Etkind, S. N., & Selman, L. (2020a). Uncertainty and COVID-19: how are we to respond? *Journal of the Royal Society of Medicine*, *113*(6), 211-216. <https://doi.org/10.1177/0141076820930665>

- Koffman, J., Gross, J., Etkind, S. N., & Selman, L. E. (2020b). Clinical uncertainty and Covid-19: Embrace the questions and find solutions. *Palliative Medicine*, *34*(7), 829-831. <https://doi.org/10.1177/0269216320933750>
- Kolifarhood, G., Aghaali, M., Mozafar Saadati, H., Taherpour, N., Rahimi, S., Izadi, N., & Hashemi Nazari, S. S. (2020). Epidemiological and Clinical Aspects of COVID-19; a Narrative Review. *Archives of Academic Emergency Medicine*, *8*(1), e41. <https://www.ncbi.nlm.nih.gov/pubmed/32259130>
- Kotlar, B., Gerson, E., Petrillo, S., Langer, A., & Tiemeier, H. (2021). The impact of the COVID-19 pandemic on maternal and perinatal health: a scoping review. *Reproductive Health*, *18*(1), 10. <https://doi.org/10.1186/s12978-021-01070-6>
- Křeménková, L., Novotný, J. S., & Kvintová, J. (2021). Two Waves of COVID-19 in University Setting: Mental Health and Underlying Risk Factors. *Frontiers in Psychology*, *12*, 780071. <https://doi.org/10.3389/fpsyg.2021.780071>
- Kristiansen, I. S., Halvorsen, P. A., & Gyrd-Hansen, D. (2007). Influenza pandemic: perception of risk and individual precautions in a general population. Cross sectional study. *BMC Public Health*, *7*(1), 48. <https://doi.org/10.1186/1471-2458-7-48>
- La Greca, A. M., & Harrison, H. M. (2005). Adolescent Peer Relations, Friendships, and Romantic Relationships: Do They Predict Social Anxiety and Depression? *Journal of Clinical Child & Adolescent Psychology*, *34*(1), 49-61. [https://doi.org/10.1207/s15374424jccp3401\\_5](https://doi.org/10.1207/s15374424jccp3401_5)
- La Rosa, V. L., Gori, A., Faraci, P., Vicario, C. M., & Craparo, G. (2021). Traumatic Distress, Alexithymia, Dissociation, and Risk of Addiction During the First Wave of COVID-19 in Italy: Results from a Cross-sectional Online Survey on a Non-clinical

- Adult Sample. *International Journal of Mental Health and Addiction*, 1-17.  
<https://doi.org/10.1007/s11469-021-00569-0>
- Lebel, C., MacKinnon, A., Bagshawe, M., Tomfohr-Madsen, L., & Giesbrecht, G. (2020). Elevated depression and anxiety symptoms among pregnant individuals during the COVID-19 pandemic. *Journal of Affective Disorders*, 277, 5-13.  
<https://doi.org/10.1016/j.jad.2020.07.126>
- Lei, X. (2018). Study on Relationship Between Family Cohesion and Adaptability, and Quality of Life of Caregivers of Children With ASD. *Social welfare : interdisciplinary approach*, 8(1), 132-143. <https://doi.org/10.21277/sw.v1i8.340>
- Lemme, B. H. (2006). *Development in adulthood* (4th ed.). Pearson/A&B.
- Lerner, R. M., & Steinberg, L. D. (2009). *Handbook of adolescent psychology* (3rd ed.). John Wiley & Sons.
- Lerner, R. M., Wertlieb, D., & Jacobs, F. (2005). Historical and Theoretical Bases of Applied Developmental Science. In *Applied Developmental Science: An Advanced Textbook* (pp. 3-30). <https://doi.org/10.4135/9781452233512.n1>
- Li, J., Xia, Y., Cheng, X., & Li, S. (2020). Fear of Uncertainty Makes You More Anxious? Effect of Intolerance of Uncertainty on College Students' Social Anxiety: A Moderated Mediation Model. *Frontiers in Psychology*, 11, 565107.  
<https://doi.org/10.3389/fpsyg.2020.565107>
- Li, S. H., Beames, J. R., Newby, J. M., Maston, K., Christensen, H., & Werner-Seidler, A. (2022). The impact of COVID-19 on the lives and mental health of Australian

- adolescents. *European Child & Adolescent Psychiatry*, 31, 1465–1477.  
<https://doi.org/10.1007/s00787-021-01790-x>
- Lista, G., & Bresesti, I. (2020). Fatherhood during the COVID-19 pandemic: an unexpected turnaround. *Early Human Development*, 144, 105048.  
<https://doi.org/10.1016/j.earlhumdev.2020.105048>
- Liu, N., Zhang, F., Wei, C., Jia, Y., Shang, Z., Sun, L., Wu, L., Sun, Z., Zhou, Y., Wang, Y., & Liu, W. (2020). Prevalence and predictors of PTSS during COVID-19 outbreak in China hardest-hit areas: Gender differences matter. *Psychiatry Research*, 287, 112921. <https://doi.org/10.1016/j.psychres.2020.112921>
- Liu, X., Kakade, M., Fuller, C. J., Fan, B., Fang, Y., Kong, J., Guan, Z., & Wu, P. (2012). Depression after exposure to stressful events: lessons learned from the severe acute respiratory syndrome epidemic. *Comprehensive Psychiatry*, 53(1), 15-23.  
<https://doi.org/10.1016/j.comppsy.2011.02.003>
- Liu, X., Liu, J., & Zhong, X. (2020). Psychological State of College Students During COVID-19 Epidemic. *SSRN Electronic Journal*.  
<https://doi.org/10.2139/ssrn.3552814>
- Lobb, H. (2020). A student-centred approach to teaching. *Agora*, 55, 23.
- Luciano, M., Sampogna, G., del Vecchio, V., Giacco, D., Mulè, A., de Rosa, C., Fiorillo, A., & Maj, M. (2012). The family in Italy: Cultural changes and implications for treatment. *International Review of Psychiatry*, 24(2), 149-156.  
<https://doi.org/10.3109/09540261.2012.656306>

- Lun, K. W., Chan, C. K., Ip, P. K., Ma, S. Y., Tsai, W. W., Wong, C. S., Wong, C. H., Wong, T. W., & Yan, D. (2018). Depression and anxiety among university students in Hong Kong. *Hong Kong Medical Journal*, 24(5), 466-472. <https://doi.org/10.12809/hkmj176915>
- Luttik, M. L. A., Mahrer-Imhof, R., García-Vivar, C., Brødsgaard, A., Dieperink, K. B., Imhof, L., Østergaard, B., Svavarsdottir, E. K., & Konradsen, H. (2020). The COVID-19 Pandemic: A Family Affair. *Journal of Family Nursing*, 26(2), 87-89. <https://doi.org/10.1177/1074840720920883>
- Lyons, Z., Wilcox, H., Leung, L., & Dearsley, O. (2020). COVID-19 and the mental well-being of Australian medical students: impact, concerns and coping strategies used. *Australas Psychiatry*, 28(6), 649-652. <https://doi.org/10.1177/1039856220947945>
- Magson, N. R., Freeman, J. Y. A., Rapee, R. M., Richardson, C. E., Oar, E. L., & Fardouly, J. (2021). Risk and Protective Factors for Prospective Changes in Adolescent Mental Health during the COVID-19 Pandemic. *Journal of Youth and Adolescence*, 50(1), 44-57. <https://doi.org/10.1007/s10964-020-01332-9>
- Manacorda, M., & Moretti, E. (2006). Why do Most Italian Youths Live with Their Parents? Intergenerational Transfers and Household Structure. *Journal of the European Economic Association*, 4(4), 800-829. <http://www.jstor.org/stable/40004818>
- Mappa, I., Distefano, F. A., & Rizzo, G. (2020). Effects of coronavirus 19 pandemic on maternal anxiety during pregnancy: a prospective observational study. *Journal of Perinatal Medicine*, 48(6), 545-550. <https://doi.org/10.1515/jpm-2020-0182>
- Mariani, R., Renzi, A., Di Trani, M., Trabucchi, G., Danskin, K., & Tambelli, R. (2020). The Impact of Coping Strategies and Perceived Family Support on Depressive and

Anxious Symptomatology During the Coronavirus Pandemic (COVID-19) Lockdown. *Frontiers in Psychiatry*, *11*, 587724. <https://doi.org/10.3389/fpsyt.2020.587724>

Mariño-Narvaez, C., Puertas-Gonzalez, J. A., Romero-Gonzalez, B., & Peralta-Ramirez, M. I. (2021). Giving birth during the COVID-19 pandemic: The impact on birth satisfaction and postpartum depression. *International Journal of Gynecology & Obstetrics*, *153*(1), 83-88. <https://doi.org/10.1002/ijgo.13565>

Marom Haham, L., Youngster, M., Kuperman Shani, A., Yee, S., Ben-Kimhy, R., Medina-Artom, T. R., Hourvitz, A., Kedem, A., & Librach, C. (2021). Suspension of fertility treatment during the COVID-19 pandemic: views, emotional reactions and psychological distress among women undergoing fertility treatment. *Reproductive BioMedicine Online*, *42*(4), 849-858. <https://doi.org/10.1016/j.rbmo.2021.01.007>

Marta, E., & Alfieri, S. (2014). Family Conflicts. In *Encyclopedia of Quality of Life and Well-Being Research* (pp. 2164-2167). [https://doi.org/10.1007/978-94-007-0753-5\\_997](https://doi.org/10.1007/978-94-007-0753-5_997)

Martínez-Montilla, J. M., Amador-Marín, B., & Guerra-Martín, M. D. (2017). Estrategias de afrontamiento familiar y repercusiones en la salud familiar: Una revisión de la literatura. *Enfermería Global*, *16*(3), 576–604. <https://doi.org/10.6018/eglobal.16.3.255721>

Matar Boumosleh, J., & Jaalouk, D. (2017). Depression, anxiety, and smartphone addiction in university students- A cross sectional study. *PLoS One*, *12*(8), e0182239. <https://doi.org/10.1371/journal.pone.0182239>



- Mayopoulos, G. A., Ein-Dor, T., Dishy, G. A., Nandru, R., Chan, S. J., Hanley, L. E., Kaimal, A. J., & Dekel, S. (2021). COVID-19 is associated with traumatic childbirth and subsequent mother-infant bonding problems. *Journal of Affective Disorders*, 282, 122-125. <https://doi.org/10.1016/j.jad.2020.12.101>
- Menniti, A., Misiti, M., & Savioli, M. (2000). Italian 'Stay at Home' Children: Attitudes and Constraints. In Working Paper of the Institute for Population Research/National Research Council (Ed.), (pp. 1-22).
- Menon, B., Sannapareddy, S., & Menon, M. (2021). Assessment of Severity of Stress Among Medical and Dental Students During the COVID-19 Pandemic. *Annals of Indian Academy of Neurology*, 24(5), 703-707. [https://doi.org/10.4103/aian.AIAN\\_19\\_21](https://doi.org/10.4103/aian.AIAN_19_21)
- Merz, E.-M., Consedine, N. S., Schulze, H.-J., & Schuengel, C. (2009). Wellbeing of adult children and ageing parents: associations with intergenerational support and relationship quality. *Ageing and Society*, 29(5), 783-802. <https://doi.org/10.1017/s0144686x09008514>
- Meuwese, R., Cillessen, A. H. N., & Güroğlu, B. (2017). Friends in high places: A dyadic perspective on peer status as predictor of friendship quality and the mediating role of empathy and prosocial behavior. *Social Development*, 26(3), 503-519. <https://doi.org/10.1111/sode.12213>
- Micelli, E., Cito, G., Cocci, A., Polloni, G., Russo, G. I., Minervini, A., Carini, M., Natali, A., & Coccia, M. E. (2020). Desire for parenthood at the time of COVID-19 pandemic: an insight into the Italian situation. *Journal of Psychosomatic Obstetrics & Gynecology*, 41(3), 183-190. <https://doi.org/10.1080/0167482x.2020.1759545>

- Micheli, V., Rimoldi, S. G., Romeri, F., Comandatore, F., Mancon, A., Gigantiello, A., Perini, M., Mileto, D., Pagani, C., Lombardi, A., & Gismondo, M. R. (2020). Geographical reconstruction of the SARS-CoV-2 outbreak in Lombardy (Italy) during the early phase. *Journal of Medical Virology*, *93*(3), 1752-1757. <https://doi.org/10.1002/jmv.26447>
- Milenković, B., Ristic, S., Lukic, T., Davicevic-Elez, Ž., Jankovic, J., Djurdjevic, N., & Dimic Janjic, S. (2018). Relationship between alexithymia and psychological status in university students with asthma. *European Respiratory Journal*, *52*, PA3980. <https://doi.org/10.1183/13993003.congress-2018.PA3980>
- Milgrom, J., Hirshler, Y., Reece, J., Holt, C., & Gemmill, A. W. (2019). Social Support—A Protective Factor for Depressed Perinatal Women? *International Journal of Environmental Research and Public Health*, *16*(8), 1426. <https://doi.org/10.3390/ijerph16081426>
- Milne, S. J., Corbett, G. A., Hehir, M. P., Lindow, S. W., Mohan, S., Reagu, S., Farrell, T., & O'Connell, M. P. (2020). Effects of isolation on mood and relationships in pregnant women during the covid-19 pandemic. *European Journal of Obstetrics and Gynecology and Reproductive Biology*, *252*, 610-611. <https://doi.org/10.1016/j.ejogrb.2020.06.009>
- Montgomery, M. J., & Côté, J. E. (2006). College as a Transition to Adulthood. In G. R. Adams & M. D. Berzonsky (Eds.), *Blackwell Handbook of Adolescence* (pp. 149-172). <https://doi.org/10.1002/9780470756607.ch8>
- Moreno, C., Wykes, T., Galderisi, S., Nordentoft, M., Crossley, N., Jones, N., Cannon, M., Correll, C. U., Byrne, L., Carr, S., Chen, E. Y. H., Gorwood, P., Johnson, S.,

- Kärkkäinen, H., Krystal, J. H., Lee, J., Lieberman, J., López-Jaramillo, C., Männikkö, M., . . . Arango, C. (2020). How mental health care should change as a consequence of the COVID-19 pandemic. *The Lancet Psychiatry*, 7(9), 813-824. [https://doi.org/10.1016/s2215-0366\(20\)30307-2](https://doi.org/10.1016/s2215-0366(20)30307-2)
- Narzisi, A. (2020). Handle the Autism Spectrum Condition During Coronavirus (COVID-19) Stay At Home period: Ten Tips for Helping Parents and Caregivers of Young Children. *Brain Sciences*, 10(4), 207. <https://doi.org/10.3390/brainsci10040207>
- National Institutes of Health. (2021). *Clinical Spectrum of SARS-CoV-2 Infection*. Retrieved 23 July from <https://www.covid19treatmentguidelines.nih.gov/overview/clinical-spectrum/>
- Novotný, J. S., Gonzalez-Rivas, J. P., Kunzová, Š., Skladaná, M., Pospíšilová, A., Polcrová, A., Medina-Inojosa, J. R., Lopez-Jimenez, F., Geda, Y. E., & Stokin, G. B. (2020). Risk Factors Underlying COVID-19 Lockdown-Induced Mental Distress. *Frontiers in Psychiatry*, 11, 603014. <https://doi.org/10.3389/fpsy.2020.603014>
- Octavius, G. S., Silviani, F. R., Lesmandjaja, A., Angelina, & Juliansen, A. (2020). Impact of COVID-19 on adolescents' mental health: a systematic review. *Middle East Current Psychiatry*, 27(1), 72. <https://doi.org/10.1186/s43045-020-00075-4>
- Oddo-Sommerfeld, S., Schermelleh-Engel, K., Konopka, M., La Rosa, V. L., Louwen, F., & Sommerlad, S. (2022). Giving birth alone due to COVID-19-related hospital restrictions compared to accompanied birth: psychological distress in women with caesarean section or vaginal birth – a cross-sectional study. *Journal of Perinatal Medicine*, 50(5), 539-548. <https://doi.org/10.1515/jpm-2021-0368>

- Odriozola-Gonzalez, P., Planchuelo-Gomez, A., Iurrtia, M. J., & de Luis-Garcia, R. (2020). Psychological effects of the COVID-19 outbreak and lockdown among students and workers of a Spanish university. *Psychiatry Research*, *290*, 113108. <https://doi.org/10.1016/j.psychres.2020.113108>
- Olson, D. (2011). FACES IV and the Circumplex Model: Validation Study. *Journal of Marital and Family Therapy*, *37*(1), 64-80. <https://doi.org/10.1111/j.1752-0606.2009.00175.x>
- Olson, D. H. (2008). Circumplex Model of Marital and Family Systems. *Journal of Family Therapy*, *22*(2), 144-167. <https://doi.org/10.1111/1467-6427.00144>
- Oosterhoff, B., Palmer, C. A., Wilson, J., & Shook, N. (2020). Adolescents' Motivations to Engage in Social Distancing During the COVID-19 Pandemic: Associations With Mental and Social Health. *Journal of Adolescent Health*, *67*(2), 179-185. <https://doi.org/10.1016/j.jadohealth.2020.05.004>
- Oskovi-Kaplan, Z. A., Buyuk, G. N., Ozgu-Erdinc, A. S., Keskin, H. L., Ozbas, A., & Moraloglu Tekin, O. (2020). The Effect of COVID-19 Pandemic and Social Restrictions on Depression Rates and Maternal Attachment in Immediate Postpartum Women: a Preliminary Study. *Psychiatric Quarterly*, *92*(2), 675-682. <https://doi.org/10.1007/s11126-020-09843-1>
- Ostacoli, L., Cosma, S., Bevilacqua, F., Berchiolla, P., Bovetti, M., Carosso, A. R., Malandrone, F., Carletto, S., & Benedetto, C. (2020). Psychosocial factors associated with postpartum psychological distress during the Covid-19 pandemic: a cross-sectional study. *BMC Pregnancy and Childbirth*, *20*(1), 703. <https://doi.org/10.1186/s12884-020-03399-5>

- Overbeck, G., Graungaard, A. H., Rasmussen, I. S., Andersen, J. H., Ertmann, R. K., Kragstrup, J., & Wilson, P. (2020). Pregnant women's concerns and antenatal care during COVID-19 lock-down of the Danish society. *Danish Medical Journal*, 67(12), A06200449. <https://www.ncbi.nlm.nih.gov/pubmed/33269695>
- Pao, C., Guintivano, J., Santos, H., & Meltzer-Brody, S. (2018). Postpartum depression and social support in a racially and ethnically diverse population of women. *Archives of Women's Mental Health*, 22(1), 105-114. <https://doi.org/10.1007/s00737-018-0882-6>
- Passavanti, M., Argentieri, A., Barbieri, D. M., Lou, B., Wijayarathna, K., Foroutan Mirhosseini, A. S., Wang, F., Naseri, S., Qamhia, I., Tangerang, M., Pellicciari, M., & Ho, C. H. (2021). The psychological impact of COVID-19 and restrictive measures in the world. *J Affect Disord*, 283, 36-51. <https://doi.org/10.1016/j.jad.2021.01.020>
- Peng, S., Zhang, Y., Liu, H., Huang, X., Noble, D. J., Yang, L., Lu, W., Luo, Y., Zhu, H., Cao, L., Liu, C., Chen, Y., Zhang, P., Xia, S., & Narayan, A. (2021). A multi-center survey on the postpartum mental health of mothers and attachment to their neonates during COVID-19 in Hubei Province of China. *Ann Transl Med*, 9(5), 382. <https://doi.org/10.21037/atm-20-6115>
- Peter, P. J., de Mola, C. L., de Matos, M. B., Coelho, F. M., Pinheiro, K. A., da Silva, R. A., Castelli, R. D., Pinheiro, R. T., & Quevedo, L. A. (2017). Association between perceived social support and anxiety in pregnant adolescents. *Brazilian Journal of Psychiatry* 39(1), 21-27. <https://doi.org/10.1590/1516-4446-2015-1806>

- Petretto, D. R., Masala, I., & Masala, C. (2020). Special Educational Needs, Distance Learning, Inclusion and COVID-19. *Education Sciences*, 10(6), 154. <https://doi.org/10.3390/educsci10060154>
- Poyraz, B. C., Poyraz, C. A., Olgun, Y., Gurel, O., Alkan, S., Ozdemir, Y. E., Balkan, II, & Karaali, R. (2021). Psychiatric morbidity and protracted symptoms after COVID-19. *Psychiatry Research*, 295, 113604. <https://doi.org/10.1016/j.psychres.2020.113604>
- Price, A. (2020). Online Gambling in the Midst of COVID-19: A Nexus of Mental Health Concerns, Substance Use and Financial Stress. *International Journal of Mental Health and Addiction*, 20, 362–379. <https://doi.org/10.1007/s11469-020-00366-1>
- Prime, H., Wade, M., & Browne, D. T. (2020). Risk and resilience in family well-being during the COVID-19 pandemic. *American Psychologist*, 75(5), 631-643. <https://doi.org/10.1037/amp0000660>
- Qiu, J., Shen, B., Zhao, M., Wang, Z., Xie, B., & Xu, Y. (2020). A nationwide survey of psychological distress among Chinese people in the COVID-19 epidemic: implications and policy recommendations. *General Psychiatry*, 33(2), e100213. <https://doi.org/10.1136/gpsych-2020-100213>
- Rajkumar, R. P. (2020). COVID-19 and mental health: A review of the existing literature. *Asian Journal of Psychiatry*, 52, 102066. <https://doi.org/10.1016/j.ajp.2020.102066>
- Rana, U., & Govender, J. (2022). *Exploring the consequences of the COVID-19 pandemic : social, cultural, economic, and psychological insights and perspectives* (1st ed.). Apple Academic Press, Inc.; CRC Press.

- Rania, N., Coppola, I., Lagomarsino, F., & Parisi, R. (2022). Family well-being during the COVID-19 lockdown in Italy: Gender differences and solidarity networks of care. *Child & Family Social Work*, 27(1), 1-10. <https://doi.org/10.1111/cfs.12867>
- Reblin, M., & Uchino, B. N. (2008). Social and emotional support and its implication for health. *Current Opinion in Psychiatry*, 21(2), 201-205. <https://doi.org/10.1097/YCO.0b013e3282f3ad89>
- Reddy, B., & Gupta, A. (2020). Importance of effective communication during COVID-19 infodemic. *Journal of Family Medicine and Primary Care*, 9(8), 3793-3796. [https://doi.org/10.4103/jfmprc.jfmprc\\_719\\_20](https://doi.org/10.4103/jfmprc.jfmprc_719_20)
- Reimann, M., Peters, E., & Diewald, M. (2022). COVID-19 and Work–Family Conflicts in Germany: Risks and Chances Across Gender and Parenthood. *Frontiers in Sociology*, 6, 780740. <https://doi.org/10.3389/fsoc.2021.780740>
- Righi, E., Mirandola, M., Mazzaferri, F., Dossi, G., Razzaboni, E., Zaffagnini, A., Ivaldi, F., Visentin, A., Lambertenghi, L., Arena, C., Micheletto, C., Gibellini, D., & Tacconelli, E. (2022). Determinants of persistence of symptoms and impact on physical and mental wellbeing in Long COVID: A prospective cohort study. *Journal of Infection*, 84(4), 566-572. <https://doi.org/10.1016/j.jinf.2022.02.003>
- Rodriguez, L. M., Litt, D. M., & Stewart, S. H. (2020). Drinking to cope with the pandemic: The unique associations of COVID-19-related perceived threat and psychological distress to drinking behaviors in American men and women. *Addict Behav*, 110. <https://doi.org/10.1016/j.addbeh.2020.106532>
- Rogers, A. A., Ha, T., & Ockey, S. (2021). Adolescents' Perceived Socio-Emotional Impact of COVID-19 and Implications for Mental Health: Results From a U.S.-Based

- Mixed-Methods Study. *Journal of Adolescent Health*, 68(1), 43-52.  
<https://doi.org/10.1016/j.jadohealth.2020.09.039>
- Rogers, R. W. (1983). *Cognitive and physiological processes in fear appeals and attitude change: Revised theory of protection motivation*. Guilford Press.
- Rohde, N., D'Ambrosio, C., Tang, K. K., & Rao, P. (2015). Estimating the Mental Health Effects of Social Isolation. *Applied Research in Quality of Life*, 11(3), 853-869.  
<https://doi.org/10.1007/s11482-015-9401-3>
- Romagnani, P., Gnone, G., Guzzi, F., Negrini, S., Guastalla, A., Annunziato, F., Romagnani, S., & De Palma, R. (2020). The COVID-19 infection: lessons from the Italian experience. *Journal of Public Health Policy*, 41(3), 238-244.  
<https://doi.org/10.1057/s41271-020-00229-y>
- Romund, L., Golde, S., Lorenz, R. C., Raufelder, D., Pelz, P., Gleich, T., Heinz, A., & Beck, A. (2017). Neural correlates of the self-concept in adolescence-A focus on the significance of friends. *Human Brain Mapping*, 38(2), 987-996.  
<https://doi.org/10.1002/hbm.23433>
- Saccone, G., Florio, A., Aiello, F., Venturella, R., De Angelis, M. C., Locci, M., Bifulco, G., Zullo, F., & Di Spiezio Sardo, A. (2020). Psychological impact of coronavirus disease 2019 in pregnant women. *American Journal of Obstetrics & Gynecology*, 223(2), 293-295. <https://doi.org/10.1016/j.ajog.2020.05.003>
- Salin, M., Kaittila, A., Hakovirta, M., & Anttila, M. (2020). Family Coping Strategies During Finland's COVID-19 Lockdown. *Sustainability*, 12(21), 9133.  
<https://doi.org/10.3390/su12219133>



- Sander, J., Moessner, M., & Bauer, S. (2021). Depression, Anxiety and Eating Disorder-Related Impairment: Moderators in Female Adolescents and Young Adults. *International Journal of Environmental Research and Public Health*, 18(5), 2779. <https://doi.org/10.3390/ijerph18052779>
- Sareen, J. (2014). Posttraumatic stress disorder in adults: impact, comorbidity, risk factors, and treatment. *The Canadian Journal of Psychiatry*, 59(9), 460-467. <https://doi.org/10.1177/070674371405900902>
- Schmiedhofer, M., Derksen, C., Dietl, J. E., Häussler, F., Louwen, F., Hüner, B., Reister, F., Strametz, R., & Lippke, S. (2022). Birthing under the Condition of the COVID-19 Pandemic in Germany: Interviews with Mothers, Partners, and Obstetric Health Care Workers. *International Journal of Environmental Research and Public Health*, 19(3), 1486. <https://doi.org/10.3390/ijerph19031486>
- Schwarzer, R., & Jerusalem, M. (1995). Generalized Self-Efficacy scale. In J. Weinman, S. Wright, & M. Johnston (Eds.), *Measures in health psychology: A user's portfolio. Causal and control beliefs* (pp. 35-37). NFER-NELSON.
- Shayganfard, M., Mahdavi, F., Haghghi, M., Sadeghi Bahmani, D., & Brand, S. (2020). Health Anxiety Predicts Postponing or Cancelling Routine Medical Health Care Appointments among Women in Perinatal Stage during the Covid-19 Lockdown. *International Journal of Environmental Research and Public Health*, 17(21), 8272. <https://doi.org/10.3390/ijerph17218272>
- Shepperd, J. A., Klein, W. M. P., Waters, E. A., & Weinstein, N. D. (2013). Taking Stock of Unrealistic Optimism. *Perspectives on Psychological Science*, 8(4), 395-411. <https://doi.org/10.1177/1745691613485247>

- Shin, S. Y., & Choi, Y.-J. (2021). Comparison of Cyberbullying before and after the COVID-19 Pandemic in Korea. *International Journal of Environmental Research and Public Health*, *18*(19), 10085. <https://doi.org/10.3390/ijerph181910085>
- Sica, C., Magni, C., Ghisi, M., Altoè, G., Sighinolfi, C., Chiri, L. R., & Franceschini, S. (2008). Coping Orientation to Problems Experienced-Nuova Versione Italiana (COPE-NVI): uno strumento per la misura degli stili di coping. *Psicoterapia cognitiva e comportamentale*, *14*(1), 27-53.
- Silverio, S. A., Davies, S. M., Christiansen, P., Aparicio-García, M. E., Bramante, A., Chen, P., Costas-Ramón, N., de Weerth, C., Della Vedova, A. M., Infante Gil, L., Lusterians, H., Wendland, J., Xu, J., Halford, J. C. G., Harrold, J. A., & Fallon, V. (2021). A validation of the Postpartum Specific Anxiety Scale 12-item research short-form for use during global crises with five translations. *BMC Pregnancy and Childbirth*, *21*(1), 112. <https://doi.org/10.1186/s12884-021-03597-9>
- Simon, J., Helter, T. M., White, R. G., van der Boor, C., & Łaszewska, A. (2021). Impacts of the Covid-19 lockdown and relevant vulnerabilities on capability well-being, mental health and social support: an Austrian survey study. *BMC Public Health*, *21*(1), 314. <https://doi.org/10.1186/s12889-021-10351-5>
- Sinko, L., He, Y., Kishton, R., Ortiz, R., Jacobs, L., & Fingerman, M. (2021). “The Stay at Home Order is Causing Things to Get Heated Up”: Family Conflict Dynamics During COVID-19 From The Perspectives of Youth Calling a National Child Abuse Hotline. *Journal of Family Violence*, *37*(5), 837-846. <https://doi.org/10.1007/s10896-021-00290-5>

- Sjöberg, L., Holm, L.-E., Ullén, H., & Brandberg, Y. (2004). Tanning and risk perception in adolescents. *Health, Risk & Society*, 6(1), 81-94. <https://doi.org/10.1080/1369857042000193020>
- Smith, J., & Baltes, P. B. (1999). Life-span perspectives on development. In M. H. Bornstein & M. E. Lamb (Eds.), *Developmental psychology: An advanced textbook* (4th ed., pp. 47-72). Taylor & Francis.
- Smith, K. J., & Victor, C. (2018). Typologies of loneliness, living alone and social isolation, and their associations with physical and mental health. *Ageing and Society*, 39(8), 1709-1730. <https://doi.org/10.1017/s0144686x18000132>
- Soejima, T. (2021). Impact of the Coronavirus Pandemic on Family Well-Being: A Rapid and Scoping Review. *Open Journal of Nursing*, 11(12), 1064-1085. <https://doi.org/10.4236/ojn.2021.1112085>
- Somerville, L. H. (2013). The Teenage Brain. *Current Directions in Psychological Science*, 22(2), 121-127. <https://doi.org/10.1177/0963721413476512>
- Statista. (2022a). *Cumulative number of coronavirus (COVID-19) recoveries in Italy since February 24, 2020 (as of July 20, 2022)*. Retrieved July 20 from <https://www.statista.com/statistics/1105004/coronavirus-recoveries-since-february-italy/>
- Statista. (2022b). *Number of coronavirus (COVID-19) active cases, recoveries, and deaths in Italy as of July 20, 2022*. Retrieved 23 July from <https://www.statista.com/statistics/1102808/coronavirus-cases-by-status-italy/>

- Statista. (2022c). *Number of coronavirus (COVID-19) cases worldwide as of July 20, 2022, by country*. Retrieved July 20 from <https://www.statista.com/statistics/1043366/novel-coronavirus-2019ncov-cases-worldwide-by-country/>
- Staudinger, U. M., & Lindenberger, U. (2003). *Understanding Human Development. Dialogues with Lifespan Psychology*. Springer New York. <https://doi.org/10.1007/978-1-4615-0357-6>
- Steinberg, L. (2005). Cognitive and affective development in adolescence. *Trends in Cognitive Sciences*, 9(2), 69-74. <https://doi.org/10.1016/j.tics.2004.12.005>
- Street, A. E., & Dardis, C. M. (2018). Using a social construction of gender lens to understand gender differences in posttraumatic stress disorder. *Clinical Psychology Review*, 66, 97-105. <https://doi.org/10.1016/j.cpr.2018.03.001>
- Sun, L., Sun, Z., Wu, L., Zhu, Z., Zhang, F., Shang, Z., Jia, Y., Gu, J., Zhou, Y., Wang, Y., Liu, N., & Liu, W. (2021). Prevalence and risk factors for acute posttraumatic stress disorder during the COVID-19 outbreak. *Journal of Affective Disorders*, 283, 123-129. <https://doi.org/10.1016/j.jad.2021.01.050>
- Sundin, E. C., & Horowitz, M. J. (2002). Impact of Event Scale: psychometric properties. *The British Journal of Psychiatry*, 180, 205-209. <https://doi.org/10.1192/bjp.180.3.205>
- Sundin, E. C., & Horowitz, M. J. (2003). Horowitz's Impact of Event Scale Evaluation of 20 Years of Use. *Psychosomatic Medicine*, 65(5), 870-876. <https://doi.org/10.1097/01.psy.0000084835.46074.f0>

- Surkan, P. J., Peterson, K. E., Hughes, M. D., & Gottlieb, B. R. (2006). The Role of Social Networks and Support in Postpartum Women's Depression: A Multiethnic Urban Sample. *Maternal and Child Health Journal*, *10*(4), 375-383. <https://doi.org/10.1007/s10995-005-0056-9>
- Tang, C. S., & Wong, C. Y. (2003). An Outbreak of the Severe Acute Respiratory Syndrome: Predictors of Health Behaviors and Effect of Community Prevention Measures in Hong Kong, China. *American Journal of Public Health*, *93*(11), 1887-1888. <https://doi.org/10.2105/ajph.93.11.1887>
- Terada, S., Kinjo, K., & Fukuda, Y. (2021). The relationship between postpartum depression and social support during the COVID-19 pandemic: A cross-sectional study. *Journal of Obstetrics and Gynaecology Research*, *47*(10), 3524-3531. <https://doi.org/10.1111/jog.14929>
- Thakur, V., & Jain, A. (2020). COVID 2019-suicides: A global psychological pandemic. *Brain, Behavior, and Immunity*, *88*, 952-953. <https://doi.org/10.1016/j.bbi.2020.04.062>
- Theis, N., Campbell, N., De Leeuw, J., Owen, M., & Schenke, K. C. (2021). The effects of COVID-19 restrictions on physical activity and mental health of children and young adults with physical and/or intellectual disabilities. *Disability and Health Journal*, *14*(3), 101064. <https://doi.org/10.1016/j.dhjo.2021.101064>
- Thye, A. Y., Law, J. W., Tan, L. T., Pusparajah, P., Ser, H. L., Thurairajasingam, S., Letchumanan, V., & Lee, L. H. (2022). Psychological Symptoms in COVID-19 Patients: Insights into Pathophysiology and Risk Factors of Long COVID-19. *Biology (Basel)*, *11*(1), 61. <https://doi.org/10.3390/biology11010061>

- Tooher, R., Collins, J. E., Street, J. M., Braunack-Mayer, A., & Marshall, H. (2013). Community knowledge, behaviours and attitudes about the 2009 H1N1 Influenza pandemic: a systematic review. *Influenza and Other Respiratory Viruses*, 7(6), 1316-1327. <https://doi.org/10.1111/irv.12103>
- Topp, C. W., Østergaard, S. D., Søndergaard, S., & Bech, P. (2015). The WHO-5 Well-Being Index: A Systematic Review of the Literature. *Psychotherapy and Psychosomatics*, 84(3), 167-176. <https://doi.org/10.1159/000376585>
- Tsamakis, K., Tsiptsios, D., Ouranidis, A., Mueller, C., Schizas, D., Terniotis, C., Nikolakakis, N., Tyros, G., Kypouropoulos, S., Lazaris, A., Spandidos, D., Smyrnis, N., & Rizos, E. (2021). COVID-19 and its consequences on mental health (Review). *Experimental and Therapeutic Medicine*, 21(3), 244. <https://doi.org/10.3892/etm.2021.9675>
- Türkmen, H., Yalniz Dİlçen, H., & Özçoban, F. A. (2020). Traumatic childbirth perception during pregnancy and the postpartum period and its postnatal mental health outcomes: a prospective longitudinal study. *Journal of Reproductive and Infant Psychology*, 39(4), 422-434. <https://doi.org/10.1080/02646838.2020.1792429>
- Turocy, J. M., Robles, A., Hercz, D., D'Alton, M., Forman, E. J., & Williams, Z. (2020). The Emotional Impact of the Asrm Guidelines on Fertility Patients during the Covid-19 Pandemic. *Fertility and Sterility*, 114(3), E63. <https://doi.org/10.1016/j.fertnstert.2020.08.194>
- Umberson, D., Liu, H., & Thomas, P. A. (2017). Family Relationships and Well-Being. *Innovation in Aging*, 1(3), igx025. <https://doi.org/10.1093/geroni/igx025>

- UNESCO. (2020a). *COVID-19 and higher education: Today and tomorrow. Impact analysis, policy responses and recommendations*. Retrieved July 22 from <http://www.iesalc.unesco.org/en/wp-content/uploads/2020/04/COVID-19-EN-090420-2.pdf>
- UNESCO. (2020b). *COVID-19 Educational Disruption and Response*. Retrieved July 22 from <https://en.unesco.org/covid19/educationresponse>
- UNICEF. (2020). *The COVID-19 Lockdown through the eyes of teenagers*. Retrieved July 20 from <https://www.unicef.org/bulgaria/en/reports/summary-results-study-subjective-perception-and-reactions-teenagers-covid>
- Usher, K., Bhullar, N., & Jackson, D. (2020). Life in the pandemic: Social isolation and mental health. *Journal of Clinical Nursing*, 29(15-16), 2756-2757. <https://doi.org/10.1111/jocn.15290>
- Utemissova, G. U., Danna, S., & Nikolaevna, V. N. (2021). Cyberbullying during the COVID-19 pandemic. *Global Journal of Guidance and Counseling in Schools: Current Perspectives*, 11(2), 77-87. <https://doi.org/10.18844/gjgc.v11i2.5471>
- Valentine, D. P. (1982). The Experience of Pregnancy: A Developmental Process. *Family Relations*, 31(2), 243-248. <https://doi.org/10.2307/584403>
- van de Schoot, R., Lugtig, P., & Hox, J. (2012). A checklist for testing measurement invariance. *European Journal of Developmental Psychology*, 9(4), 486-492. <https://doi.org/10.1080/17405629.2012.686740>

- Van Lancker, W., & Parolin, Z. (2020). COVID-19, school closures, and child poverty: a social crisis in the making. *The Lancet Public Health*, 5(5), e243-e244. [https://doi.org/10.1016/s2468-2667\(20\)30084-0](https://doi.org/10.1016/s2468-2667(20)30084-0)
- Vinceti, M., Filippini, T., Rothman, K. J., Di Federico, S., & Orsini, N. (2021). The association between first and second wave COVID-19 mortality in Italy. *BMC Public Health*, 21(1), 2069. <https://doi.org/10.1186/s12889-021-12126-4>
- Visani, E., Di Nuovo, S., & Lorigo, C. (2014). *Il Faces IV. Il modello circonflesso di Olson nella clinica e nella ricerca*. Franco Angeli.
- Walsh, F. (2016). *Strengthening family resilience* (3rd ed.). The Guilford Press.
- Wang, C., Pan, R., Wan, X., Tan, Y., Xu, L., Ho, C. S., & Ho, R. C. (2020). Immediate Psychological Responses and Associated Factors during the Initial Stage of the 2019 Coronavirus Disease (COVID-19) Epidemic among the General Population in China. *International Journal of Environmental Research and Public Health*, 17(5), 1729. <https://doi.org/10.3390/ijerph17051729>
- Wang, H., Li, T., Barbarino, P., Gauthier, S., Brodaty, H., Molinuevo, J. L., Xie, H., Sun, Y., Yu, E., Tang, Y., Weidner, W., & Yu, X. (2020). Dementia care during COVID-19. *The Lancet*, 395(10231), 1190-1191. [https://doi.org/10.1016/s0140-6736\(20\)30755-8](https://doi.org/10.1016/s0140-6736(20)30755-8)
- Wang, R., Liu, Q., & Zhang, W. (2022). Coping, social support, and family quality of life for caregivers of individuals with autism: Meta-analytic structural equation modeling. *Personality and Individual Differences*, 186, 111351. <https://doi.org/10.1016/j.paid.2021.111351>



- Watson, D., & Clark, L. A. (1984). Negative affectivity: The disposition to experience aversive emotional states. *Psychological Bulletin*, 96(3), 465-490. <https://doi.org/10.1037/0033-2909.96.3.465>
- Webster, J., Linnane, J. W. J., Dibley, L. M., Hinson, J. K., Starrenburg, S. E., & Roberts, J. A. (2000). Measuring Social Support in Pregnancy: Can It Be Simple and Meaningful? *Birth*, 27(2), 97-101. <https://doi.org/10.1046/j.1523-536x.2000.00097.x>
- World Health Organization. (2020a). *Coronavirus Disease (COVID-19) Pandemic*. WHO. Retrieved 13 May from [https://www.who.int/emergencies/diseases/novel-coronavirus-2019?gclid=Cj0KCQjwhIP6BRCMARIsALu9Lfnbx3ahXR8sSvIS65OyGIzjUfvucEyuf6mqVIHIN4tY9itTDGwlOxIaAgkgEALw\\_wcB](https://www.who.int/emergencies/diseases/novel-coronavirus-2019?gclid=Cj0KCQjwhIP6BRCMARIsALu9Lfnbx3ahXR8sSvIS65OyGIzjUfvucEyuf6mqVIHIN4tY9itTDGwlOxIaAgkgEALw_wcB)
- World Health Organization. (2020b). *WHO announces COVID-19 outbreak a pandemic*. Retrieved 12 June from <https://www.euro.who.int/en/health-topics/health-emergencies/coronavirus-covid-19/news/news/2020/3/who-announces-covid-19-outbreak-a-pandemic>
- World Health Organization. (2020c). *WHO Response in Countries*. Retrieved July 25 from <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/donate/who-response-incountries>.
- World Health Organization. (2022). *Adolescent health*. Retrieved 26 July from [https://www.who.int/health-topics/adolescent-health#tab=tab\\_1](https://www.who.int/health-topics/adolescent-health#tab=tab_1)

- Worsley, J. D., Harrison, P., & Corcoran, R. (2021). Bridging the Gap: Exploring the Unique Transition From Home, School or College Into University. *Frontiers in Public Health*, 9, 634285. <https://doi.org/10.3389/fpubh.2021.634285>
- Wu, Y., Zhang, C., Liu, H., Duan, C., Li, C., Fan, J., Li, H., Chen, L., Xu, H., Li, X., Guo, Y., Wang, Y., Li, X., Li, J., Zhang, T., You, Y., Li, H., Yang, S., Tao, X., . . . Huang, H. F. (2020). Perinatal depressive and anxiety symptoms of pregnant women during the coronavirus disease 2019 outbreak in China. *American Journal of Obstetrics and Gynecology*, 223(2), 240.E241-240.E249. <https://doi.org/10.1016/j.ajog.2020.05.009>
- Xiang, Y.-T., Yang, Y., Li, W., Zhang, L., Zhang, Q., Cheung, T., & Ng, C. H. (2020). Timely mental health care for the 2019 novel coronavirus outbreak is urgently needed. *The Lancet Psychiatry*, 7(3), 228-229. [https://doi.org/10.1016/s2215-0366\(20\)30046-8](https://doi.org/10.1016/s2215-0366(20)30046-8)
- Xiong, J., Lipsitz, O., Nasri, F., Lui, L. M. W., Gill, H., Phan, L., Chen-Li, D., Iacobucci, M., Ho, R., Majeed, A., & McIntyre, R. S. (2020). Impact of COVID-19 pandemic on mental health in the general population: A systematic review. *Journal of Affective Disorders*, 277, 55-64. <https://doi.org/10.1016/j.jad.2020.08.001>
- Yan, H., Ding, Y., & Guo, W. (2020). Mental Health of Pregnant and Postpartum Women During the Coronavirus Disease 2019 Pandemic: A Systematic Review and Meta-Analysis. *Frontiers in Psychology*, 11, 617001. <https://doi.org/10.3389/fpsyg.2020.617001>
- Zeng, Y., Ye, B., Zhang, Y., & Yang, Q. (2021). Family Cohesion and Stress Consequences Among Chinese College Students During COVID-19 Pandemic: A Moderated

Mediation Model. *Frontiers in Public Health*, 9, 703899.  
<https://doi.org/10.3389/fpubh.2021.703899>

Zhang, F., Shang, Z., Ma, H., Jia, Y., Sun, L., Guo, X., Wu, L., Sun, Z., Zhou, Y., Wang, Y., Liu, N., & Liu, W. (2020). High risk of infection caused Posttraumatic Stress symptoms in individuals with poor sleep quality: A study on influence of Coronavirus disease (COVID-19) in China. *medRxiv*, 2020.2003.2022.20034504.  
<https://doi.org/10.1101/2020.03.22.20034504>

Zhao, X.-h., & Zhang, Z.-h. (2020). Risk factors for postpartum depression: An evidence-based systematic review of systematic reviews and meta-analyses. *Asian Journal of Psychiatry*, 53, 102353. <https://doi.org/10.1016/j.ajp.2020.102353>

Zheng, J. (2020). SARS-CoV-2: an Emerging Coronavirus that Causes a Global Threat. *International Journal of Biological Sciences*, 16(10), 1678-1685.  
<https://doi.org/10.7150/ijbs.45053>

Zhou, J., Havens, K. L., Starnes, C. P., Pickering, T. A., Brito, N. H., Hendrix, C. L., Thomason, M. E., Vatalaro, T. C., & Smith, B. A. (2021). Changes in social support of pregnant and postnatal mothers during the COVID-19 pandemic. *Midwifery*, 103, 103162. <https://doi.org/10.1016/j.midw.2021.103162>

Zondiros, D. (2008). Online, distance education and globalisation: Its impact on educational access, inequality and exclusion. *European Journal of Open, Distance E-learning*, 11(1).

Zuna, N., Summers, J. A., Turnbull, A. P., Hu, X., & Xu, S. (2010). Theorizing About Family Quality of Life. In R. Kober (Ed.), *Enhancing the Quality of Life of People with*

*Intellectual Disabilities* (pp. 241-278). [https://doi.org/10.1007/978-90-481-9650-](https://doi.org/10.1007/978-90-481-9650-0_15)

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