MASTER'S THESIS OF HUMAN ECOLOGY

Resilience and Mental Well-Being of Filipino Healthcare Workers' Children during COVID-19 Pandemic

코로나 시기 필리핀 의로종사자 자녀의 탄력성과 정신건강

MARILAG MAGPILE DELA CRUZ
마리라그

August 2021

DEPARTMENT OF CHILD DEVELOPMENT
AND FAMILY STUDIES
THE GRADUATE SCHOOL
SEOUL NATIONAL UNIVERSITY

Resilience and Mental Well-Being of Filipino Healthcare Workers' Children during COVID-19 Pandemic

지도교수 박 혜 준

이 논문을 생활과학석사 학위논문으로 제출함
2021 년 6 월

서울대학교 대학원
아동가족학과
마리라그

마리라그의 석사 학위논문을 인준함
2021 년 7 월

위 원 장 _____

부위원장 _____

위 원 _____

ABSTRACT

In the fight against the coronavirus 2019 (COVID-19) pandemic, the burdened healthcare workers in the forefront of healing patients are sometimes not able to take care of their own children. This study investigated the impact of COVID-related stress among healthcare worker parents, parent-child separation, and child resilience on the mental well-being of their children in the Philippines. Sixty-one Filipino healthcare workers with children of ages 18 years below and forty-one children between ages 8 to 18 years were surveyed online. Parents completed the COVID-19 Stress Scale and the children answered the Revised Child Anxiety and Depression Scale and the Child and Youth Resilience Measure-Revised. Parents were found to have moderate to severe levels of COVID-related stress, notably in the areas of danger, contamination, and compulsive checking. Furthermore, about 1 in 5 children experienced anxiety symptoms while 1 in 7 children showed depressive symptoms in this Filipino sample. Majority of the children, on the other hand, were found to have high resilience scores.

Hierarchical regression analyses revealed that parent-child separation predicted child anxiety and depressive symptoms, while parent COVID-related stress only predicted child anxiety. Child resilience was protective against child depression, but did not buffer the negative effects of both parent-child separation and

parent COVID-related stress. Older child age is also associated with negative mental health outcomes. The results of this study emphasized the importance of awareness of the risks and vulnerabilities of the children of healthcare workers, especially the older adolescents, when it comes to mental health problems. Resilience should be continually fostered not only in children, but also in parents, to ensure an optimal child well-being in the current pandemic and beyond.

Keywords: healthcare worker stress, parent-child separation, child anxiety, child depression, child resilience

Student Number: 2019-23681

* The author of this thesis is a Global Korea Scholarship scholar sponsored by the Korean Government.

Table of Contents

List of Tables

List of Figures

I. Introduction

The World Health Organization (WHO) declared on the 11th of March 2020 that the novel coronavirus 2019 (COVID-19) was officially a pandemic (WHO, 2020). Since then, the lives of all individuals worldwide and how society operates at large has dramatically changed. Control and prevention efforts globally resulted in travel bans, closure of non-essential businesses, and reliance on virtual operations in all sectors of society. The healthcare system of every nation, in particular, is being tested and stretched to its capacity.

In the Philippines, lockdown and quarantine protocols resulted in people working from homes and using online communications, as well as restrictions of land, sea, and air transportation within and outside the country (Vallejo Jr. & Ong, 2020). Healthcare workers (such as physicians, nurses, medical technologists, radiation technologists, nursing assistants, maintenance personnel), on the other hand, remained stationed in their essential jobs in the hospitals. However, this pandemic has revealed how relatively weak the overall healthcare system in the country is, being unable to fully manage the spread of the disease especially early in the pandemic. Despite having one of the longest and strictest lockdowns in the world, the nation was ranked 66th among 91 countries in coronavirus suppression in the latter part of 2020 (Sachs et al., 2020). At one point in the initial surge of cases, medical doctors and other healthcare professionals in the

capital city of Metro Manila, then the epicenter of COVID-19, urged the government to implement a stricter quarantine protocol when the healthcare system was on the brink of being overwhelmed (Mallare, 2020).

More than one year into the pandemic, the Philippines remains to grapple with the devastating effects of the global crisis with a third wave of infection within the country, which started on April 2021 and reached a daily peak of more than 15,000 cases per day. In addition, as of May 2021, more than 18,000 healthcare workers have been infected with COVID-19 (WHO, 2021). A slow rollout of vaccines has not alleviated the anxieties and stress perceived by the healthcare workers in the frontlines (Yap & Cinco, 2021). With the herd immunity and thus the possible end of crisis still not in the immediate future, as well as the ongoing spread of the more infectious COVID-19 variant (WHO, 2021), the need to pay attention to the mental well-being of workers in the healthcare frontlines should be emphasized especially in a country with poor COVID-19 response.

While the mental health (or mental well-being) of the general population during the current pandemic has been studied extensively (e.g., Rajkumar et al., 2020; Salari et al., 2020), the same concern for healthcare providers working in the hospitals has also garnered great attention (e.g., Galbraith et al., 2020; Greenberg et al., 2020). Several studies revealed negative effects on their psychosocial health manifested as anxiety from contracting the disease and/or infecting their loved ones,

depression, possible moral injury, and overall elevated perceived stress among healthcare professionals (Galbraith et al., 2020; Greenberg et al., 2020). The pandemic-related stress they experience, while at its core related to the stress they perceive in their work pre-COVID-19, is dimensionally different and of more intense apprehension (Taylor et al., 2020). On top of discrimination, underpayment, overwork, insufficient provision of personal protective equipment, and government neglect of their distress calls (Biana & Joaquin, 2020; Santos, 2020), parents who are healthcare workers also struggle the most from being separated from their children and family (Bryant, 2020).

The effect of the pandemic in the most basic unit of society—the family—is of critical importance. In particular, it is necessary to give special attention to the parent-child relationship in the family system during the current crisis. As different countries imposed various policies to limit the spread of disease (Sachs et al., 2020), some measures have impacted the dynamics within the families. Lockdowns and quarantine procedures in some ways have resulted in the separation of family members, especially for those who have contracted the virus. In several countries, family members do not have the luxury to see each other as freely as before due to the strict travel policies. In all nations, however, a common thread is the separation of the healthcare frontline workers from their own children. As families are significantly impacted by the pandemic in various facets of daily living, to no surprise, the mental well-being of parents and

children has been underscored in numerous publications (e.g., Fegert et al., 2020; Masten & Motti-Stefanidi, 2020; Patrick et al., 2020; Prime, Wade, & Brown, 2020). The families of healthcare workers, however, render a different context as compared to other affected families.

Healthcare worker parents are not able to physically and socially interact with their children as often as they want to, due to their extended working hours and the precautions they have to undergo to prevent disease transmission (Bryant et al., 2020). Because of the still uncertain longevity of the current pandemic, it is therefore critical to examine the effects of this parent-child separation on the mental health of the child. Several healthcare providers who are parents themselves agree with these grievances and have called for more attention to the well-being of their children (Dubey et al., 2020; Mahajan, Kapoor, & Prabhakar, 2020; Skokauskas et al., 2020). Their concern is certainly not unfounded, reflecting the numerous studies suggesting parent-child separation (whether involuntary, forced in nature, or voluntary or the part of the parents) have negative consequences in multiple domains of child development across ages (Waddoups, Yoshikawa, & Strouf, 2019). Indeed, as healthcare workers continue to fight an enemy that is essentially not seen, they face not only the deadly virus but also the significant threats to their own and their children's mental health (Dubey et al., 2020).

To many children and youth, the presence of their parents and a good family relationship may buffer the stresses caused by the pandemic. To some even, periods of lockdown may present an opportunity for the whole family to forge their bond. To the children of frontline COVID-19 "warriors," however, the inconsistent parental presence due to hospital work and the additional worry due to the dangers their parents face put them in a more vulnerable situation at risk for mental health problems. Especially for older children and youth, they are at least partially, if not fully, aware of the perilous consequences that their parents' occupation entails (Skokauskas et al., 2020). Indeed, children who faced traumatic events in the past suffered from stresses due to compromised quality of care or protection by their caregivers, anxieties from threats posed to loved ones, and social referencing of fear and danger from terrified parents (Masten & Narayan, 2012).

Yet at the same breath, despite the risks, these children can still adapt well in the current crisis through protective mechanisms that promote their resilience. Resilience, a terminology broadly used as a positive adaptation to adversity, has also been a topic of great interest especially in this time of pandemic (Masten & Motti-Stefanidi, 2020). The interplay of risk and resilience factors can have a substantial contribution to the mental well-being of vulnerable individuals, like the children of healthcare providers. In spite of the calls for attention and support for these children, studies on this particular subpopulation have

been scarce. In fact, prior to the pandemic, this area of research has not been explored. During the current crisis up to the time of this writing, only two related studies have focused on the mental health problems (i.e., anxiety and sleep disturbance) experienced by the children of healthcare workers (Şahin, Hoşoğlu, & Önal, 2020; Şahin, Önal, & Hoşoğlu, 2021). However, only the abstracts of both works are in English while the main texts are in Turkish, thus with limited reference in this study.

To address this gap in knowledge, the present research aimed to further add to the literature and examine the mental well-being of the Filipino children and their healthcare worker parents, specifically in the context of their risks of COVID-related parental stress and parent-child separation, as well as child resilience during the current pandemic. Recognizing the impact of the unique risks and resilience can help in prevention and management of mental health problems in childhood. Findings of this study will provide new and additional insight into the well-being of children of individuals who spend most of their daily lives choosing to serve and take care of the health of other people. In the war against COVID-19, this study can be considered as a contribution in giving back to the modern day heroes.

II. Theoretical Background & Literature Review

This chapter delineates a review of theoretical framework and existing literature relevant to the current study. The review is divided into three main sections: (1) child and adolescent mental well-being; (2) risk factors of children of healthcare workers; and (3) child and adolescent resilience. Given the paucity of research on the subpopulation of children of healthcare workers, the review will draw on relevant concepts and findings that considered children with similar parent-child situation. The main purpose of this chapter is to provide the rationale for investigating the importance of addressing the mental health problems, as well as the influence of relevant risk and resilience factors on the mental well-being of the children of healthcare workers during the COVID-19 pandemic. Specific research questions will be developed to support the necessities of the current study.

1. Child & Adolescent Mental Well-Being

1) Conceptualizing Mental Well-Being

The consensus around a single definition of the term *well-being* has not been reached, but is generally agreed upon as multi-dimensional and understood in relation to both objective (e.g., household income, educational resources, and health status) and subjective indicators (e.g., presence of positive emotions and

moods, absence of negative emotions, fulfillment and satisfaction with life) (Statham & Chase, 2010). The latter subjective measures are conceptualized as indicators of *mental well-being*, often interchanged with the term *mental health*. Most definitions of mental well-being across human development thus assert that it is a complete state, and not merely the absence of mental illness (Lehtinen et al., 2005). While fundamentally an intrinsic value to an individual, mental health as a concept broadly reflects the balance between the person and the environment.

Lahtinen and colleagues (1999) proposed a structural model of mental health that is determined by four components: 1) individual factors and experiences such as autonomy, emotions, self-concept, adaptive capacities, physical health, and other personal resources; 2) social support including interactions within the personal and family spheres, school, work, community, etc.; 3) societal structures and resources encompassing societal policies, educational resources, economic resources, and availability of health services; and 4) cultural values such as prevailing societal norms, spiritual life, societal value given to mental health etc. These determinants have reciprocal interactions with mental health itself and amongst each other, making it a dynamic and systemic model. With this concept, mental health can be considered to encompass individual capacity and experience (Lehtinen et al., 2005).

In a developmental perspective, the ecological systems model conceptualized by Bronfenbrenner (1994) similarly takes

context into account and can be applied in understanding the dimension of mental health as a child outcome. The ecological systems theory is also transactional, wherein a fundamental tenet is the interaction and interdependence of people and their environment, hence a person-in-environment perspective. The child engages in transactions with other humans and with other systems in the environment, each having an independent and reciprocal influence on each other (Greene, 2008). This theory also contends that the children are part of the complex, interrelated system levels that place them at the center and move out to various systems that shape them (Bronfenbrenner, 1994).

According to this perspective, the most direct influences in a child are within the microsystem, composed of individuals or groups of individuals within immediate settings with whom the child has interactions, such as home and school. At the mesosystem level, interrelations among two or more microsystems, each containing the child, are considered. Exosystem involves environmental aspects beyond the immediate system of the individual, composed of interactions between two or more settings but the child is only in one setting, such as parent's workplace. At the macrosystem level, cultural "blueprint" that determines social structures and activities ultimately affect processes that occur in the microsystem, such as government policies. The final level of the ecological framework is the chronosystem, which relates the change or consistency of the child and the environment over the life course, such as family

structure changes during historical events. All of the interactions between ecological systems over time contributes to the mental well-being of the child, in accordance to the developmental age.

Nested in these levels are risks and protective factors that are at interplay. Jenson and Fraser (2015) identified the relationship between risk and protective factors, with the objective of promoting the mental well-being of child and youth, adapting operative definitions from an earlier work (Fraser & Terzian, 2005). *Risk factors*, which are attributes arising from within the individual, school, peer, family, and community, can increase the probability that a child will develop a mental health problem. The presence of a risk factor, however, is not a guarantee that a negative outcome will eventually ensue. On the other hand, *protective factors* are resources, also coming from both the child and its environment, that diminish the impact of risk factors via three mechanisms: preventing the onset of a risk factor, disrupting a potential chain of risk factors, and buffering the impact of risk on a child's mental well-being (Jenson & Fraser, 2015). Resilience, an ever evolving concept which will be discussed in detail in later sections, can be considered as a related protective factor in an individual.

Indeed, mental well-being reflects the interaction of the factors within and outside the child. The imbalance of these factors favoring risk can ultimately result in increased occurrence of undesirable mental illnesses, especially if not addressed. Despite the definition that mental health is not merely the absence

of mental illness, the fact remains that the presence of mental health conditions continues to be a detrimental worldwide problem, even in childhood.

2) Childhood Mental Illnesses

Global estimates show that child and youth mental illnesses constitute a major burden of disease. Prior to the current pandemic, mental health problems among older children and adolescents were already reported to be in the top contributors to years lost due to disability in the past two decades (Guthold et al., 2021). Adolescence, in particular, is a critical period in the development of mental illness as transition from childhood to adulthood occurs. It was estimated that one in seven adolescents experience a wide range of mental health disorders in 2019 (United Nations Children's Fund, 2021). Moreover, according to the recent data from WHO (2017), self-harm is among the leading causes of death for adolescents aged 10 to 19 years. In the Philippines, the 2015 Global School-based Student Health Survey among adolescents between the ages 13 to 17 years revealed that 17% had attempted suicide more than once in the previous year, while another 12% had seriously contemplated doing it. These rates are found to be among the highest in a comparative study of school-going youth in Southeast Asian countries (Pengpid & Peltzer, 2020). Thus, mental well-being in childhood remains to be a priority in the local and global health agenda.

Among the mental health problems, anxiety disorders and depression are two of the most prominent in children and adolescents (Ebesutani et al., 2017). Contrasted with externalizing disorders with behaviors displayed outward, both are considered *internalizing disorders*, more characteristic of the psychological and emotional state of the child with symptoms being directed inward (Liu, Chen, & Lewis, 2011). *Anxiety* can be defined as a set of emotional reactions, denoted by worried thoughts, feelings of tension, and physical changes due to an anticipation of perceived threat (Fonseca & Perrin, 2011). It can be considered normative in a child if it remains limited, short-term, and does not cause significant impairment or interference in daily functioning. However, anxiety symptoms can develop into a disorder when they consistently and negatively prevent the child from doing age-expected activities in school, social interactions, or family functioning (Liu, Chen, & Lewis, 2011).

Depression, on the other hand, is defined as a negative affective state, characterized by excessive feelings of sadness and loss of interest in activities previously enjoyed by an individual. Symptoms can also include changes in appetite, increase in purposeless physical activity, feelings of guilt or worthlessness, difficulty concentrating, and thoughts of death or suicide. A diagnosis of depression can only be made if the symptoms are persistent and are significantly different from the previous level of functioning (Liu, Chen, & Lewis, 2011).

Before reaching the clinical diagnostic criteria for these disorders, children and adolescents can still experience *sub-clinical* symptoms, which nevertheless may also result in suffering and disturbances in productivity (Lahtinen, 1999). Both anxiety disorder and depression have been reported even in children of younger age groups (Liu, Chen, & Lewis, 2011). However, adolescence is such a crucial period in relation to the trajectory of mental health into adulthood. Half of adults who suffer from a serious mental disorder had symptom onset during adolescence (Kessler et al., 2005). In addition, less attention has been paid to the prevalence of these conditions in pre-adolescent or school-age children and rates vary, may be uncommon, or underrecognized. Nonetheless, internalizing behaviors of anxiety and depression can still be present and problematic in children before reaching adolescence (Cartwright-Hatton, Price, & McKenry, 2017; Maughan, Collishaw, & Stringaris, 2013).

The etiology of these disorders are multifactorial and diagnoses could be complex given the lack of consesus in measuring child outcomes (Krause et al., 2021). However, timely identification is key in order to prevent the concurrent and long-term negative sequelae on the overall health of the children. Therefore, all these dysfunctions in the mental well-being during childhood should be recognized early for prompt evaluation and management.

3) Parent & Child Mental Well-Being in COVID-19 Era

In light of the current pandemic, the dramatic changes in the social environment of the children that can influence their mental well-being include school closures, social isolation, and changes in their daily routines. Preliminary evidence shows that children and adolescents in general had high rates of depression, anxiety, and post-traumatic symptoms caused by the global health crisis and social distancing measures, with more substantial impact in those from lower socioeconomic status (de Miranda et al., 2020). Such negative outcomes were reported across nations (Gul & Demirci, 2021; Jones, Mitra, & Bhuiyan, 2021; Racine et al., 2020), including the Philippines (Tee et al., 2020), and also reflect mental health parameters from previous pandemics (Fong & Iarocci, 2020). Although overall interpretation of recent findings may be confounded by differences in methodological techniques, disproportionate effects on the mental health of children across age groups and socioeconomic circumstances remain alarming (Ford, John, & Gunnell, 2021). In particular, older child age groups had increased rates of anxiety, depression, and other behavioral problems in the current pandemic (Gul & Demirci, 2021).

The family system is not spared from the negative impacts of the COVID-19 crisis and the preventive measures to mitigate its spread. A national survey done in the United States showed that in nearly 1 out of 10 families, deteriorating mental health for parents occurred alongside worsening behavioral health for children, as well as other problems like loss of regular child care,

change in insurance status and declining food security (Patrick et al., 2020). Furthermore, stay-at-home orders in some locations created a new source of stress and demands on parents, leading to the use of more caustic forms of parenting, and corresponding high levels of child distress and family discord (Daks, Peltz, & Rogge, 2020). High parent stress among families in home confinement also predicted anxiety and depression in children and adolescents in one transcultural study (Orgilés et al, 2021).

While parental perception of stress, parenting efficacy, and pre-existing family characteristics are critical factors for child mental well-being (Chen & Bonanno, 2020; Morelli et al., 2020; Spinelli et al., 2020), home quarantine can still be considered an avenue in promoting family relationships, family agency, and family resilience (Prime, Wade, & Brown, 2020). However, this may not be the case for the families of healthcare workers. The story of the children of COVID-19 workers in the healthcare system may have unique outcomes. Hospital duties and possible necessary quarantine confer an increased risk of experiencing COVID-related stresses (Barzilay et al., 2020) and can prevent the parents from taking care of their own children at home (Dubey et al., 2020). In surveys done in Turkey, children of healthcare workers were indeed found to have anxiety and sleep problems (Şahin, Hoşoğlu, & Önal, 2020; Şahin, Önal, & Hoşoğlu, 2021). Thus, further determining the impact of having a healthcare worker parent on child mental well-being, especially in the time of pandemic, is warranted.

2. Risk Factors of Children of Healthcare Workers

1) Work-Related Parent Stress

As early as the 14th century when the term was first coined and until today, the definition of *stress* has been long debated and is variably characterized as a stimulus, an inferred bodily state, and an observable response to a situation (Bush et al., 2017). In social science, the classic research of Lazarus and Folkman (1984) suggests that stress is relative to an individual's cognitive appraisal of the environment. That is, it occurs when an individual perceives the demands of the environment as exceeding personal resources and thus endangering the well-being (Lazarus & Folkman, 1984). Relatedly, stress is considered by most as a negative emotional experience, which can manifest biochemically, physiologically, cognitively, and behaviorally in a predictable manner (Baum, 1990).

For parents, stress is experienced not only due to the demands of child-rearing, but also because of everyday hassles and the expectations of their social and environmental circumstances, including their work. Occupational stress experienced by working parents is inevitable. A robust body of research has shown how different aspects of work, such as negative interactions with co-workers and superiors, irregular shifts, excess hours, and job insecurity, place a significant amount of stress on an individual (e.g., Campione, 2008; Gallavan & Newman, 2013; Repetti & Wood, 1997). There is also physiologic

evidence that work stress had a substantial contribution to the overall stress of parents, who were found to have elevated cortisol levels during their working days than non-working days (Hibel, Mercado, & Trumbell, 2012).

The effects of negative stress from work can spillover into the many facets of a parent's life, including marriage, parenting ability, and parent-child relationship. In some studies on working mothers, for example, those who reported greater work-related stress showed a decrease in enjoyable interactions and sensitivity to their children (Costigan et al., 2003), with more emotional and behavioral withdrawal, less child-directed speech and attention, and less warmth during play sessions (Repetti & Wood, 1997). Consequently, the spillover effect of work-related stress was found to be significantly associated with internalizing and externalizing problems in young children (Hare, 2014; Vieira et al., 2016). Children can also be sensitive to parental stress and may emulate how parents respond in stressful situations (Palmer, 2008). Consistent with the ecological systems model by Bronfenbrenner (1994), these findings demonstrate how the parents' social environment outside the home (i.e. exosystem) can have an indirect impact on the lives of their children.

For healthcare providers, occupational stress can arise from one or a combination of organizational factors, imbalance of demands, skills, and social support at work. Such factors can result in severe distress, burnout or psychosomatic diseases, and subsequent deterioration of quality of life and service provision

(Weinberg & Creed, 2020). As a glaring example, physician burnout is a public health crisis by itself, with more than 50 percent experiencing emotional fatigue secondary to work-related stress (West, Dyrbye, & Shanafelt, 2018).

In the current pandemic, the perceived stress of healthcare professionals centers mostly on COVID-19-related concerns, whether personally contracting the disease, their family contracting the disease, or unknowingly infecting others (Barzilay et al., 2020; Coto et al., 2020). Many of these healthcare workers have to make extremely difficult decisions (e.g., how to allocate limited ventilators to equally needy patients) and work under intense pressure, precipitating possible moral injury. Moral injury, although not a formal mental health diagnosis, is the psychological distress due to actions (or lack thereof) that violate an individual's moral or ethical code (Greenberg et al., 2020).

With the advent of epidemiologic findings on the psychological impact of the pandemic, Taylor and colleagues (2020) conceptualized COVID Stress Syndrome. It is characterized by a constellation of symptoms as a maladaptive reaction to COVID-related stressors that cause functional impairment (Taylor, 2021). Correspondingly, moderate levels of stress were perceived by healthcare workers in the domains of danger and contamination (Delgado-Gallego et al., 2020), as could be expected in a profession with significant exposure to infected individuals (Gomez-Ochoa et al., 2021). Following these, healthcare workers who are parents undoubtedly experience profound stress due to

COVID-19, which can interfere with the quality of their parenting and their relationships with their children.

The consequences of significant work-related parental stress on the mental health of their children at home is worth investigating. But then again, an inherent problem the healthcare providers experience in this pandemic is the extended hours they spend away from their families.

2) Parent-Child Separation

Apart from suffering major stress due to the current crisis, parents who are healthcare workers in the frontlines sacrifice their time apart from their children. To some, not being physically and sometimes psychologically present for their children during these stressful times is the most challenging (Bryant, 2020). This should be considered an important issue because an extensive body of research since the 1940's has shown that parent-child separation of any cause is associated with negative child outcomes (Waddoups, Yoshikawa, & Strouf, 2019).

Much of this groundwork originates from attachment theory, suggesting that separation from caregivers in early life has a subtantial influence in the formation of attachment (Waddoups, Yoshikawa, & Strouf, 2019). John Bowlby, one of the earlier child researchers, suggested that prolonged separation of a child from the mother (or the mother substitute/primary caregiver) in the formative years can result in delinquent character development and persistent misbehavior (Bowlby, 1946). During World War II,

some children experienced more trauma secondary to separation from their parents than due to exposure to stressors associated with frequent air raids and war (Freud & Burlingame, 1943). Until today, decades after these early studies, there is a general pattern of negative impact of parent-child separation on child development, irrespective of the circumstance of the separation (Waddoups, Yoshikawa, & Strouf, 2019).

Consistent, committed, and nurturing caregiving allows the best chance for successful child development (Gadsden, Ford, & Breiner, 2014). A common reason for disrupted caregiving, however, is also related to the nature of parents' employment, resulting in their volitional absence. This includes pursuing jobs abroad for economic opportunities not provided in home country (i.e., migrant parents), work-related travel (e.g., military deployment), and extended working hours that keep them away from home (e.g., pilots, truck drivers, physicians in training) (Humphreys, 2019). In a study done by Roeters, Van Der Lippe, and Kluwer (2010), longer working hours for parents were found to be associated with less parent-child time, which in turn was linked to lower parent-child relationship quality. Furthermore, the separation can lead to a decrease in affection and physical intimacy between the parent-child dyad, possibly resulting in emotional neglect (Valtolina & Colombo, 2012). Consequently, these can manifest as compromised child mental health outcomes.

Parental separation, considered a source of toxic stress, engages strong and prolonged activation of the child's stress-

management system (Bridgman, 2014). Age is an important contextual factor in this regard, and “sensitive periods” in development is emphasized in research on parent-child separation (Humphreys, 2019). Young children are particularly vulnerable to adversity due to their neural plasticity and increased responsiveness to the environment (Stiles, 2000). A series of landmark studies in Romania has found that children placed into foster care from institutional care at an earlier age had better cognitive, language, and socioemotional outcomes (Nelson et al., 2014). Similarly, rapid developmental changes in adolescence also makes this period unique when it comes to plasticity and responsiveness to the environment (Fuhrmann, Knoll, & Blakemore, 2015), and hence should not be neglected.

Another important facet of parent-child separation is its duration, both the length and chronicity. Studies have indicated that repeated and prolonged absence of deployed military parents negatively affected their children’s mental well-being, including anxiety and depression (Chandra et al., 2010; White et al., 2011). Similar adverse impact was noted in children and adolescents left behind by their migrant parents, evident in poor academic performance, conflicts with peers and teachers, poor self-esteem, depression, and generalized anxiety (Valtolina & Colombo, 2012; Wong, Chang, & He, 2009).

As for healthcare workers who have children, a survey among physicians revealed that they expressed feelings of inadequacy in their parental roles, as well as regret for not having

enough time with their families even before the pandemic (Parsons et al., 2009). In the current health crisis, children of those who stayed away from home were found to have more sleep problems (Şahin, Önal, & Hoşoğlu, 2021). With these limited findings, the significance of this drawback of the healthcare profession on their children warrants further documentation.

3. Child & Adolescent Resilience

1) Conceptualizing Resilience

In the face of adversity, not all children and youth suffer unfavorable outcomes. Some are so-called "resilient," who have successfully adapted and thrived, even during times of disasters (Masten & Narayan, 2012). Like parent-child separation, the concept of resilience stems from early research on attachment. Secure attachment was found to mitigate the vulnerabilities caused by institutionalization, early deprivation (e.g., household poverty), and other risks faced during childhood (Waddoups, Yoshikawa, & Strouf, 2019). However, resilience appears to encompass notions above and beyond attachment theory, conventional developmental psychology, and assessments of children's needs (Hill et al., 2007).

Intuitively, resilience is similar to fortitude in the face of adversity. The concept of resilience, broad and dynamic in itself, has a cluster of meanings presented by researchers and scholars alike. A constantly evolving concept since its emergence in 1970's,

it has been considered as a trait, a process, an outcome or pattern of the life course, or a broad concept that covers all these (Masten, 2018). With numerous definitions available, two key features of resilience appear to be common: 1) significant threat or difficult circumstances, and 2) positive adaptation (Hill et al., 2007). It involves protective and positive processes that reduce maladaptive outcomes. It is therefore influenced by the interplay of risk and protective factors within and outside systems of an individual. Greenberg (2016) has identified three broad categories of these protective factors: 1) individual/child, 2) quality of the child's relationships, and 3) broader environmental factors. Adopting a socioecological perspective as conceptualized by Ungar (2008), child resilience is viewed as the capacity of the child to navigate in dangerous environments and the capacity of the environment to provide all the resources the child needs in contextually meaningful ways.

Parents, traditionally the primary caregivers, are therefore critical for the mental well-being of children when confronted with adversity. In a family systems perspective, the well-being (or conversely, maladjustment) of parents can influence the health outcomes of the child. Nonetheless, even without parental presence, the child can be protected and can rely on multiple "back-up" systems going forward, e.g. parent-child relationship quality before the separation, family cohesion, social support from other family members and community, cultural beliefs and religious practices, etc. (Masten & Barnes, 2018). Hence,

resilience factors can be considered as aids in safeguarding the child against the harmful consequences of risks factors.

2) Influence of Resilience on Risk Factors

Models on how resilience factors operate in changing the trajectory from risk exposure to negative outcome have been identified, especially among adolescents (Fergus & Zimmerman, 2005). A *compensatory* model entails a direct effect of resilience on an outcome independent of the effect of the risk factor. For example, in a study among high school students, higher levels of resilience predicted lower scores of depression and anxiety (Hjemdal et al., 2011). As a background to this, a study by von Soest and colleagues (2010) has revealed that a measure of resilience in adolescents significantly correlated more with internalizing than externalizing symptoms.

In the *protective* model, on the other hand, resilience factors moderate or buffer the effects of a risk on a negative outcome (Fergus & Zimmerman, 2005). In several studies on military families, the effects of separation of children and their military parents were consistently found to be moderated by the remaining parent's positive coping, social support, and family functioning prior to separation (Lincoln, Swift, & Shorteno-Fraser, 2008; Van Breda, 1999), all of which are integral in building child resilience. Resilience was also found to buffer the effects of prolonged parental separation on the mental well-being of left-behind adolescent children of migrant parents (Wang & Liu, 2020).

In addition, a retrospective analysis done by Beutel and colleagues (2017) showed that highly resilient adults who experienced adversity in childhood had better mental and physical health than their less resilient counterparts.

Investigations on healthcare providers in this pandemic have also demonstrated mitigating effects of resilience on COVID-19 stress, anxiety, and depression (Barzilay et al., 2020; Mosheva et a., 2020). In the general population of children, a study done in Italy (Cusinato et al., 2020) showed a negative association between psychopathological symptoms and resilience. The buffering effect of child resilience, however, was tested on parent's well-being instead of their children's (Cusinato et al., 2020). With these findings, the significance of resilience factors in these unprecedented times should be emphasized in children placed in more vulnerable circumstances, like the children of healthcare workers, to promote their optimal mental well-being.

III. Research Questions & Definition of Key Terms

Grounded in the preceding theoretical background and literature reviews, the following research questions are established and the related terms are operationally defined in this chapter.

1. Research Questions

In the COVID-19 pandemic, the dyad of healthcare worker parent-child can be considered as distinct from others. The parents are part of the essential workers and are at the forefront in fighting the virus. They also leave their children at home, sometimes for an extended period due to an increased risk of transmitting a possible infection. The present study would advance the initial research in determining the relationship between the healthcare worker parent-child dyad, with further consideration of the novel risks and resilience factors discussed in the previous section. The following research questions emerge.

The first question aims to determine the prevalence of negative outcomes in the mental well-being of children of healthcare workers and their parents. The second question examines the relationship between related risk factors (i.e. parent COVID stress and parent-child separation) and the negative child outcomes. The last question inquires the relationship between

child resilience and the child outcomes, as well as its role in moderating the impact of the risk factors on the child mental well-being. Corresponding hypotheses follow the research questions.

1. What is the prevalence of the problems in the mental well-being of healthcare worker parents and their children?
    1) What is the frequency and severity of perceived COVID stress among healthcare worker parents?
    2) What is the frequency and severity of anxiety and depression symptoms among the children of healthcare workers?

    In a prevalence study, there is no hypothesis to test and therefore none formed for the first research question.

2. Do related risk factors affect the mental well-being of children of healthcare workers?
    1) Does parent COVID stress influence child anxiety and depression symptoms?
    2) Does parent-child separation influence child anxiety and depression symptoms?

    Being risk factors, parent COVID stress and parent-child separation are hypothesized to be positively associated with child anxiety and depression.

3. Does resilience have an impact on the mental well-being of children of healthcare workers?
    1) Does resilience influence child anxiety and depression symptoms?
    2) Does resilience moderate the effects of related risk factors (parent COVID stress and parent-child separation) on child anxiety and depression symptoms?

Child resilience is expected to have an inverse relationship with child anxiety and depression symptoms. As a moderating factor, it is also hypothesized to buffer the effects of the related risk factors on child mental well-being.

2. Definition of Key Terms

The following operational definitions clarify the key terms used in the study.

1) Parent COVID Stress

Parent COVID Stress corresponds to the stress perceived by the healthcare parents secondary to the COVID-19 pandemic and is considered as work-related stress in this study. Given the inherent higher infection exposure risk among healthcare worker parents than adults in general population (Gomez-Ochoa et al., 2021), stress due to COVID-19 is a reflection of stress resulting from their profession in the healthcare field.

2) Parent-Child Separation

Children can be separated from their parents due to various circumstances, one of which is secondary to the nature of the parent's occupation (Humphreys, 2019). In this study, *parent-child separation* refers to the job-related separation between healthcare parents and their children in the current COVID-19 pandemic.

3) Child Resilience

Resilience has several definitions as conceptualized by different scholars in this emerging field of science. Given the importance of protective factors within the child and the outside environment, a socioecological perspective of resilience as a resource (Ungar, 2008) is adopted. Hence, in this study, *child resilience* is defined as the capacity of the child to navigate in dangerous environments and the capacity of the environment to provide all the resources the child needs in the background of COVID-19 global crisis.

4) Child Anxiety

Child anxiety refers to a mental well-being problem with symptoms characterized by a broad spectrum of anxious responses, worried thoughts, feelings of tension, and physical changes due to perceived threat, with or without an identifiable

cause, that can potentially interfere with the daily tasks and functioning of the child.

5) Child Depression

Child depression refers to a mental well-being problem of a child with maladaptive symptoms characterized by excessive feelings of sadness, loss of interest in previously enjoyed activities, changes in appetite, feelings of guilt or worthlessness, difficulty concentrating, and thoughts of death or suicide.

IV. Method

This chapter delineates the comprehensive description of study methods and procedures in order to support the previously presented research questions. A detailed depiction of the process for selecting research participants, choosing appropriate assessment tools, the steps in conducting study procedures and data analyses are explained in detail in this section.

1. Participants

Filipino healthcare workers with children of ages 18 years below (N= 110) and children between ages 8 to 18 years (N= 41) were surveyed online on April to May 2021. Participants were recruited via convenience sampling through various social media sites. Exclusion criteria include any major diseases and diagnosed special needs in children (e.g. developmental disabilities, chronic illnesses or behavior disorders). Out of the 110 parents who initially agreed to join the research, only 61 finished the parent survey and only 41 sent back completed child consent and child survey responses. Thus, the results from a total of 61 parents and 41 parent-child dyads were analyzed.

Descriptive statistics for the participants' demographic background are presented in Table 1. Parents had a mean age of 39.5 years (SD = 7.4, 79% females), majority were physicians (73%) and belong to the upper socioeconomic status (34%).

Table 1.

Demographic Background of the Participants

Child age in years, *N* = 41, *M (SD)*	12.3 (3.1)
Age range, *n* (%)	8–12 years 22 (54%)
	13–18 years 19 (46%)
Child Gender, *N* = 41, *n* (%)	Female 21 (51%)
	Male 20 (49%)
Parent age in years, *N* = 61, *M (SD)*	39.5 (7.4)
Parent Gender, *N* = 61, *n* (%)	Female 48 (79%)
	Male 13 (21%)
Number of siblings, *N* = 41, *M (SD)*	1.2 (1.0)
Presence of caretaker, *N* = 41, *n* (%)	Yes 29 (71%)
	No 12 (29%)
Parent Occupation, *N* = 61, *n* (%)	Physician 44 (73%)
	Non-Physician 17 (27%)
	Nurse 10 (16%)
	Laboratory Technician 4 (6%)
	Nursing assistant 3 (5%)
Working parent in hospital, *N* = 41, *n* (%)	One 27 (67%)
	Both 14 (33%)
Hospital affiliation, *N* = 61, *n* (%)	Private 26 (43%)
	Government 13 (21%)
	Both 22 (36%)
Socioeconomic status, *N* = 61, *n* (%)	Lower 4 (7%)
	Middle-Lower 6 (10%)
	Middle-Middle 16 (26%)
	Middle-Upper 14 (23%)
	Upper 21 (34%)
Parent COVID vaccination, *N* = 61, *n* (%)	None 10 (17%)
	One 19 (31%)
	Two 32 (52%)

Given that the present study is an initial investigation on this Filipino subpopulation, especially for the prevalence study, a wide age range (8 to 18 years) was selected as selection criteria for the children of healthcare workers. A minimum of 8 years was specifically chosen as children of this age are able to self-

evaluate, form an overall evaluation of self-worth (Harter, 2012), and at the same time possess proficient reading comprehension of the English language for Filipinos (Buslon & Alieto, 2019). The mean age of children was 12.3 years (*SD* = 3.1 years). For the age distribution, 54% (*n* = 22) are pre-teens with age range between 8 to 12 years, while 46% (*n* = 19) are already in their teens between the ages 13 to 18 years. Child gender is almost equally distributed. Majority of the children have only one parent working as a healthcare worker (67%), and are cared for by another person besides the parents (71%).

2. Measures

1) Parent COVID stress

Taylor and colleagues (2020) developed COVID-19 Stress Scales (CSS), a 36-item tool to quantify the amount of distress brought about by the pandemic in the parents. The original 6-domain scale was found to be more reliable among adult Filipino respondents (Montano & Acebes, 2020) than the more final widely-used 5-domain version (Taylor et al., 2020), and hence was used for analysis in this study. The specific subscales and their sample items include *danger* ("I am worried that our healthcare system won't be able to protect my loved ones."), *socioeconomic concerns* ("I am worried about pharmacies running out of prescription medicines."), *xenophobia* ("I am worried about coming into contact with foreigners because they might have the

virus."), *contamination* ("I am worried that people around me will infect me with the virus."), *traumatic stress* ("I had bad dreams about the virus."), and *compulsive checking* ("Checked social media posts concerning COVID-19").

CSS utilizes a 5-point scoring system (from 0 to 4, either via agreement or frequency depending on the subscale). No items were reverse coded and the total scores were tallied by simple summation. Higher scores correspond to higher levels of COVID stress perceived. The Cronbach alpha of each subscale/domain and other details of the scale are summarized in Table 2, and the full list of the questionnaires are presented in Appendix 1.

Because of the constantly changing nature and circumstances surrounding COVID-19, CSS measures the stress levels of participants only for the past 7 days (Taylor et al., 2020). Four levels of stress severity based on the total number of scores (absent = 0-35, mild = 36-71, moderate = 72-107, and severe = 108-144) were utilized among healthcare workers in one investigation (Delgado-Gallegos et al., 2020) and adopted for analysis in this study. The same levels of severity were used for the total scores in each subscale (absent = 0-5, mild = 6-11, moderate = 12-17, and severe = 18-24) (Delgado-Gallegos et al., 2020).

Table 2.

COVID Stress Scales Detailed Description

Domains	Description [Item numbers]	Number of items	Cronbach's alpha
Danger	Refers to fear of becoming infected with COVID-19 [1, 2, 3, 4, 5, 6]	6	.91
Socioeconomic Consequences	Fear of socioeconomic effects of the pandemic [7, 8, 9, 10, 11, 12]	6	.93
Xenophobia	Refers to fear of coming into contact with foreigners for fear that they might be carrying the infection [13, 14, 15, 16, 17, 18]	6	.92
Contamination	Refers to fear of coming into contact with fomites on objects and surfaces [19, 20, 21, 22, 23, 24]	6	.91
Traumatic Stress	Refers to symptoms about the pandemic including nightmares and intrusive thoughts that are considered as traumatic stress [25, 26, 27, 28, 29, 30]	6	.91
Compulsive Checking	Refers to compulsive checking and seeking reassurance regarding pandemic-related threats [31, 32, 33, 34, 35, 36]	6	.82

2) Parent-Child Separation

Parent-child separation was measured based on its duration, corresponding to the number of hours the parent is away from home per week in the past month, including the need for quarantine. This variable was integrated in the parent sociodemographic survey.

3) Child Resilience

The Child and Youth Resilience Measure-Revised (CYRM-R; Jefferies, McGarrigle, & Ungar, 2019) is a 17-item questionnaire designed to measure a child's level of socio-ecological resilience. It is a validated revision of the 28-item original Child and Youth Resilience Measure developed by Ungar and Liebenberg (2011) using data from 11 countries which was found to be contextually sensitive worldwide (Research Resilience Center, 2018). CYRM-R is composed of 2 subscales with items that assess resources of *personal resilience* (e.g., "I get along with people around me.") and *relational resilience* (e.g., "My parent/caregiver know a lot about me.") (Jefferies, McGarrigle, & Ungar, 2019). A more detailed description of CYRM-R scale is summarized in Table 3. Items were rated on a 3-point Likert scale ranging from 0 to 2 to express agreement. All items are positively worded and scored by simple summation of responses. Higher scores indicate characteristics associated with resilience.

CYRM-R has both child and caregiver/person-most-knowledgeable versions. In this study, child participants answered the self-report questionnaires. Children aged 8 to 11 years completed the child version with simplified language, and those aged 12 to 18 years completed the standard youth version. While there is no "hard" cutoff values, resilience levels based on total raw scores were categorized as low (below 38), moderate (between 38 to 42), high (between 43 to 45), and exceptional

(above 45) derived from the original sample. Raw scores were also converted from ordinal to interval scale for a more valid comparison and statistical analysis (Resilience Research Centre, 2018).

The full list of questionnaires for CYRM-R child version, youth version, and the conversion table are presented in Appendix 2, Appendix 3, and Appendix 4, respectively.

Table 3.

Child and Youth Resilience Measure-Revised Detailed Description

Subscale	Details [Item numbers]	Number of items	Cronbach's alpha
Personal Resilience	Refers to the capacity of the child to find resources that promote well-being [1, 2, 3, 7, 9, 10, 12, 13, 14, 16]	10	.82
Relational Resilience	Refers to the capacity of the family, community, and government to provide resources in ways that the child values [4, 5, 6, 8, 11, 15, 17]	7	.81

4) Child Anxiety & Child Depression

The Revised Child Anxiety and Depression Scale (RCADS-25) is a 25-item version of the original 47-item scale developed by Chorpita and colleagues (2000). It is widely accepted globally to screen for anxiety and depression among children and adolescents. RCADS-25 has both child and parent versions (Ebesutani et al., 2012). In this study, child participants completed

the self-report questionnaires themselves. RCADS-25 is divided into two subscales measuring *child anxiety* (15 items, e.g. "I worry that something awful will happen to my family.") and *child depression* (10 items, e.g. "I have no energy for things."). Items were rated on a 4-point Likert scale from 0 ("never") to 3 ("always"). No items were reverse coded.

Using a scoring program provided by Ebesutani and colleagues (2012) [1], scores for each item were encoded accordingly. Total raw scores for each subscale were transformed to *t*-scores against a normal distribution according to age/school grade and gender provided. In all instances, a higher score corresponds to a greater degree of symptom severity. Converted *t*-scores for both anxiety and depression subscales are divided into scoring ranges: *low severity* or *normal range* (*t*-score below 65); *medium severity* or *borderline range* (*t*-score between 65 to 70); and *high severity* or *clinical range* (*t*-score above 70) (Ebesutani et al., 2012). Hence, children within the borderline and clinical range were considered to have child anxiety and depression symptoms.

This tool is a cross-culturally reliable and suitable measure of depressive and anxiety symptoms for children and adolescents, as reported in one global study that included Filipino participants (Stevanovic et al., 2017). Specific Cronbach alpha for each

[1] The automated scoring program is available for the RCADS-25 at www.childfirst.ucla.edu/resources.html

subscale and other details of RCADS-25 are summarized in Table 4, and the full questionnaire is presented in Appendix 5.

Table 4.

Revised Child Anxiety and Depression Scale-25 Detailed Description

Subscale	Description [Item numbers]	Number of items	Cronbach's alpha
Anxiety	Refers to broad anxious responses expressed as feelings of fear and panic, restlessness and irritability, and palpitations, tremors [2, 3, 6, 7, 9, 11, 12, 14, 17, 18, 20, 22, 23, 25]	15	.86 (.80)
Depression	Refers to symptoms of excessive sadness, loss of interest in previously enjoyed activities, lacking motivation, withdrawal from social activities, that interferes with daily life [1, 4, 8, 10, 13, 15, 16, 19, 21, 24	10	.83 (.80)

* Cronbach alpha in clinical sample and school sample in parentheses (Ebesutani et al., 2017)

5. Sociodemographic Variables

A survey questionnaire was completed by parents which include sociodemographic variables that were used as covariates (details in parenthesis are how the variables were coded for statistical analysis): age of both children and parents (in years), gender of both children and parents (male = 0, female = 1), number of siblings, presence of caretaker (no = 0, yes = 1), parent

occupation (non-physician = 0, physician = 1), parent working as healthcare worker (one = 0, both = 1), hospital affiliation (private = 0, government = 1, both = 2), socioeconomic status (SES) based on monthly family income as adapted from the household profiling of Albert, Santos, and Vizmanos in 2018 (lower = 0, middle-lower = 1, middle-middle = 2, middle-upper = 3, upper = 4)[2], and the number of COVID-19 vaccine doses the parent received.

The full sociodemographic survey questionnaire is presented in Appendix 6.

[2] SES based monthly family income (in Philippine pesos) as follows:
Lower = less than 20,000 per month
Middle-Lower = between 20,000 to 40,000 per month
Middle-Middle = between 40,000 to 70,000 per month
Middle-Upper = between 70,000 to 125,000 per month
Upper = more than 125,000 per month

3. Procedures

The study was conducted from April 12th to June 15th of 2021 following the protocol approval of the Seoul National University Institutional Review Board (SNU IRB No. 2014/001-017) (see Appendix 7). Given the difficulty of in person/face-to-face surveys due to travel restrictions in the Philippines, participant recruitment was done remotely via online platforms. The recruitment invitation, which contained brief description of the study and the weblink with parent consent, was posted in various social media sites (e.g., Facebook, Twitter).

Parents who agreed to participate completed the sociodemographic survey and CSS through the web link included. Considering the context of the parent-child dyad related to the risks (i.e., parent stress and parent-child separation), self-administered surveys were preferred for the children. Furthermore, for feasibility reasons, the online study process prompted selection of shorter child surveys with good reliability and validity to reduce participant burden. An email containing child consent and child surveys (CYRM-R and RCADS-15) were sent to the email address provided by the parents. The children then completed their own consent forms (signed by parents as well) and surveys, via either editing using an electronic device or manually answering printed forms. All responses (data file or image of answered response forms) were sent back to the researcher through email.

After scoring all the surveys for both parents and children, the researcher sent feedback evaluation and appropriate recommendations individually to parents with completed parent-child dyad responses via email.

4. Data Analysis

The collected data were analyzed using the statistical program IBM SPSS Statistics for Windows, version 25 (IBM Corp., Armonk, N.Y., USA). Descriptive statistics was first conducted to determine the prevalence and general trends among study variables.

In order to analyze the influence of the predictor variables (parent COVID stress, parent-child separation, child resilience) and moderator variable (child resilience), hierarchical regression analyses were performed for both outcome variables child anxiety and depression using the parent-child dyad data. Assumptions for linear regression were tested prior to main analysis. Upon meeting the assumptions, data was analyzed using the *enter* method in linear regression. In Model 1, sociodemographic variables were added, followed by the main predictor variables (i.e., weekly average duration of parent child separation in hours, parent CSS scores, CYRM-R scores) in Model 2. As the final step, the interaction terms for child resilience and the two related risk factors were added in Model 3.

With regards to the number of parent-child dyads (N = 41), a rule of thumb suggested by some researchers states that 10 to 15 participants per predictor is sufficient, and a study further argued that a minimum sample size for research involving regression analyses is 25 (Jenkins & Quintana-Ascencio, 2020). For power estimation, post-hoc analysis using G*power statistical software (Faul et al., 2009) revealed that with sample size set at 41 and alpha value set at .05, the power of the models to detect small-sized and medium-sized effects are .09 and .46, respectively.

V. Results

This chapter presents the statistical results of the data analysis and the corresponding comparison with the hypotheses regarding the relationship between the study variables. The current section is divided into two parts: 1) descriptive analyses of study variables for parent and children data, and 2) hierarchical regression analyses examining the direct and moderating relationships among the risk factors (parent COVID stress, parent-child separation) and child resilience on both child anxiety and depression.

1. Descriptive Analyses

1) Parents

With regard to COVID-19-related stress, the mean CSS score of the healthcare workers was 72.8 (*SD* = 27.2), falling under the category of moderate stress, which 42% of the parent respondents perceived. This was followed by mild stress (38%), severe stress (11%), then absent stress (9%). Analysis of the facets revealed that the areas with predominantly moderate to severe stress include danger (91%), contamination (77%), and compulsive checking (63%) (see Figure 1). Most notably, severe stress is strongly prevalent in the danger domain, reported by more than half of the participants (52%). Xenophobia subscale had comparable percentages among severity levels, while the areas of

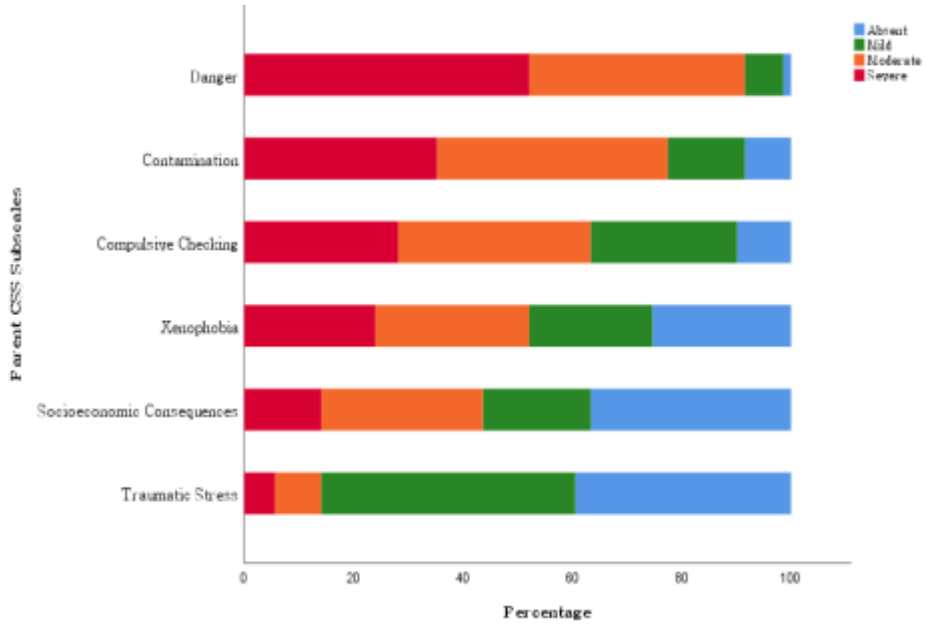

Figure 1. *Severity Levels according to CSS Subscales*

socioeconomic consequence and traumatic stress had mainly absent to mild levels.

2) Children

For the mental well-being outcome measures, majority of the children did not experience clinical symptoms of anxiety (78%) with mean *t*-score of 55.6 (*SD* = 10.9). Nonetheless, 22% of the child respondents were symptomatic (borderline = 15%, clinical = 7%). Similarly, majority of the children were asymptomatic for depression (86%) with mean *t*-score of 49.2 (*SD* = 13.2), while 14% experienced depressive symptoms (borderline = 7%, clinical = 7%). Anxiety and depression scores were also noted to be significantly

correlated with each other (see Bivariate Correlations of Study Variables in Appendix 8).

For the duration of parent-child separation, the parents' weekly average of being away from their children in the dyad sample was 63.9 hours (*SD* = 45.1). With regard to child resilience, more than half had exceptional resilience (56%) with adjusted mean score of 32.76 (*SD* = 4.7). This was followed by high resilience (24%), moderate (15%), then low (5%).

2. Hierarchical Regression Analyses

Several key assumptions required in multiple regression analysis were reviewed prior to the actual analysis. The results for the assumption tests for both outcome variables (child anxiety and child depression) were similar and are presented together below.

Because the introduction of interaction terms (each risk factor x resilience) to verify a moderating effect in hierarchical models increases the chances of multicollinearity, testing for this assumption was conducted. Initial results showed that interaction terms produced high multicollinearity for both outcome variables (Variance Inflation Factor/VIF > 140, Tolerance < .01). All the predictor variables (i.e., parent COVID stress, parent-child separation, child resilience) were then mean centered which corrected the multicollinearity problem (for child anxiety and depression, respectively: VIF = 1.7, 1.9; Tolerance < .5, .6). The data also met the assumption of independent errors with Durbin-

Watson values close to 2 (for child anxiety and depression, respectively = 2.34, 2.26), verifying the absence of autocorrelation in the sample. Analysis of standard residuals of regression models for both outcome variables showed no outliers in the sample with normally distributed errors, and also meeting the assumptions of homogeneity of variance and linearity. Finally, the data verified the assumption of non-zero variances.

Results for the main hierarchical regression analyses in predicting the outcome variables are as follows.

1) For Child Anxiety

Table 5 shows the models and variable coefficients for the regression analysis on child anxiety scores. In Model 1, the combination of sociodemographic variables alone did not produce a significant regression equation, $F(12, 27) = 1.05$, $p = .435$. No significant predictors were noted in this first model. The addition of the main predictors in Model 2 resulted in a significant regression equation, $F(3, 24) = 2.38$, $p = .028$, explaining 35% of the variance in the child anxiety scores. In this model, parent-child separation was a significant predictor ($b = .80$, $p = .004$), as well as the control variables child age ($b = .45$, $p = .009$) and parent age ($b = -.41$, $p = .036$).

Table 5.

Summary of Hierarchical Regression Analysis for Variables predicting Child Anxiety

	Variable	Model 1	Model 2	Model 3
		β (S.E.)	β (S.E.)	β (S.E.)
Socio-demographic Factors	Child Age	.36 (.66)	.45(.55)**	.36 (.61)*
	Child Gender	-.15(3.98)	-.01(3.44)	-.03(3.48)
	Parent Age	-.34 (.35)	-.41(.29)*	-.43(.29)*
	Parent Gender	.07 (5.28)	-.09(4.46)	-.01(4.54)
	Number of Siblings	-.02(2.00)	-.44(2.25)	-.28(2.62)
	Working Parents	-.00(3.28)	.25 (2.97)	.20 (3.06)
	Presence of Caretaker	.02 (5.09)	-.42(4.95)	-.42(5.02)
	Hospital Affiliation	-.01(3.21)	-.06(2.74)	-.03(2.78)
	Occupation	-.30(7.41)	-.31(6.43)	-.20(6.73)
	Parent Vaccine Dose	-.11(3.31)	-.28(3.31)	-.12(3.40)
	SES	.39 (2.37)	.45 (2.01)	.40 (2.06)
Main Predictors	Parent COVID Stress		.34 (.08)	.39 (.08)*
	Weekly Separation		.80(.06)**	.69 (.06)*
	Child Resilience		-.01 (.41)	-.13 (.42)
Interaction Terms	Parent COVID Stress x Child Resilience			.18 (.02)
	Weekly Separation x Child Resilience			.22 (.01)
F-value		1.05	2.38*	2.20*
R^2		.32	.60	.63
Adjusted R^2		.01	.35	.34
R^2 change		.2	.28**	.03

* p < .05. **p < .01

The regression equation in Model 3 remained significant, F (2, 22) = 2.20, p = .042, adjusted R^2 = .34, but was not significantly different from Model 2 with only 3% difference in explanatory power (p = .411). In this last model, weekly separation remained significant (b = .69, p = .016) and parent COVID-related stress was a significant predictor (b = .40, p = .044). Child resilience and its interaction with the other main predictors, however, were not significant in this hierarchical regression sequence for child anxiety in all models. In addition, child age (b = .36, p = .050) and parent age (b = -.43, p = .032) remained significant.

The results of this hierarchical regression analysis confirmed that longer parent-child separation and higher parent COVID stress resulted in higher child anxiety. However, child resilience did not significantly influence child anxiety, both the direct and moderating effect, contrary to what was hypothesized. Older child age is associated with higher child anxiety, while older parent age is associated with less child anxiety symptoms.

2) For Child Depression

Table 6 summarizes the models and variable coefficients for the regression analysis on child depression scores. The combination of sociodemographic variables in Model 1 produced a significant regression equation, F (12, 27) = 2.15, p = .048, explaining 26% of the variance in child depression scores. Significant control variables include child age (b = .45, p = .01) and socioeconomic status (b = .54, p = .03).

Table 6.

Summary of Hierarchical Regression Analysis for Variables predicting Child Depression

	Variable	Model 1	Model 2	Model 3
		β (S.E.)	β (S.E.)	β (S.E.)
Socio-demographic Factors	Child Age	.45(.71)*	.41(.65)*	.28(.68)
	Child Gender	-.12(4.27)	-.04(4.04)	.01(3.89)
	Parent Age	-.21(.37)	-.5 (.34)	-.18(.33)
	Parent Gender	-.13(5.65)	-.24(5.23)	-.22(5.07)
	Number of Siblings	-.03(2.15)	-.37(2.64)	-.26 2.93)
	Working Parents	-.17(3.52)	.15(3.49)	-.01(3.42)
	Presence of Caretaker	-.14(5.47)	-.40(5.81)	-.35(5.62)
	Hospital Affiliation	.26(3.44)	.09(3.22)	.15(3.10)
	Occupation	-.41(7.95)	-.46(7.55)	-.33(7.53)
	Parent Vaccine Doses	.14(3.55)	-.05(3.56)	.11(3.81)
	SES	.54(2.54)*	.41(2.36)	.09 (2.31)
Main Predictors	Parent COVID Stress		-.13 (.10)	-.05 (.09)
	Weekly Separation		.57 (.07)*	.44 (.07)
	Child Resilience		-.32 (.48)	-.39(.47)*
Interaction Terms	Parent COVID Stress x Child Resilience			.32 (.02)
	Weekly Separation x Child Resilience			.44 (.01)
F-value		2.15*	2.85*	2.99**
R^2		.49	.64	.70
Adjusted R^2		.26	.42	.46
R^2 change		.49*	.15*	.06

* p < .05. **p < .01

When the main predictors were introduced in Model 2, the regression equation remained significant, $F(3, 24) = 2.85$, $p = .011$, adjusted $R^2 = .42$, and significantly improved the explanatory power by 15% ($p = .035$) compared to Model 1. In this second model, weekly parent-child separation was again a significant predictor ($b = .58$, $p = .023$), as well as child age ($b = .41$, $p = .011$). Socioeconomic status became an insignificant predictor ($b = .41$, $p = .067$) in this second model.

The regression equation in Model 3 remained significant, $F(2, 22) = 2.10$, $p = .008$, adjusted $R^2 = .46$, but was not significantly different from Model 2 with only 6% increase in explanatory power ($p = .145$). In this final model, child resilience was a significant negative predictor ($b = -.392$, $p = .026$). Its interaction with the other main predictors, however, remained insignificant in all models for child depression. Furthermore, child age ($b = .28$, $p = .088$) and weekly parent-child separation ($b = .44$, $p = .080$) became insignificant predictors with the addition of interaction terms in this third model. Parent COVID stress was not a significant predictor of child depression in all models.

The results of this hierarchical regression analysis confirmed the hypothesis that longer duration of parent-child separation results in higher symptoms of depression. On the other hand, parent COVID stress did not significantly influence child depression contrary to the earlier hypothesis stated. Higher child resilience resulted in lower child depression symptoms as

hypothesized, but did not moderate the influence of both risk factors contrary to the proposed hypothesis.

Taken together, these findings showed that parent-child separation predicted child anxiety and depressive symptoms, while parent COVID stress only predicted child anxiety. Child resilience was protective against child depression, but did not buffer the negative effects of both parent-child separation and parent COVID-related stress. Older parent age is associated with less child anxiety, while older child age is associated with higher child anxiety and depression symptoms in this cohort of children of healthcare workers during the COVID-19 pandemic.

VI. Discussion

In the present global crisis, the well-being of the healthcare providers has received much attention, but that of their children is still largely overlooked. In the Philippines where the COVID-19 pandemic response is still among the worst worldwide as some parts of the world are starting to recover (Hong, Chang, & Varley, 2021), it is critical to investigate the mental well-being of the subpopulation of healthcare worker parent-child dyad in the nation to identify significant problems that needs to be addressed. The present study sought to examine the mental health problems, unique risks, and resilience of Filipino children of healthcare workers and their parents, during the COVID-19 pandemic.

The first main objective was to determine the severity of COVID stress experienced by parents and the anxiety and depressive symptoms reported by their children. Filipino healthcare worker parents were found to have moderate to severe levels of COVID-related stress perceived by more than half of the participants, especially in the domains of danger, contamination, and compulsive checking. This trend is similar to the COVID-related stress scores among healthcare workers using the same measure in Mexico, at a period when the COVID-19 cases were recorded at the highest peak (Delgado-Gallegos et al., 2020). These findings relate to the significantly increased infection exposure their job entails. An alarming proportion of severe stress,

however, was seen in the facet of danger. Such result could be expected given that the timing of the study coincided with the third wave and peak COVID-19 cases documented in the Philippines (WHO, 2021). It is critical to emphasize that significant stress arising from the domains of danger and contamination predicted anxiety and depression among Filipino adults (Montano & Acebes, 2020). Moreover, an umbrella review of meta-analyses on the prevalence of negative mental health among healthcare providers revealed that almost 1 in 4 workers indeed suffers from anxiety and depression in the current pandemic (Sahebi et al., 2021). Thus, identification and proper management of healthcare worker stress due to COVID-19 should be of utmost priority in the administrative and social policies in the public health sphere. Several institutions have already developed psychological support intervention protocols tailored for the mental well-being of healthcare providers in the current pandemic (Buselli et al., 2021), which must also be recommended in the Philippine hospital settings.

In the dyad sample, about 1 in 5 children (22%) experienced anxiety symptoms while 1 in 7 children (14%) reported depressive symptoms. For anxiety symptoms, this rate is lower compared to children of healthcare workers in Turkey ranging from 27% to 45% (Şahin, Hoşoğlu, & Önal, 2020; Şahin, Önal, & Hoşoğlu, 2021). The sample in this Turkish cohort with ages between 8 to 17 years, however, did not exclude children with previously diagnosed mental health problems and thus may be difficult to compare. In addition, these numbers fall within the extremely wide-range

rates of anxiety (8% to 50%) and depression (2% to 64%) among children and adolescents in the general population globally in the COVID-19 pandemic (Gul & Demirci, 2021). In the Philippines, a study revealed that at least moderate symptoms of anxiety and depression were experienced by about 37% and 26%, respectively, of youth in the general population surveyed (Tee et al., 2020). This past investigation, however, included young people with ages between 12 to 21 years, and was done in the early months of the pandemic (March to April 2020). Hence, comparison with previous studies in the Philippines and other parts of the world would be complex due to the differences in periods during the pandemic and regional COVID-19 situations, the variation in the assessment tools used among investigations, and the sample size of the present study. Nevertheless, this study further highlights the value of early recognition of mental health problems in childhood and adolescence.

Older child age is significantly associated with both internalizing symptoms. The age-related increase in child anxiety and depression symptoms were likewise found in previous studies including older children and adolescents (Bartels et al., 2011; Ginicola, 2007; Sumter, Bokhorst, & Westenberg, 2009) and in the current pandemic (Gul & Demirci, 2021; Jones, Mitra, & Bhuiyan, 2021). As the child ages until transition to adulthood, the interplay between genetic factors, changes in the social world, continuing maturation of the emotional and social brain, information-processing biases and cognitive vulnerability has been implicated

in the development of anxiety and depressive symptoms in adolescence (Lau, Hilbert, & Gregory, 2013). Parent age, in contrast, is negatively associated with child anxiety. This could be related to older parents being in a better socioeconomic position to provide a more favorable social environment for the children Zondervan-Zwijnenburg et al., 2020), which could potentially allay child anxiety symptoms.

In conjunction with this, 4 out of 5 children of healthcare workers were found to be highly resilient. A possible supporting factor is the socioeconomic status of most of these families, a part of the relational resource of child resilience. Especially at a time of a "new normal" in the education sector and economic struggles, financial security can be considered as essential in child education (Talandron-Felipe, 2020). The nation's Department of Education (2020) recommended different modalities of learning delivery in the current pandemic in order to accommodate children in all socioeconomic backgrounds. However, a shift to the more common computer-based learning in all grade levels involves the necessity of the use of reliable electronic devices and stable internet connectivity. In a developing country like the Philippines, a combined household income is strongly related to owning a computer system and internet access (Talandron et al., 2016). Thus, the present cohort of children of healthcare workers belonging to the upper echelon of the social strata is most likely at the privileged/advantaged end of the *digital divide*, i.e., the gap between different socioeconomic levels regarding information

technology and internet use (OECD, 2001), and could be protected against online education struggles and related mental health problems. Furthermore, access to social media through computers and mobile devices is also an important avenue for virtual face-to-face communication between the parents and their children despite the separation, which could be another source of resilience (Bacigalupe & Lambe, 2011).

The presence of other caregivers for many of these children also could have filled the absence of their healthcare worker parents, indeed possibly contributing to the overall high proportion of resilient children in this group. However, the mere physical presence of these caretakers appears to be insufficient to promote child resilience, as also emphasized by many experts in the field (Easterbrooks, Ginsburg, & Lerner, 2013). Upon closer review of responses, the relatively less resilient children reported not openly verbalizing and sharing their feelings and struggles to their parents/caregivers, which could reflect emotional distance. Thus, it is the *quality* of relationships the child has that is truly essential in fostering resilience. Such facets that involve resilience, including its dynamics with other personal child characteristics, were not fully explored in this cross-sectional study and therefore are valuable perspectives worth investigating in the future.

The second important goal was to identify the impacts of the unique risks of parent COVID stress and parent-child separation on child mental well-being. Higher parent COVID

stress was associated with higher child anxiety symptoms. This finding corroborates previous research that underscores the relationship between parent occupational stress and child internalizing behaviors (Hare, 2014; Vieira et al., 2016). Elevated work-related stress also contributes to the overall source of parental stress. Therefore, healthcare worker parents can also be assumed to have an increased total parent stress. Relatedly, parents in the general population who reported to have higher levels of stress also had children with anxiety symptoms in the current pandemic (Orgiles et al., 2021).

Parental work stress, linked to feelings of work overload and strain, has been implicated in decreased quality of family interaction and subsequent children's and adolescent's maladjustment (Crouter & Bumpus, 2001). Work stressors can also trigger exaggerated emotional responses in some parents (Crouter & Bumpus, 2000), which can result in dysfunctional parent-child interactions and an anxious rearing style (Taboas et al., 2015; Breinholst et al., 2012). Accordingly, as social learning theory suggests, children can develop anxious tendencies through modelling (Breinholst et al., 2012). Indeed, a significant positive correlation was found between the anxiety scores of the healthcare worker parents and their children in Turkey (Şahin, Hoşoğlu, & Önal, 2020). Given the high levels of stress and anxiety experienced by healthcare workers in this pandemic (Barzilay et al., 2020), the significant association of child anxiety and parent stress is an expected finding.

On the other hand, COVID stress in parents did not predict child depressive symptoms contrary to what was hypothesized. This also contradicts results of previous research linking parent work stress and child depression (Hare, 2014; Vieira et al., 2016), as well as findings in the current global health crisis (Orgiles et al., 2021). Child participants in this study who exhibited depressive symptoms (both borderline and above clinical threshold) belong to older age group (14-18 years) and have parents who have absent to mild COVID stress (not shown). Therefore, it appears that adolescent depression in this cohort is not related to parent stress. A study revealed that the antecedents of depression in adolescents are indeed multifactorial, including cognitive vulnerability, academic pressures, peer and social networking among other possible causes (Malhotra & Sahoo, 2018). Duan and colleagues (2020), for example, found that smartphone and internet addiction are a couple of factors associated with increased likelihood of depression among Chinese adolescents during the COVID-19 outbreak in their region. The current study, however, did not explore these other specific risk factors for adolescent depression in the background of the pandemic, which are also worth exploring in future studies.

Parent-child separation was found to be a significant predictor of both child anxiety and depression as hypothesized, adding to the significant body of literature of the negative effects of parent separation and mental health of the child (e.g., Valtolina & Colombo, 2012; Waddoups, Yoshikawa, & Strouf, 2019; Wong,

Chang, & He, 2009). Furthermore, these results complement the findings that healthcare worker parents who spent less time at home had children with more sleep problems (Şahin, Önal, & Hoşoğlu, 2021). Also consistent with the studies on children of deployed military parents (White et al., 2011; Chandra et al., 2010), prolonged parental absence negatively affected the mental health functioning of the child. In the present study, the longer the healthcare worker parent stays outside the home (whether due to the hospital working hours or the need for quarantine), the less quality time possibly spent with the child, and could have compromised child outcomes as manifested by anxiety and depression symptoms (Roeters, Van Der Lippe, & Kluwer, 2010). In the analysis for child depression, however, parent child-separation became an insignificant predictor in the final model (same with the control variable of child age). The explanation could be more statistical than conceptual. The addition of interaction terms in the final step of hierarchical regression leads to lesser error degrees of freedom, thus further reducing the power to detect a significant estimate of the coefficient in the third model (Pandey & Bright, 2008).

The last aim of the study was to determine the direct effect of child resilience on these internalizing symptoms, as well as the buffering effect on the negative impacts of parent-child separation and parent COVID stress. Child resilience predicted lower depression symptoms among children of healthcare workers, supporting the hypothesis and findings from previous

investigations on the negative association of resilience and child depression on children separated from their parents (Wu et al., 2017; Zhao, Fu, & Zhao, 2020), as well as children in general during the current pandemic (Cusinato et al., 2020). Child resilience, however, did not support the hypothesis as a negative predictor of child anxiety. Furthermore, as opposed to previous research on the moderating effects of resilience factors in children (Fritz et al., 2018; Shi et al., 2016; Wang & Liu, 2020), it did not buffer the negative effects of both parent-child separation and parent COVID-related stress on child well-being.

There are several possible explanations for these insignificant findings. First, resilience, mostly being defined as positive adaptation in the face of adversity (Masten, 2018), does not mean invulnerability (Ingram & Price, 2010). It entails a difficulty but not an impossibility to experience psychopathology, such that even the people considered the most resilient can be at significant risk to develop negative symptoms with enough stress (Ingram & Price, 2010).

Second, resilience in children also hinges on the adaptive functioning of both their internal systems and the interactions among many other systems in their lives, hightlighting its dynamic framework (Masten, 2018). It is fostered by "supportive and sensitive adults who are available physically, mentally, and emotionally" (Easterbrooks, Ginsburg, & Lerner, 2013, p. 104). Furthermore, caregiver support has been found to be most central in adolescent resilience (Höltge et al., 2021). In this study, child

resilience may have been sufficient to protect the child from other potential sources of depression. However, when the physical absence as well as the mental and emotional distress of fhe healthcare worker parents are the factors that compromise child well-being, the back-up systems that support child resilience may not have been enough to buffer the negative outcomes. Parental resilience, a construct defined by Gavinia-Payne and colleagues (2015) as "the capacity of parents to deliver competent, quality parenting to children despite adverse circumstances" (p.111), has been arguably neglected in the area of resilience research (Gavinia-Payne et al., 2015). Addressing these parental factors and additional assessment of family resilience can plausibly reveal a stronger moderating relationship between risk factors and child mental health problems (Fritz et al., 2018).

The third reason is the possible inadequacy of the resilience tool used. The CYRM-R scale has promising cross-cultural relevance in measuring socioecological resilience (Jefferies, McGarrigle, & Ungar, 2019), but the suitability of the longer version across contexts has been challenged more recently (Renbarger et al., 2020). While it has been validated among older adolescents and young adults in a Filipino sample (Estanislao, 2017), its use specifically for Filipino children and adolescents in the face of adversity warrants further validity studies.

The final important explanation is related to the small sample size. The power of the models might not have been sufficient to detect small-sized signficant relationships among the

study variables, especially relating to child resilience. On this account, the current study has several limitations. It is considerably limited by the small sample size as mentioned. Therefore, caution should be taken with the generalization of the results, especially in the use of the prevalence data.

The convenience sampling done to recruit participants have also resulted in under-representation of the other professionals in the healthcare field. Research invitations were initially sent to various hospital administrations in the Philippines in order to yield a diverse set of healthcare professionals. However, all institutions that responded demanded a separate ethical review to be done by each individual hospital ethics committee, requiring a tedious and lengthy process and financial burden to the researcher. Due to the time constraints in completing the study, the application for these ethical reviews to obtain a higher sample size and more diverse participants was not carried out. Furthermore, the high nonresponse rate can induce nonresponse bias in the study. There is little empirical evidence, however, that low response rates in surveys do not necessarily result in high nonresponse bias (Groves, 2006). Despite this argument, efforts to improve response rates in future studies should be done to ensure quality of survey estimates.

Another limitation is the cross-sectional design with wide child age range, which cannot confirm the presence or absence of the mental health problems in both parents and children before the COVID-19 crisis, as well the causal relationships between the

study variables. Finally, despite the practicality offered for a remote online survey, the use of shortened version of the resilience scale may have limited the evaluation of the overall resilience of the child and its expected influence.

Nonetheless, this was the one the first studies to investigate the vulnerable subpopulation of the children of healthcare workers to the knowledge of the author, specifically focusing on the influence of the risk factors and resilience on child mental well-being. Moreover, the utilization of self-administered surveys for the children and adolescents also adds to the strength of the present investigation. Given that the unique risk factors (i.e., higher parent COVID-related stress and longer parent-child separation) appear to impact the mental health of children of healthcare workers, qualitative case studies on the difficulties and resilience factors among these children is encouraged, with emphasis on older age group. The inclusion of more professions in the healthcare field is also warranted, preferably in accordance to infection exposure risk (Dy & Rabajante, 2020). Future research to design larger confirmatory studies during the current COVID-19 pandemic and beyond, for the mental well-being, related risks, and resilience, on this subpopulation of children and youth is recommended.

VII. Conclusion

In the current pandemic, the children of the healthcare workers are placed in a vulnerable situation, with their parents in front of the war against the deadly coronavirus. In spite of the limited data, this study has shown that the mental well-being of both healthcare worker parents and their children is negatively affected by the global health crisis. Longer parent-child separation resulted in increased child internalizing problems of anxiety and depression. Parent COVID-related stress also was associated with increased anxiety of the children, but not the depressive symptoms. Child depression is certainly multifactorial, and the older age group remains to be most at risk.

Majority of the children were found to be highly resilient. While child resilience can protect them from other contributing factors to depression, it may not be sufficient when their parents are not physically, emotionally, and mentally able to promote their resilience. Therefore, this study has several implications. Hospital administrations should have mandatory surveillance programs that monitor and manage the adverse mental health effects of the pandemic on the parents who work in the hospitals. Furthermore, the government and the hospital management should also ensure utmost physical safety and protection via adequate provision of personal protective equipment, considerate work rotation schedules, and effective system of COVID-19 management

through strong policies and their implementation. Doing so would safeguard the well-being of healthcare providers while in the frontlines. Healthcare worker parents themselves must also be fully aware that despite the heroics they display in the worldwide global problem, they should not take for granted the well-being of their own children. Ultimately, it is not only the resilience of child that should be fostered, but also the resilience of the parents.

References

Albert, J. R. G., Santos, A. G. F., & Vizmanos, J. F. V. (2018). *Profile and determinants of the middle-income class in the Philippines* (No. 2018-20). PIDS Discussion Paper Series.

Bacigalupe, G., & Lambe, S. (2011). Virtualizing intimacy: Information communication technologies and transnational families in therapy. *Family process, 50*(1), 12-26.

Bartels, M., van de Aa, N., van Beijsterveldt, C. E., Middeldorp, C. M., & Boomsma, D. I. (2011). Adolescent self-report of emotional and behavioral problems: interactions of genetic factors with sex and age. *Journal of the Canadian Academy of Child and Adolescent Psychiatry, 20*(1), 35.

Barzilay, R., Moore, T. M., Greenberg, D. M., DiDomenico, G. E., Brown, L. A., White, L. K., ... & Gur, R. E. (2020). Resilience, COVID-19-related stress, anxiety and depression during the pandemic in a large population enriched for healthcare providers. *Translational psychiatry*, *10*(1), 1-8.

Beutel, M. E., Tibubos, A. N., Klein, E. M., Schmutzer, G., Reiner, I., Kocalevent, R. D., & Brähler, E. (2017). Childhood adversities and distress-The role of resilience in a representative sample. *PloS one*, *12*(3), e0173826.

Biana, H. T., & Joaquin, J. J. B. (2020). COVID-19: the need to heed distress calls of healthcare workers. *Journal of Public Health*.

Bowlby, J. (1946). *Forty-four juvenile thieves: their characters and home-life*. London: Ballierc, Tindall & Cox.

Breinholst, S., Esbjørn, B. H., Reinholdt-Dunne, M. L., & Stallard, P. (2012). CBT for the treatment of child anxiety disorders: A review of why parental involvement has not enhanced outcomes. *Journal of anxiety disorders, 26*(3), 416-424.

Bridgman, A. (2014). How abuse and neglect affect children's minds and bodies. *Social Policy Report Brief, 28*(1).

Bronfenbrenner, U. (1994). Ecological models of human development. In T. Husen, & T. N. Postlethwaite (Eds.), *The international encyclopedia of education* (pp. 1643-1647). (2nd ed.). New York: Elsevier Sciences.

Bryant, M. (2020, April 16). 'I can't hug my kid': how coronavirus is upending medical workers' lives. *The guardian*. Retrieved from https://www.theguardian.com/world/2020/apr/16/us-medical-workers-lives-upended-coronavirus

Buslon, J. B., & Alieto, E. O. (2019). Lexical Inferencing Strategies and Reading Comprehension in English: A Case of ESL Third Graders. *Online Submission, 22*(1), 72-94.

Bush, K. R., Price, C. A., Price, S. J., & McKenry, P. C. (2017). Families coping with change: A conceptual overview. *Families and change: Coping with stressful events and transitions*, 3-23.

Campione, W. (2008). Employed women's well-being: The global and daily impact of work. *Journal of Family and Economic Issues, 29*(3), 346-361. doi:10.1007/s10834-008-9107-x

Cartwright-Hatton, S., McNicol, K., & Doubleday, E. (2006). Anxiety in a neglected population: Prevalence of anxiety disorders in pre-adolescent children. *Clinical psychology review, 26*(7), 817-833.

Chandra, A., Lara-Cinisomo, S., Jaycox, L. H., Tanielian, T., Burns, R. M., Ruder, T., & Han, B. (2010). Children on the homefront: The experience of children from military families. *Pediatrics*, *125*(1), 16-25.

Chen, S., & Bonanno, G. A. (2020). Psychological adjustment during the global outbreak of COVID-19: A resilience perspective. *Psychological Trauma: Theory, Research, Practice, and Policy*, *12*(S1), S51.

Chorpita, B. F., Yim, L. M., Moffitt, C. E., Umemoto L. A., & Francis, S. E. (2000). Assessment of symptoms of DSM-IV anxiety and depression in children: A Revised Child Anxiety and Depression Scale. *Behaviour Research and Therapy, 38*, 835-855.

Costigan, C. L., Cox, M. J., & Cauce, A. (2003). Work-parenting linkages among dual-earner couples at the transition to parenthood. *Journal of Family Psychology,17*(3), 397-408. doi:10.1037/0893-3200.17.3.397

Coto, J., Restrepo, A., Cejas, I., & Prentiss, S. (2020). The impact of COVID-19 on allied health professions. *PloS one*, *15*(10), e0241328.

Cusinato, M., Iannattone, S., Spoto, A., Poli, M., Moretti, C., Gatta, M., & Miscioscia, M. (2020). Stress, Resilience, and Well-

Being in Italian Children and Their Parents during the COVID-19 Pandemic. *International Journal of Environmental Research and Public Health*, *17*(22), 8297.

Daks, J. S., Peltz, J. S., & Rogge, R. D. (2020). Psychological flexibility and inflexibility as sources of resiliency and risk during a pandemic: Modeling the cascade of COVID-19 stress on family systems with a contextual behavioral science lens. *Journal of Contextual Behavioral Science*, *18*, 16-27.

Delgado-Gallegos, J. L., Montemayor-Garza, R. D. J., Padilla-Rivas, G. R., Franco-Villareal, H., & Islas, J. F. (2020). Prevalence of stress in healthcare professionals during the covid-19 pandemic in Northeast Mexico: A remote, fast survey evaluation, using an adapted covid-19 stress scales. *International journal of environmental research and public health, 17*(20), 7624.

de Miranda, D. M., da Silva Athanasio, B., de Sena Oliveira, A. C., & Silva, A. C. S. (2020). How is COVID-19 pandemic impacting mental health of children and adolescents. *International Journal of Disaster Risk Reduction*, 101845.

Department of Education. (2020). *Ano ang pwedeng learning delivery modality?.* Retrieved from https://www.deped.gov.ph/2020/07/22/ano-ang-pwedeng-learning-delivery-modality/

Duan, L., Shao, X., Wang, Y., Huang, Y., Miao, J., Yang, X., & Zhu, G. (2020). An investigation of mental health status of

children and adolescents in china during the outbreak of COVID-19. *Journal of affective disorders, 275*, 112-118.

Dubey, I. M. J., Berhampore, M., Ghosh, I. R., & Chatterjee, I. S. (2020, May 20). Children of frontline coronavirus disease-2019 warriors: our observations [Letter to the editor]. *The Journal of Pediatrics, 224*, 188-189.

Dy, L. F., & Rabajante, J. F. (2020). A COVID-19 infection risk model for frontline health care workers. *Network Modeling Analysis in Health Informatics and Bioinformatics, 9*(1), 1-13.

Easterbrooks, M. A., Ginsburg, K., & Lerner, R. M. (2013). Resilience among military youth. *The future of children*, 99-120.

Ebesutani, C., Korathu-Larson, P., Nakamura, B. J., Higa-McMillan, C., & Chorpita, B. (2017). The revised child anxiety and depression scale 25–parent version: scale development and validation in a school-based and clinical sample. *Assessment*, 24(6), 712-728.

Ebesutani, C., Reise, S. P., Chorpita, B. F., Ale, C., Regan, J., Young, J., ... & Weisz, J. R. (2012). The Revised Child Anxiety and Depression Scale-Short Version: scale reduction via exploratory bifactor modeling of the broad anxiety factor. *Psychological assessment, 24*(4), 833.

Estanislao, S. A. (2017). Espiritualidad lasaliana y resiliencia de estudiantes Universitarios Filipinos: Relaciones y recursos. *Revista Digital de Investigación Lasaliana, 7*(14), 98-116.

Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods, 39*, 175-191.

Fegert, J. M., Vitiello, B., Plener, P. L., & Clemens, V. (2020). Challenges and burden of the Coronavirus 2019 (COVID-19) pandemic for child and adolescent mental health: a narrative review to highlight clinical and research needs in the acute phase and the long return to normality. *Child and adolescent psychiatry and mental health*, *14*, 1-11.

Fergus, S., & Zimmerman, M. A. (2005). Adolescent resilience: A framework for understanding healthy development in the face of risk. *Annu. Rev. Public Health, 26*, 399-419.

Fong, V. C., & Iarocci, G. (2020). Child and Family Outcomes Following Pandemics: A Systematic Review and Recommendations on COVID-19 Policies. *Journal of pediatric psychology*, *45*(10), 1124-1143.

Fonseca, A. C., & Perrin, S. (2011). The clinical phenomenology and classification of child and adolescent anxiety. *Anxiety disorders in children and adolescents, 2*, 25-55.

Ford, T., John, A., & Gunnell, D. (2021). Mental health of children and young people during pandemic. *BMJ (Clinical Research ed.)*, *372*, n614-n614.

Fraser, M. W., & Terzian, M. A. (2005). Risk and resilience in child development: Practice principles and strategies. In G. P. Mallon & P. McCartt Hess (Eds.), *Handbook of children,*

youth, and family services: Practice, policies, and programs (pp. 55–71). New York: Columbia University Press.

Freud A, Burlingame D. (1943). *War and Children*. New York: Ernst Willard

Fritz, J., de Graaff, A. M., Caisley, H., Van Harmelen, A. L., & Wilkinson, P. O. (2018). A systematic review of amenable resilience factors that moderate and/or mediate the relationship between childhood adversity and mental health in young people. *Frontiers in psychiatry, 9*, 230.

Fuhrmann, D., Knoll, L. J., & Blakemore, S.-J. (2015). Adolescence as a sensitive period of brain development. *Trends in Cognitive Sciences, 19* (10), 558–566.

Gadsden, V. L., Ford, M., & Breiner, H. (2014). *Parenting matters: Supporting parents of children ages 0-8. National academies of sciences, engineering, and medicine.* Washington, DC: The National Academies Press.

Galbraith, N., Boyda, D., McFeeters, D., & Hassan, T. (2020). The mental health of doctors during the Covid-19 pandemic. *BJPsych bulletin*, 1-4.

Gallavan, D. B., & Newman, J. L. (2013). Predictors of burnout among correctional mental health professionals. *Psychological Services, 10*(1), 115-122.

Gassman-Pines, A., Ananat, E. O., & Fitz-Henley, J. (2020). COVID-19 and parent-child psychological well-being. *Pediatrics*, *146*(4).

Gavidia-Payne, S., Denny, B., Davis, K., Francis, A., & Jackson, M. (2015). Parental resilience: A neglected construct in resilience research. *Clinical Psychologist, 19*(3), 111-121.

Ginicola, M. M. (2007). Children's unique experience of depression: Using a developmental approach to predict variation in symptomatology. *Child and Adolescent Psychiatry and Mental Health, 1*(1), 1-8.

Gómez-Ochoa, S. A., Franco, O. H., Rojas, L. Z., Raguindin, P. F., Roa-Díaz, Z. M., Wyssmann, B. M., ... & Muka, T. (2021). COVID-19 in health-care workers: a living systematic review and meta-analysis of prevalence, risk factors, clinical characteristics, and outcomes. *American journal of epidemiology, 190*(1), 161-175.

Greenberg, N., Docherty, M., Gnanapragasam, S., & Wessely, S. (2020). Managing mental health challenges faced by healthcare workers during covid-19 pandemic. *bmj, 368*.

Greene, R. R. (2008). Ecological perspective: An eclectic theoretical framework for social work practice. In R. R. Greene (Ed.), *Human behavior theory and social work practice* (3rd ed., pp. 199-236). New Brunswick, NJ: Transaction.

Gul, M. K., & Demirci, E. (2021). Psychiatric Disorders and Symptoms in Children and Adolescents During the COVID-19 Pandemic: A Review. *Eurasian Journal of Medicine and Oncology*, 20-36.

Guthold, R., Johansson, E. W., Mathers, C. D., & Ross, D. A. (2021). Global and regional levels and trends of child and adolescent morbidity from 2000 to 2016: an analysis of years lost due to disability (YLDs). *BMJ Global Health, 6*(3).

Hare, M. M. (2014). *The Relationship of Parents' Work Stress and Child Functioning in the Context of Spillover Effects, Marital and Parenting Stress, and Parents' Perceptions* (Doctoral dissertation, University of Central Florida Orlando, Florida).

Harter, S. (2015). *The construction of the self: Developmental and sociocultural foundations*. Guilford Publications.

Hasell, J., Mathieu, E., Beltekian, D., Macdonald, B., Giattino, C., Ortiz-Ospina, E., ... & Ritchie, H. (2020). A cross-country database of COVID-19 testing. *Scientific data*, *7*(1), 1-7.

Hibel, L. C., Mercado, E., & Trumbell, J. M. (2012). Parenting stressors and morning cortisol in a sample of working mothers. *Journal of Family Psychology, 26*(5), 738-746.

Hill, M., Stafford, A., Seaman, P., Ross, N., & Daniel, B. (2007). *Parenting and resilience.* York: Joseph Rowntree Foundation.

Hjemdal, O., Vogel, P. A., Solem, S., Hagen, K., & Stiles, T. C. (2011). The relationship between resilience and levels of anxiety, depression, and obsessive–compulsive symptoms in adolescents. *Clinical psychology & psychotherapy, 18*(4), 314-321.

Höltge, J., Theron, L., Cowden, R. G., Govender, K., Maximo, S. I., Carranza, J. S., ... & Ungar, M. (2021). A cross-country network analysis of adolescent resilience. *Journal of Adolescent Health, 68*(3), 580-588.

Hong J., Chang, R., & Varley, K. (2021, June 28). The Covid Resilience Ranking: The Best and Worst Places to Be as The World Finally Reopens. *Bloomberg.* Retrieved from https://www.bloomberg.com/graphics/covid-resilience-ranking/

Ingram, R. E., & Price, J. M. (2010). Understanding psychopathology: The role of vulnerability.

Jefferies, P., McGarrigle, L., & Ungar, M. (2019). The CYRM-R: A Rasch-validated revision of the child and youth resilience measure. *Journal of Evidence-Based Social Work, 16*(1), 70-92.

Jenkins, D. G., & Quintana-Ascencio, P. F. (2020). A solution to minimum sample size for regressions. *PloS one, 15*(2), e0229345.

Jenson, J. M., & Fraser, M. W. (2015). A risk and resilience framework for child, youth, and family policy. *Social policy for children and families: A risk and resilience perspective* (3rd ed., pp. 6-21). New York, NY: SAGE Publications.

Jones, E. A., Mitra, A. K., & Bhuiyan, A. R. (2021). Impact of COVID-19 on mental health in adolescents: a systematic review. *International journal of environmental research and public health, 18*(5), 2470.

Kessler, R. C., Demler, O., Frank, R. G., Olfson, M., Pincus, H. A., Walters, E. E., ... & Zaslavsky, A. M. (2005). Prevalence and treatment of mental disorders, 1990 to 2003. *New England Journal of Medicine, 352*(24), 2515-2523.

Krause, K. R., Chung, S., Adewuya, A. O., Albano, A. M., Babins-Wagner, R., Birkinshaw, L., ... & Wolpert, M. (2021). International consensus on a standard set of outcome measures for child and youth anxiety, depression, obsessive-compulsive disorder, and post-traumatic stress disorder. *The Lancet Psychiatry, 8*(1), 76-86.

Lahtinen, E., Lehtinen, V., Riikonen, E., & Ahonen, J. (1999). Framework for promoting mental health in Europe.

Lau, J. Y., Hilbert, K., & Gregory, A. M. (2013). Anxiety and depression in young people: developmental considerations. *Cognitive Behaviour Therapy for Children and Families*, 7.

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. Springer publishing company.

Lehtinen, V., Ozamiz, A., Underwood, L., & Weiss, M. (2005). The intrinsic value of mental health. *Promoting Mental Health.*

Lester, P., Peterson, K., Reeves, J., Knauss, L., Glover, D., Mogil, C., ... & Beardslee, W. (2010). The long war and parental combat deployment: Effects on military children and at-home spouses. *Journal of the American Academy of Child & Adolescent Psychiatry*, *49*(4), 310-320.

Lincoln, A., Swift, E., & Shorteno-Fraser, M. (2008). Psychological adjustment and treatment of children and families with

parents deployed in military combat. *Journal of clinical psychology*, *64*(8), 984-992.

Liu, J., Chen, X., & Lewis, G. (2011). Childhood internalizing behaviour: analysis and implications. *Journal of psychiatric and mental health nursing, 18*(10), 884-894.

Mahajan, C., Kapoor, I., & Prabhakar, H. (2020). Psychological Effects of COVID-19 on Children of Health Care Workers. *Anesthesia & Analgesia*, *131*(3), e169-e170.

Malhotra, S., & Sahoo, S. (2018). Antecedents of depression in children and adolescents. *Industrial psychiatry journal, 27*(1), 11.

Mallare, K. (2020, August 1). Medical frontliners to gov't: 'Time-out,' revert Mega Manila back to ECQ. *Inquirer*. Retrieved from https://newsinfo.inquirer.net/1315204/medical-frontliners-to-govt-time-out-revert-metro-manila-back-to-ecq

Masten, A. S. (2018). Resilience theory and research on children and families: Past, present, and promise. *Journal of Family Theory & Review*, *10*(1), 12-31.

Masten, A. S., & Barnes, A. J. (2018). Resilience in children: Developmental perspectives. *Children*, *5*(7), 98.

Masten, A. S., & Motti-Stefanidi, F. (2020). Multisystem resilience for children and youth in disaster: Reflections in the context of COVID-19. *Adversity and resilience science*, *1*(2), 95-106.

Masten, A. S., & Narayan, A. J. (2012). Child development in the context of disaster, war, and terrorism: Pathways of risk and resilience. *Annual review of psychology*, *63*, 227-257.

Matias, M., Ferreira, T., Vieira, J., Cadima, J., Leal, T., & Matos, P. M. (2017). Work–family conflict, psychological availability, and child emotion regulation: Spillover and crossover in dual-earner families. *Personal Relationships, 24*(3), 623-639.

Maughan, B., Collishaw, S., & Stringaris, A. (2013). Depression in childhood and adolescence. *Journal of the Canadian Academy of Child and Adolescent Psychiatry, 22*(1), 35.

Montano, L. T., & Acebes, K. M. L. (2020). Covid stress predicts depression, anxiety and stress symptoms of Filipino respondents. *International Journal of Research in Business and Social Science, 9*(4), 78-103.

Morelli, M., Cattelino, E., Baiocco, R., Trumello, C., Babore, A., Candelori, C., & Chirumbolo, A. (2020). Parents and Children During the COVID-19 Lockdown: The Influence of Parenting Distress and Parenting Self-Efficacy on Children's Emotional Well-Being. *Frontiers in Psychology*, *11*, 2584.

Mosheva, M., Hertz-Palmor, N., Dorman Ilan, S., Matalon, N., Pessach, I. M., Afek, A., ... & Gothelf, D. (2020). Anxiety, pandemic-related stress and resilience among physicians during the COVID-19 pandemic. *Depression and anxiety*, *37*(10), 965-971.

Nelson, C. A., Fox, N. A., & Zeanah, C. H. (2014). *Romania's Abandoned children: Deprivation, brain development, and the struggle for recovery.* Cambridge, MA: Harvard University Press.

OECD. (2001). Understanding the digital divide. Organisation for Economic Co-operation and Development (OECD). http://www.oecd.org/dataoecd/38/57/1888451.pdf

Orgilés, M., Espada, J. P., Delvecchio, E., Francisco, R., Mazzeschi, C., Pedro, M., & Morales, A. (2021). Anxiety and depressive symptoms in children and adolescents during covid-19 pandemic: a transcultural approach. *Psicothema, 33*(1), 125-130.

Palmer, C. (2008). A theory of risk and resilience factors in military families. *Military Psychology*, *20*(3), 205-217.

Pandey, S., & Bright, C. L. (2008). What are degrees of freedom?. *Social Work Research, 32*(2), 119-128.

Parsons, W. L., Duke, P. S., Snow, P., & Edwards, A. (2009). Physicians as parents: Parenting experiences of physicians in Newfoundland and Labrador. *Canadian Family Physician*, *55*(8), 808-809.

Patrick, S. W., Henkhaus, L. E., Zickafoose, J. S., Lovell, K., Halvorson, A., Loch, S., ... & Davis, M. M. (2020). Well-being of parents and children during the COVID-19 pandemic: a national survey. *Pediatrics*, *146*(4).

Pengpid, S., & Peltzer, K. (2020). Suicide attempt and associated factors among adolescents in five Southeast Asian

countries in 2015. *Crisis: The Journal of Crisis Intervention and Suicide Prevention, 41*(4), 296.

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.

Racine, N., Cooke, J. L., Eirich, R., Korczak, D. J., McArthur, B., & Madigan, S. (2020). Child and adolescent mental illness during COVID-19: A rapid review. *Psychiatry research*.

Renbarger, R. L., Padgett, R. N., Cowden, R. G., Govender, K., Yilmaz, M. Z., Scott, L. M., ... & Křeménková, L. (2020). Culturally Relevant Resilience: A Psychometric Meta-Analysis of the Child and Youth Resilience Measure (CYRM). *Journal of research on adolescence: the official journal of the Society for Research on Adolescence, 30*(4), 896-912.

Repetti, R. L., & Wood, J. (1997). Effects of daily stress at work on mothers' interactions with preschoolers. *Journal of Family Psychology, 11*(1), 90-108.

Resilience Research Centre. (2018). *CYRM and ARM user manual*. Halifax, NS: Resilience Research Centre, Dalhousie University. Retrieved from http://www.resilienceresearch.org/

Roeters, A., Van Der Lippe, T., & Kluwer, E. S. (2010). Work characteristics and parent-child relationship quality: the mediating role of temporal involvement. *Journal of Marriage and family*, *72*(5), 1317-1328.

Sachs, J. D., Karim, S. A., Aknin, L., Allen, J., Brosbøl, K., Barron, G. C., ... & Haines, A. (2020). Lancet COVID-19 Commission Statement on the occasion of the 75th session of the UN General Assembly. *The Lancet, 396* (10257), 1102-1124.

Sahebi, A., Nejati, B., Moayedi, S., Yousefi, K., Torres, M., & Golitaleb, M. (2021). The prevalence of anxiety and depression among healthcare workers during the COVID-19 pandemic: An umbrella review of meta-analyses. *Progress in Neuro-Psychopharmacology and Biological Psychiatry,* 110247.

Şahin, B., Hoşoğlu, E., & Önal, B. S. (2020). Anxiety symptoms in healthcare workers and their children during the covid-19 pandemic in Turkey. *Namık Kemal Tıp Dergisi, 8*(3), 321-330.

Şahin, B., Önal, B. S., & Hoşoğlu, E. (2021). Anxiety Levels and Sleep Disturbance in Children of Healthcare Workers with COVID-19. *Çocuk ve Gençlik Ruh Sağlığı Dergisi= Turkish Journal of Child and Adolescent Health, 28*(Special Issue), 41.

Santos, A. (2020, April 2). Attacked & underpaid: Medics in Philippines battle stigma, virus. *Aljazeera*. Retrieved from https://www.aljazeera.com/news/2020/4/2/attacked-underpaid-medics-in-philippines-battle-stigma-virus

Shi, J., Chen, Z., Yin, F., Zhao, J., Zhao, X., & Yao, Y. (2016). Resilience as moderator of the relationship between left-

behind experience and mental health of Chinese adolescents. *International Journal of Social Psychiatry, 62*(4), 386-393.

Skokauskas, N., Leventhal, B., Cardeli, E. L., Belfer, M., Kaasbøll, J., & Cohen, J. (2020). Supporting children of healthcare workers during the COVID-19 pandemic. *European Child & Adolescent Psychiatry*, 1-2.

Spinelli, M., Lionetti, F., Pastore, M., & Fasolo, M. (2020). Parents and Children Facing the COVID-19 Outbreak in Italy. *Available at SSRN 3582790*.

Statham, J., & Chase, E. (2010). Childhood wellbeing: A brief overview. *Loughborough: Childhood Wellbeing Research Centre.*

Stevanovic, D., Bagheri, Z., Atilola, O., Vostanis, P., Stupar, D., Moreira, P., ... & Ribas, R. (2017). Cross-cultural measurement invariance of the Revised Child Anxiety and Depression Scale across 11 world-wide societies. *Epidemiology and Psychiatric sciences, 26*(4), 430-440.

Stiles, J. (2000). Neural plasticity and cognitive development. *Developmental Neuropsychology, 18*(2), 237-272.

Sumter, S. R., Bokhorst, C. L., & Westenberg, P. M. (2009). Social fears during adolescence: Is there an increase in distress and avoidance?. *Journal of anxiety disorders, 23*(7), 897-903.

Taboas, W. R., McKay, D., Whiteside, S. P., & Storch, E. A. (2015). Parental involvement in youth anxiety treatment:

Conceptual bases, controversies, and recommendations for intervention. *Journal of Anxiety Disorders, 30*, 16-18.

Talandron-Felipe, M. M. P. (2020). The digital divide among students and support initiatives in the time of Covid-19. *In ICCE-Int. Conf. Comput. Educ., Proc.* (pp. 42-51).

Talandron, M. M. P., Tautho, Y. C., & Tautho, C. C. (2016). Investigating the Digital Divide in a Rural Community in the Philippines. *CMU Journal of Science, 20*, 35-45.

Taylor, S., Landry, C. A., Paluszek, M. M., Fergus, T. A., McKay, D., & Asmundson, G. J. (2020). COVID stress syndrome: Concept, structure, and correlates. *Depression and anxiety, 37*(8), 706-714.

Tee, M. L., Tee, C. A., Anlacan, J. P., Aligam, K. J. G., Reyes, P. W. C., Kuruchittham, V., & Ho, R. C. (2020). Psychological impact of COVID-19 pandemic in the Philippines. *Journal of affective disorders, 277*, 379-391.

Ungar, M. (2008). Resilience across cultures. *The British Journal of Social Work, 38*(2), 218-235.

United Nations Children's Fund. (2021 April). *Mental Health.* Retrieved from: https://data.unicef.org/topic/child-health/mental-health/#_edn1

Vallejo Jr, B. M., & Ong, R. A. C. (2020). Policy responses and government science advice for the COVID 19 pandemic in the Philippines: January to April 2020. *Progress in Disaster Science, 7*, 100115.

Valtolina, G. G., & Colombo, C. (2012). Psychological well-being, family relations, and developmental issues of children left behind. *Psychological reports*, *111*(3), 905-928.

Van Breda, A. D. (1999). Developing resilience to routine separations: An occupational social work intervention. *Families in Society*, *80*(6), 597-605.

Vieira, J. M., Matias, M., Ferreira, T., Lopez, F. G., & Matos, P. M. (2016). Parents' work-family experiences and children's problem behaviors: The mediating role of the parent-child relationship. *Journal of Family Psychology*, *30*(4), 419.

von Soest, T., Mossinge, S., Stefansen, K., Hjemdal, O. (2010). A validation study of the Resilience Scale for Adolescents (READ). *Journal of Psychopathology and Behavioural Assessment, 32*, 215–225.

Waddoups, A. B., Yoshikawa, H., & Strouf, K. (2019). Developmental effects of parent–child separation. *Annual Review of Developmental Psychology*, *1*, 387-410.

Wang, Q., & Liu, X. (2020). Stressful life events and delinquency among Chinese rural left-behind adolescents: The roles of resilience and separation duration. *Children and Youth Services Review*, *117*, 105320.

Weinberg, A., & Creed, F. (2000). Stress and psychiatric disorder in healthcare professionals and hospital staff. *the Lancet*, *355*(9203), 533-537.

West, C. P., Dyrbye, L. N., & Shanafelt, T. D. (2018). Physician burnout: contributors, consequences and solutions. *Journal of Internal Medicine, 283*(6), 516-529.

White, C. J., de Burgh, H. T., Fear, N. T., & Iversen, A. C. (2011). The impact of deployment to Iraq or Afghanistan on military children: A review of the literature. *International Review of Psychiatry*, *23*(2), 210-217.

Wong, F. K. D., Chang, Y. L., & He, X. S. (2009). Correlates of psychological wellbeing of children of migrant workers in Shanghai, China. *Social psychiatry and psychiatric epidemiology*, *44*(10), 815-824.

World Health Organization. (2020, June 29). Timeline of WHO's response to COVID-19. Retrieved from https://www.who.int/news/item/29-06-2020-covidtimeline

World Health Organization. (2017). Global accelerated action for the health of adolescents (AA-HA!): guidance to support country implementation.

World Health Organization. (2021, May 24). *Coronavirus Disease 2019 (COVID-19) Situation Report in the Philippines.* Retrieved from: https://reliefweb.int/report/philippines/philippines-coronavirus-disease-covid-19-situation-report-77-24-may-2021

Wu, Y. L., Zhao, X., Ding, X. X., Yang, H. Y., Qian, Z. Z., Feng, F., ... & Sun, Y. H. (2017). A prospective study of psychological

resilience and depression among left-behind children in China. *Journal of health psychology, 22*(5), 627-636.

Yap D.J, & Cinco, M. (2021, May 13). Gripes aired over slow pace of COVID-19 vaccine rollout. *Inquirer.* Retrieved from: https://newsinfo.inquirer.net/1431089/gripes-aired-over-pace-of-jab-rollout#ixzz6zBTMZVsO

Zhao, X., Fu, F., & Zhou, L. (2020). The mediating mechanism between psychological resilience and mental health among left-behind children in China. *Children and Youth Services Review, 110*, 104686.

Zondervan-Zwijnenburg, M. A., Veldkamp, S. A., Neumann, A., Barzeva, S. A., Nelemans, S. A., van Beijsterveldt, C. E., ... & Boomsma, D. I. (2020). Parental Age and Offspring Childhood Mental Health: A Multi-Cohort, Population-Based Investigation. *Child development, 91*(3), 964-982.

Appendix 1

Parent COVID Stress Scales Questionnaire

IRB No. 2104/001-017 유효기간: 2022년 04월 11일

The COVID Stress Scales

The following asks about various kinds of worries that you might have experienced ***over the past seven days***. In the following statements, we refer to COVID-19 as "the virus".

	Not at all	Slightly	Moderately	Very	Extremely
1. I am worried about catching the virus	0	1	2	3	4
2. I am worried that I can't keep my family safe from the virus	0	1	2	3	4
3. I am worried that our healthcare system won't be able to protect my loved ones	0	1	2	3	4
4. I am worried our healthcare system is unable to keep me safe from the virus	0	1	2	3	4
5. I am worried that basic hygiene (e.g., handwashing) is not enough to keep me safe from the virus	0	1	2	3	4
6. I am worried that social distancing is not enough to keep me safe from the virus	0	1	2	3	4
7. I am worried about grocery stores running out of food	0	1	2	3	4
8. I am worried that grocery stores will close down	0	1	2	3	4
9. I am worried about grocery stores running out of cleaning or disinfectant supplies	0	1	2	3	4
10. I am worried about grocery stores running out of cold or flu remedies	0	1	2	3	4
11. I am worried about grocery stores running out of water	0	1	2	3	4
12. I am worried about pharmacies running out of prescription medicines	0	1	2	3	4
13. I am worried that foreigners are spreading the virus in my country	0	1	2	3	4
14. If I went to a restaurant that specialized in foreign foods, I'd be worried about catching the virus	0	1	2	3	4

Version 1.1(2021.04.12.)

15. I am worried about coming into contact with foreigners because they might have the virus	0	1	2	3	4
16. If I met a person from a foreign country, I'd be worried that they might have the virus	0	1	2	3	4
17. If I was in an elevator with a group of foreigners, I'd be worried that they're infected with the virus	0	1	2	3	4
18. I am worried that foreigners are spreading the virus because they're not as clean as we are	0	1	2	3	4
19. I am worried that if I touched something in a public space (e.g., handrail, door handle), I would catch the virus	0	1	2	3	4
20. I am worried that if someone coughed or sneezed near me, I would catch the virus	0	1	2	3	4
21. I am worried that people around me will infect me with the virus	0	1	2	3	4
22. I am worried about taking change in cash transactions	0	1	2	3	4
23. I am worried that I might catch the virus from handling money or using a debit machine	0	1	2	3	4
24. I am worried that my mail has been contaminated by mail handlers	0	1	2	3	4

Please read each statement and indicate how frequently you have experienced each problem ***during the past seven days.***

	Never	Rarely	Sometimes	Often	Almost Always
25. I had trouble concentrating because I kept thinking about the virus	0	1	2	3	4
26. Disturbing mental images about the virus popped into my mind against my will	0	1	2	3	4
27. I had trouble sleeping because I worried about the virus	0	1	2	3	4
28. I thought about the virus when I didn't mean to	0	1	2	3	4

Version 1.1(2021.04.12.)

29. Reminders of the virus caused me to have physical reactions, such as sweating or a pounding heart	0	1	2	3	4
30. I had bad dreams about the virus	0	1	2	3	4

The following items ask about checking behaviours. ***During the past seven days,*** how much have you done the following because of concerns about COVID-19?

	Never	Rarely	Sometimes	Often	Almost Always
31. Searched the Internet for treatments for COVID-19	0	1	2	3	4
32. Asked health professionals (e.g., doctors or pharmacists) for advice about COVID-19	0	1	2	3	4
33. Checked YouTube videos about COVID-19	0	1	2	3	4
34. Checked your own body for signs of infection (e.g., taking your temperature)	0	1	2	3	4
35. Sought reassurance from friends or family about COVID-19	0	1	2	3	4
36. Checked social media posts concerning COVID-19	0	1	2	3	4

Found in: Taylor, S., Landry, C. A., Paluszek, M. M., Fergus, T. A., McKay, D. & Asmundson, G. J. G. Development and initial validation of the COVID Stress Scales. Journal of Anxiety Disorders.

Version 1.1(2021.04.12.)

Appendix 2

CYRM-R Questionnaire Child Version

IRB No. 2104/001-017 유효기간: 2022년 04월 11일

Resilience Research Centre

DALHOUSIE UNIVERSITY

Child & Youth Resilience Measure-Revised (CYRM-R)

CYRM-R (child)

Please choose one answer for each question. There are no right or wrong answers.		No [1]	Sometimes [2]	Yes [3]
1	Do you share with people around you?	☺	☺	☺
2	Is doing well in school important to you?	☺	☺	☺
3	Do you know how to behave/act in different situations (such as school, home, holy places)?	☺	☺	☺
4	Do you feel that your parent(s)/caregiver(s) know where you are and what you are doing all of the time?	☺	☺	☺
5	Do you feel that your parent(s)/caregiver(s) know a lot about you (for example, what makes you happy, what makes you scared)?	☺	☺	☺
6	Is there enough to eat in your home when you are hungry?	☺	☺	☺
7	Do other children like to play with you?	☺	☺	☺
8	Do you talk to your family/caregiver(s) about how you feel (for example when you are hurt or feeling scared)?	☺	☺	☺
9	Do you have friends that care about you?	☺	☺	☺
10	Do you feel you fit in with other children?	☺	☺	☺
11	Do you think your family/caregiver(s) cares about you when times are hard (for example, if you are sick or have done something wrong)?	☺	☺	☺
12	Do you think your friends care about you when times are hard (for example if you are sick or have done something wrong)?	☺	☺	☺
13	Are you treated fairly?	☺	☺	☺
14	Do you have chances to show others that you are growing up and can do things by yourself?	☺	☺	☺
15	Do you feel safe when you are with your family/caregiver(s)?	☺	☺	☺
16	Do you have chances to learn things that will be useful when you are older (like cooking, working, and helping others)?	☺	☺	☺
17	Do you like the way your family/caregiver(s) celebrates things (like holidays or learning about your culture)?	☺	☺	☺

For administration instructions and scoring, please refer to the accompanying manual.

When using the measure, please cite the following:

Resilience Research Centre. (2018). CYRM and ARM user manual. Halifax, NS: Resilience Research Centre, Dalhousie University. Retrieved from http://www.resilienceresearch.org/

Jefferies, P., McGarrigle, L., & Ungar, M. (2018). The CYRM-R: a Rasch-validated revision of the Child and Youth Resilience Measure. *Journal of Evidence-Informed Social Work*, 1-24. https://doi.org/10.1080/23761407.2018.1544403

Version 1.1(2021.04.12.)

Appendix 3

CYRM-R Questionnaire Youth Version

Child & Youth Resilience Measure-Revised (CYRM-R)

CYRM-R

	To what extent do the following statements apply to you? There are no right or wrong answers.	No [1]	Sometimes [2]	Yes [3]
1	I get along with people around me	1	2	3
2	Getting an education is important to me	1	2	3
3	I know how to behave/act in different situations (such as school, home and church)	1	2	3
4	My parent(s)/caregiver(s) really look out for me	1	2	3
5	My parent(s)/caregiver(s) know a lot about me (for example, who my friends are, what I like to do)	1	2	3
6	If I am hungry, there is enough to eat	1	2	3
7	People like to spend time with me	1	2	3
8	I talk to my family/caregiver(s) about how I feel (for example when I am hurt or sad)	1	2	3
9	I feel supported by my friends	1	2	3
10	I feel that I belong/belonged at my school	1	2	3
11	My family/caregiver(s) care about me when times are hard (for example if I am sick or have done something wrong)	1	2	3
12	My friends care about me when times are hard (for example if I am sick or have done something wrong)	1	2	3
13	I am treated fairly in my community	1	2	3
14	I have chances to show others that I am growing up and can do things by myself	1	2	3
15	I feel safe when I am with my family/caregiver(s)	1	2	3
16	I have chances to learn things that will be useful when I am older (like cooking, working, and helping others)	1	2	3
17	I like the way my family/caregiver(s) celebrates things (like holidays or learning about my culture)	1	2	3

For administration instructions and scoring, please refer to the accompanying manual.

When using the measure, please cite the following:

Jefferies, P., McGarrigle, L., & Ungar, M. (2018). The CYRM-R: a Rasch-validated revision of the Child and Youth Resilience Measure. *Journal of Evidence-Informed Social Work*, 1-24. https://doi.org/10.1080/23761407.2018.1548403

Appendix 4

CYRM-R Ordinal to Interval Score Conversion Table

Subscale 1 – Personal resilience		**Subscale 2 – Caregiver/Relational resilience**	
Raw subscale score (10-30)	*Adjusted interval scale*	*Raw subscale score (7-21)*	*Adjusted interval scale*
10	0	7	0
11	2	8	2
12	3	9	4
13	4	10	5
14	5	11	6
15	6	12	7
16	7	13	9
17	8	14	10
18	9	15	11
19	9	16	12
20	10	17	13
21	11	18	15
22	12	19	16
23	13	20	18
24	14	21	20
25	14		
26	15		
27	16		
28	17		
29	18		
30	20		

This conversion table should only be used when all subscale items have been completed.

Conversion provided by RUMM2030 (Andrich, Sheridan, & Luo, 2010).

Appendix 5

RCADS-25 Questionnaire

IRB No. 2104/001-017 유효기간: 2022년 04월 11일

Date: _____

RCADS-25

Please put a circle around the word that shows how often each of these things happens to you. There are no right or wrong answers.

1. I feel sad or empty	Never	Sometimes	Often	Always
2. I worry when I think I have done poorly at something	Never	Sometimes	Often	Always
3. I would feel afraid of being on my own at home	Never	Sometimes	Often	Always
4. Nothing is much fun anymore	Never	Sometimes	Often	Always
5. I worry that something awful will happen to someone in my family	Never	Sometimes	Often	Always
6. I am afraid of being in crowded places (like shopping centers, the movies, buses, busy playgrounds)	Never	Sometimes	Often	Always
7. I worry what other people think of me	Never	Sometimes	Often	Always
8. I have trouble sleeping	Never	Sometimes	Often	Always
9. I feel scared if I have to sleep on my own	Never	Sometimes	Often	Always
10. I have problems with my appetite	Never	Sometimes	Often	Always
11. I suddenly become dizzy or faint when there is no reason for this	Never	Sometimes	Often	Always
12. I have to do some things over and over again (like washing my hands, cleaning or putting things in a certain order)	Never	Sometimes	Often	Always
13. I have no energy for things	Never	Sometimes	Often	Always
14. I suddenly start to tremble or shake when there is no reason for this	Never	Sometimes	Often	Always
15. I cannot think clearly	Never	Sometimes	Often	Always
16. I feel worthless	Never	Sometimes	Often	Always
17. I have to think of special thoughts (like numbers or words) to stop bad things from happening	Never	Sometimes	Often	Always
18. I think about death	Never	Sometimes	Often	Always
19. I feel like I don't want to move	Never	Sometimes	Often	Always
20. I worry that I will suddenly get a scared feeling when there is nothing to be afraid of	Never	Sometimes	Often	Always
21. I am tired a lot	Never	Sometimes	Often	Always
22. I feel afraid that I will make a fool of myself in front of people	Never	Sometimes	Often	Always
23. I have to do some things in just the right way to stop bad things from happening	Never	Sometimes	Often	Always
24. I feel restless	Never	Sometimes	Often	Always
25. I worry that something bad will happen to me	Never	Sometimes	Often	Always

Version 1.1(2021.04.12.)

Appendix 6

Sociodemographic Survey Questionnaire

SURVEY QUESTIONNAIRE (via google forms)
BASIC INFORMATION

Good day! I am Dr. Marilag M. dela Cruz, a pediatrician who trained in the Philippines, and currently a Master's student under the Department of Child Development and Family Studies in Seoul National University. I am conducting a study to assess the well-being of the children of healthcare workers in the frontlines during this COVID-19 pandemic. The following questions contain basic information about you and your child/children. All your responses will remain confidential and will be used for the purpose of this research only. Results of this survey (parent and child) will be individually sent to you should you agree to join. Thank you for your participation.

E-mail address: _____

Age: _____

How many child/children do you have? Please state the age(s) correspondingly. _____

Does your spouse/partner also currently work in the hospital frontline?
☐Yes ☐No ☐ I am a single parent

Is there any other person taking care of your children apart from you/your partner?
☐ Yes ☐ No

Hospital affiliation
☐Private Hospital ☐Government Hospital ☐Currently working in both private and government hospital

Hospital Location
☐Metro Manila ☐Outside Metro Manila ☐Currently working in hospitals within and outside Metro Manila.

Occupation: _____

Hospital Unit currently employed in: _____

In the past month, how many hours per week on average are you away from your children because of hospital-related work (including need for quarantine)? _____

Have you had confirmed COVID-19 infection in the past?
☐ Yes ☐No

How many COVID-19 vaccine doses have you received?
☐I have received one vaccine dose.
☐I have received two vaccine doses.
☐I have not received a vaccine dose.

Monthly Family Income
☐Less than 20,000 Php per month
☐Between 20,000 - 40,000 Php per month
☐Between 40,000 - 70,000 Php per month
☐Between 70,000 -125,000 Php per month
☐More than 125,000 per month

Appendix 7

Seoul National University Institutional Review Board Approval

Seoul National University

Institutional Review Board

1 Gwanak-ro, Gwanak-gu, Seoul 08826

Tel :82-2-880-5153 FAX:82-2-882-5153

April 12, 2021

Marilag M. dela Cruz
College of Human Ecology,
Seoul National University,
Seoul 08826, Korea

IRB No. 2104/001-017

Title of Proposal: Children of COVID-19 Healthcare Workers: Risks, Resilience, & Well-being

Approved period of study: 04/12/2021 ~ 04/11/2022

Dear Marilag M. dela Cruz

This letter is to officially notify you that the Institutional Review Board has reviewed and approved the above referenced protocol to involve humans as research subjects under **an Expedited Category**. If it is necessary to continue the study beyond the approved period, a request for continuation approval should be submitted about 6 weeks prior to **04/12/2021**.

ALL SNUIRB APPROVED INVESTIGATORS MUST COMPLY WITH THE FOLLOWING:

1. Conduct the research as described in the Protocol;
2. Use only the SNUIRB approved Consent Form;
3. For non-Korean speaking subjects, a certified translation of the approved Consent Form in the subject's first language should be provided. The translated version must be approved by the SNUIRB;
4. Obtain pre-approval from the SNUIRB of any changes in the research activity except when necessary to protect human subjects; immediately report to the SNUIRB any such emergency changes for the protection of human subjects;
5. Report to SNUIRB the death, hospitalization, or serious illness of any study subject;
6. Promptly report to the SNUIRB any new information that may adversely affect the safety of the subjects or the conduct of the research;
7. Provide reports to the SNUIRB concerning the progress of the research, when requested;
8. Obtain approval of study advertisements from the SNUIRB before use;
9. Conduct the informed consent process without coercion or undue influence, and provide the potential subject with sufficient opportunity to consider whether or not to participate.

If you have any questions, please contact SNUIRB at +82-2-880-5153.

Sincerely,

Chairman
Chair, SNUIRB

Appendix 8

Bivariate Correlations of Study Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Child age	1															
2. Child gender	-27	1														
3. Parent age	.19	-.04	1													
4. Parent gender	-.01	.08	.24	1												
5. Number of siblings	.31*	.05	.16	-.01	1											
6. Working parents	.10	.08	.03	.37*	.21	1										
7. Presence of caretaker	-25	.26	-.09	-.34*	-.02	.01	1									
8. Parent occupation	.24	.30	.19	.34*	.31*	.35	-.15	1								
9. Hospital affiliation	.13	.30	.10	.22	.35*	.08	-.07	.71*	1							
10. Parent vaccination	.02	-.06	.32*	.07	-.11	.00	.20	-.01	-.27	1						
11. SES	.19	.23	.44*	.14	.43*	.31*	.04	.59*	.47*	-.20	1					
12. Weekly separation	.11	.00	.26	.07	.39*	-.14	.10	.15	.32*	.09	.27	1				
13. COVID stress	-.34*	-.06	-.04	-.17	-.33*	-.17	.23	-.53**	-.36*	-.05	-.30	-.02	1			
14. Child resilience	-27	.05	-.10	.04	-.40**	-.10	.73	-.24	-.44**	.31*	-.48**	-.28	.28	1		
15. Child anxiety	.34*	-.18	-.10	.06	.17	.13	-.09	-.01	.03	-.26	.23	.27	.19	-.29	1	
16. Child depression	.51**	-.19	.11	-.21	.32*	-.10	-.09	.08	.18	-.10	.34*	.27	-.26	-.54**	.63**	1

* $p < .05$. ** $p < .01$

국문 초록

코로나 시기 필리핀 의료종사자 자녀의 탄력성과 정신건강

마리라그 *
서울대학교 대학원
생활과학대학
아동가족학과

코로나(COVID-19) 대유행과의 싸움에서, 환자를 치료하는데 앞장서고 있는 의료종사자들은 때때로 자신의 자녀들을 돌보지 못한다. 본 연구는 필리핀에서 의료종사자 부모들의 코로나 관련 스트레스, 부모-자녀 분리, 자녀 탄력성이 자녀의 정신 건강에 미치는 영향을 조사하였다. 18 세 미만 자녀를 둔 필리핀 의료종사자 61 명과 8-18 세 자녀 41 명을 대상으로 온라인 설문조사를 실시하였다. 부모들은 COVID-19 Stress Scales 를 완료했고 자녀들은 Child and Youth Resilience Measure-Revised 과 Revised Child Anxiety and Depression Scale-25 를 대답하였다. 분석결과, 부모들은 특히 위험, 감염, 강박적인 점검 측면에서 보통에서 심각한 수준의 코로나 관련 스트레스를 받고 있는 것으로 밝혀졌다. 더불어, 약 5 명 중 1 명의 자녀들이 불안 증상이 있으며, 7 명 중 1 명의 자녀들은 본 필리핀

샘플에서 우울증을 보였다. 반면, 대부분의 자녀들은 높은 탄력성을 가진 것으로 나타났다.

계층적 회귀 분석 결과, 부모-자녀 분리는 자녀 불안과 우울증 증상을 예측하였으며 부모의 코로나 관련 스트레스는 자녀 불안만 예측한 것으로 나타났다. 자녀 탄력성은 우울증을 예방 효과가 있는 것으로 나타났으나, 부모-자녀 분리와 부모의 코로나 관련 스트레스에 조절 효과가 없는 것으로 밝혀졌다. 또한 자녀의 나이가 많을수록 정신 건강에 미치는 부정적인 영향이 더 커지는 것으로 나타났다. 본 연구의 결과는 정신 건강 문제와 관련하여 의료종사자들의 자녀들, 특히 나이든 청소년들의 위험과 취약성에 대한 인식의 중요성을 강조하였다. 그리고 분석 결과를 마탕으로 현재의 유행병 및 그 이상의 환경에서 최적의 자녀 복지를 보장을 위해 탄력성은 자녀뿐만 아니라 의료종사자 부모에게도 지속적으로 길러줘야 할 필요가 있는 것으로 검증되었다.

주요어: 의료종사자 스트레스, 부모—자녀 분리,
자녀 우울증, 자녀 불안, 자녀 탄력성

학번: 2019-23681

* 본 논문정석자는 한국정부초청장학금 (Global Korea Scholarship)을 지원받은 장학생임.