

**Table 2. COVID-19 studies**

Authors, Title, Year	Geographic Location	Sample	Aims	Methods	Findings
Ahorsu et al. (2020). Associations between fear of covid-19, mental health, and preventive behaviours across pregnant women and husbands: An actor-partner interdependence modelling.	Qazvin, Iran	290 pregnant women and their husbands (N = 580)	To examine the associations between effect of fear of COVID-19, depression, anxiety, suicidal intention, mental quality of life, and preventive COVID-19 behaviours among pregnant women and their husbands	Quantitative study Participants were administered to assess fear COVID-19, depression, anxiety, suicidal intention, mental quality of life: - Fear of COVID-19 Scale - Hospital Anxiety and Depression Scale - Short-Form Health Survey - Patient Health Questionnaire - Preventive COVID-19 Behaviour Scale psychometric scales  Statistical analysis of data conducted to assess relationship between all study variables.	<ul style="list-style-type: none"> <li>- Fear of COVID-19 among pregnant women was positively associated with depression and suicidal intention, and with their preventive COVID-19 behaviours, and negatively associated with their mental quality of life</li> <li>- Fear of COVID-19 among pregnant women was positively associated with their husbands' depression, anxiety, suicidal intention, and preventive behaviours, and negatively with their mental quality of life</li> <li>- For pregnant women's husbands, fear of COVID-19 was positively associated with their depression, anxiety, suicidal intention, and preventive behaviours but negatively associated with their mental quality of life</li> <li>- Pregnant women's husbands' fear of COVID-19 was significantly and positively associated with their pregnant wives' depression, anxiety, suicidal intention, and COVID-19 preventive behaviours but negatively with their mental quality of life.</li> <li>- Partner effects of fear of COVID-19 were substantially stronger for husbands on their wives' anxiety, depression, and mental quality of life compared to effect of wives' fear on the same variables for their husbands</li> </ul>
Berthelot et al. (2020). Uptrend in distress and psychiatric symptomatology in pregnant women during the coronavirus disease 2019 pandemic.	Quebec, Canada	1754 pregnant women  496 recruited pre-COVID;	To determine the extent to which the COVID-19 pandemic may aggravate prenatal distress and psychiatric symptomatology	Quantitative study Participants completed: - Kessler Distress Scale (K10) - Post-traumatic Checklist for DSM-5 (PCL-5) - Dissociative	<ul style="list-style-type: none"> <li>- When controlling for age, gestational age, household income, education, and lifetime psychiatric disorders a significant difference was found between the two cohorts on psychiatric symptoms.</li> <li>- COVID-19 sample of women reported higher levels of depressive and anxiety symptoms, dissociative symptoms, symptoms of post-traumatic stress</li> </ul>

		1258 recruited during COVID for comparative analyses	of pregnant women	Experiences Scale (DES-II) -Positive and Negative Affect Schedule (PANAS)  Statistical analyses was conducted to assess difference between two group	disorder, and negative affectivity, and less positive affectivity than the pre-COVID-19 cohort. - The COVID-19 cohort (10.9%) were more likely than pre-COVID-19 cohort (6%) to have clinical levels of depressive and anxiety symptoms - With PTSD symptoms, the COVID-19 cohort reported more alterations in cognitions and mood, and alterations in arousal and reactivity, but had similar levels of intrusion and avoidance than the pre-COVID-19 cohort. - Pregnant women in the COVID-19 cohort having a previous psychiatric diagnosis or low income were more prone to elevated psychiatric symptoms.
Cahapay (2020). How Filipino parents home educate their children with autism during covid-19 period.	Philippines	5 parents (mothers) of children with autism  <i>Parents were between 41 to 48 years old and their child was between 14 to 21 years old</i>	To explore how parents home-educate their children with autism during the COVID-19 period in the Philippines	Qualitative study Parents were interviewed through a two-step process. interview questions were sent to parents to answer one week prior to online interview Second an online interview was conducted explore parents' responses Thematic analysis to extract themes from interviews.	Five themes emerged on how parents home-educate their children with autism:  1) Many are better than one in home education during isolation – more than one family member was involved with the home education of the child 2) Children initially had to cope with adjusting from having a structured program outside their home to having a new routine inside their home 3) New social reality in preparation for the post-pandemic period – parents had to make children understand current circumstances and new social behaviours, such as wearing a mask 4) All forms of home education are essential – parents teaching children school material and also tasks within the home, such as how to clean, cook 5) Families encouraging families in these tough times – parents discussed concern for other families with children with autism, accepting the situation, and provided tips on how to adjust to the situation, such as teaching kids to sanitize hands, etc.

<p>Cameron et al. (2020). Maternal psychological distress &amp; mental health service use during the covid-19 pandemic.</p>	<p>Canadian participants residing in the Canadian cities of Winnipeg (39.78%), Toronto (5.46%), and Calgary (4.84%).</p> <p>American participants from the United States (9.20%)</p> <p>International participants (2.34%).</p>	<p>641 mothers of children age 0–8 years, including expectant mothers</p>	<p>1) To describe prevalence rates of maternal anxiety and depression during COVID-19 pandemic 2- investigate risk and protective factors for elevated symptoms 3 2) To describe maternal use of mental health services and barriers</p>	<p>Quantitative study</p> <p>Mothers completed online questionnaires assessing mental health, and collecting sociodemographic information, and COVID-19-related variables.</p> <ul style="list-style-type: none"> <li>- Recent stressful experiences (RSE)</li> <li>- Multidimensional scale of perceived social support (MSPSS) – higher scores indicate higher perceived social support</li> <li>- Revised dyadic adjustment scale (RDAS) – assesses marital quality; lower scores indicating greater relationship distress</li> </ul> <p>Statistical analyses were conducted across three child age ranges: pregnancy to &lt;18 months postpartum, 18 months old to four years old, and 5 to 8 years old.</p>	<ul style="list-style-type: none"> <li>- Clinically-relevant depression indicated in 33.16%, 42.55%, and 43.37% of mothers of children age 0–18 months, 18 months to 4 years, and 5 to 8 years, respectively. Prevalence of anxiety was 36.27%, 32.62%, and 29.59%, respectively.</li> <li>- 38.62% of mothers indicated current financial strain</li> </ul> <p>Correlates of maternal depression by age group:</p> <ul style="list-style-type: none"> <li>- Mothers of children 0 to 18 months: previous mental health history, lower maternal and partner education, lower household income, employment loss and/or financial strain, higher RSE in past month, lower MSPSS, and lower RDAS. Marital quality a significant protective factor.</li> <li>- Mothers of children 18 months to 4 years: positively correlated with mental health history, employment loss, financial strain, RSE past month and past year; negatively with household income, MSPSS, RDAS. Mental health history only significant risk predictor.</li> <li>- Mothers of children 5 to 8 years: previous mental health history, greater RSE past month and past year, lower MSPSS and lower RDAS. Marital quality significant protective factor.</li> </ul> <p>Correlates of maternal anxiety by age group:</p> <ul style="list-style-type: none"> <li>- Mothers of children 0 to 18 months: mental health history, financial strain, lower partner education, lower household income, lower MSPSS, lower RDAS, greater RSE past month. Financial strain and RSE past month were significant risk factors.</li> <li>- Mothers of children 18 months to 4 years: mental health history, financial strain, younger maternal age, lower RDAS satisfaction, and greater RSE past month. Mental health history and financial strain were significant risk factors for anxiety; maternal age negatively associated with anxiety.</li> <li>- Mothers of children aged 5 to 8 years: mental health history, RSE past month/past year, employment loss,</li> </ul>
---	---	---	--	--	--

					<p>financial strain; negatively with MSPSS, RDAS total/ consensus/satisfaction. Marital quality a protective factor.</p> <ul style="list-style-type: none"> <li>- Barriers to mental service use and access reported</li> </ul>
<p>Colizzi et al. (2020). Psychosocial and behavioral impact of COVID-19 in autism spectrum disorder: An online parent survey.</p>	<p>Veneto, Italy</p>	<p>527 parents and guardians of individuals with autism spectrum disorders (ASD)</p> <p>Mean age of participants' children was 13 years (SD = 8.1)</p>	<p>To investigate the impact of the COVID-19 pandemic on ASD individuals, whether any pre-pandemic sociodemographic or clinical characteristics would predict a negative outcome, and to narratively characterize their needs</p>	<p>Quantitative study</p> <p>Participants filled out an online survey consisting of 40 questions (38 closed questions, and 2 open-response questions) investigating socio-demographic and clinical characteristics of their children, impact of the COVID-19 outbreak on their wellbeing and needs to deal with the emergency.</p> <p>Statistical analyses conducted on data to provide information on ASD children and characteristics that predicted greater behaviour problems following COVID-19. The open-ended questions about needs were evaluated and pooled into categories.</p>	<ul style="list-style-type: none"> <li>- 26.1% of mothers and 27.5% of fathers stopped working because of COVID-19</li> <li>- In terms of judgement on this period of change and restrictions due to COVID-19, 54% of parents rated this time as very challenging and almost 40% as challenging; 77% rated this time as more challenging than before the emergency outbreak</li> <li>- Parents reported difficulties in managing their child's meals (23%), autonomies (31%), free time (78.1%), and structured activities (75.7%) since COVID-19.</li> <li>- The two areas most difficult to manage during COVID-19 as compared to before, were free time (81.6%) and structured activities (76.2%)</li> <li>- Compared to before COVID-19, behavior problems in ASD children were reported being more intense (35.5%) and more frequent (41.5%)</li> <li>- ASD youth with preexisting behavior problems and those not receiving indirect school support were more likely to exhibit more intense behavior problems that those without preexisting behavior problems. Increasing age and living with a separated or single parent were associated with a reduced likelihood.</li> <li>- ASD youth with preexisting behavior problems were more likely to exhibit more frequent behavior problems that those without.</li> <li>- In terms of needs to deal with the emergency, 77% of parents reported at least one need. The most commonly reported need was for in-home healthcare support (29.9%), followed by center-based healthcare support (10.4%), loosening quarantine</li> </ul>

					restrictions (9.7%), ending lockdown (7.1%), in-hospital healthcare support (7.1%), and increased school support (6.9%).
Esentürk (2020). Parents' perceptions on physical activity for their children with autism spectrum disorders during the novel Coronavirus outbreak.	Erzincan, Turkey	10 parents (6 mothers, 4 fathers) with children with autism spectrum disorders (ASD)  Parents were between 35 and 54 years old and their children were between 9 and 16 years old	To explore parents' perceptions on physical activity for their children with ASD during the COVID-19 outbreak	Qualitative study  Parents participated in one-to-one semi-structured phone interviews.  Thematic analysis of interview data	Three main themes, with sub-themes: 1) Possible benefits of physical activity during the COVID-19 outbreak. Children appear to prefer participating in activities outdoors rather than in the home. Four sub-themes were obtained in terms of the benefits of physical activity from parents' perspective: a. Health b. Social c. Psychological d. Prevention of technological tool addiction 2) Physical activity barriers during the COVID-19 outbreak. Five sub-themes/barriers: a. Family members' occupations b. Safety concerns c. Insufficient distance education infrastructure d. Anxiety for routine disruption e. Lack of knowledge. 3) Recommendations for physical activity during the COVID-19 outbreak. Three sub-themes regarding recommendations from parents on increasing physical activity levels during quarantine: a. Family education b. Expert support c. Resource support (book, brochure, handbook, etc.)
Fitzpatrick et al (2020). Fear of COVID-19 and the mental health consequences in America.	United States	10,368 adults  25% of households with children	To examine the intersection of COVID-19 fear with social vulnerabilities and mental health consequences	Quantitative study Participants completed an online survey  Statistical analysis to compare different subgroups.	- Families with children have higher COVID-19 fear compared to families without children. - COVID-19 fear is clearly linked to both depression and anxiety symptomatology; persons reporting more COVID-19 fear reported more mental health symptoms

		under 18 years of age			
Korajlija & Jokic-Begic (2020). COVID-19: Concerns and behaviours in Croatia.	Croatia	Two samples:  Wave 1: 888 adults (28.9% had children)  Wave 2: 966 adults (50.9% had children)  34.4% of sample overlapped with the same respondents	To examine changes in levels of COVID-19 concern and safety behaviours in Croatia during the period in which the first COVID-19 case was identified (Wave 1) and when the country recorded its first fatality (Wave 2)	Quantitative study Repeated cross-sectional data were collected through online surveys regarding health concerns and safety behaviours related to COVID-19 over two time points over three weeks. Questionnaires: - COVID-19 Safety Behaviour Checklist - COVID-19 Anxiety Scale – Wave 1 (Wave 1 participants) - COVID-19 Anxiety Scale – Wave 2 (Wave 2 participants); Four items related to perceived likelihood of family members contracting the virus and mental health concerns added  Statistical analyses conducted.	<ul style="list-style-type: none"> <li>- Women with children had higher levels of COVID-19 concerns than women without children and men, regardless of their parental status.</li> <li>- For both women and men who have children, this was a risk factor for amplified concerns</li> <li>- Women and parents (both men and women) report more safety behavior than men and those without children</li> <li>- Results suggest that parents, and mothers particularly, represent the most concerned group, regardless of age</li> </ul>
Lades et al. (2020). Daily emotional well-being during the covid-19 pandemic.	Ireland	604 adult participants, including parents (191	Investigation of how people experience activities, interactions, and	Quantitative study Participants completed an online survey: Day Reconstruction Method (DRM) - a short	<ul style="list-style-type: none"> <li>- Exercising, going for walks, gardening, and pursuing a hobby were ranked as the most enjoyable feelings and associated with the largest increase in positive affect.</li> </ul>

		men; 413 women)	settings of their lives during the pandemic	<p>version of the DRM was used where participants completed a diary documenting what they did and how they felt during a set of up to 5 sequential 'episodes' from a randomly allocated section of their day.</p> <p>Statistical analysis conducted on responses to examine within-person variance in emotional well-being and how people spend their time.</p>	<ul style="list-style-type: none"> <li>- Taking care of children was linked to positive affect and reduced negative feelings.</li> <li>- Home-schooling children, using social media, and obtaining information about COVID-19 was linked with negative affect, and were ranked lowest of all activities in terms of emotional experience.</li> <li>- Results suggest that spending time with children following the closure of schools and childcare facilities may benefit rather than reduce parents' emotional well-being. In contrast, taking on the role of educator poses significant challenges.</li> </ul>
Lebel et al. (2020). Elevated depression and anxiety symptoms among pregnant individuals during the COVID-19 pandemic.	Canada	1,987 pregnant women	To determine the prevalence of anxiety and depression in pregnant people during the COVID-19 pandemic and identify potential resilience factors associated with lower symptoms	<p>Quantitative study</p> <p>Participants completed questionnaires about COVID-19 life changes and worries, anxiety symptoms, depression symptoms, social support, and physical activity.</p> <p>Statistical analyses were conducted to determine relationships between variables.</p>	<ul style="list-style-type: none"> <li>- Most participants (89%) reported changes in prenatal care due to the pandemic, including canceled appointments (36%), or not being allowed to bring a support person (90%).</li> <li>- Women pregnant for the first time had higher pregnancy-related anxiety symptoms compared to pregnant women with other children</li> <li>- Odds for clinically elevated depression symptoms were increased by COVID-19-related worries and by partner relationship strain, but not by loss of employment. For both depression and general anxiety symptoms, the largest effects were for social isolation. Substantially elevated anxiety and depression symptoms compared to similar pre-pandemic pregnancy cohorts, with 37% reporting clinically relevant symptoms of depression and 57% clinically relevant symptoms of anxiety.</li> </ul>

					<ul style="list-style-type: none"> <li>- Measures of anxiety and depression symptoms were moderately to strongly associated with each other, and negatively associated with perceived social support.</li> <li>- Significant associations between most COVID-19 factors (ex. threat to life of mother and baby, not getting proper prenatal care, social isolation, relationship strain) and depression, anxiety, and pregnancy-related anxiety symptoms. Only loss of employment (for all 3 symptoms) and relationship strain (for pregnancy-related anxiety) were not significant.</li> <li>- Odds of clinically elevated <u>depression</u> and anxiety symptoms were lower if participants had better perceived social support (independent effects for partner and general support). The odds of clinically elevated <u>anxiety</u> symptoms (both general anxiety and pregnancy-related anxiety) were lower if participants reported more physical activity.</li> </ul>
Liang et al. (2020). The effect of COVID-19 on youth mental health.	Sichuan Province, China	<p>584 young people aged 14–35 years</p> <p>(74.6% were between 21–30 years old; 77.7% students)</p> <p>22.3% were 14–20 years</p>	To assess youth mental health after COVID-19 occurred in China two weeks later, and to investigate factors of mental health among youth groups	<p>Quantitative study</p> <p>Participants completed questionnaires</p> <ul style="list-style-type: none"> <li>- Knowledge of COVID-19</li> <li>- General Health Questionnaire Scale</li> <li>- PTSD Checklist – Civilian Version</li> <li>- Simplified Coping Style Questionnaire</li> </ul>	<ul style="list-style-type: none"> <li>- 40.4% of the sample reported psychological problems</li> <li>- Factors associated with psychological disorders: having a junior high school education or below, being the enterprise employee, having PTSD symptoms; and using negative coping measures</li> <li>- Findings were separated by age group (14-20 years; 21-30 years; 31-35 years), and it was found that age did not have a significant effect on any variable:</li> </ul>



				Statistical analyses of responses to assess the associations between sociodemographic characteristics, GHQ-12, PTSD and negative coping style.	
Liu et al. (2020). Somatic symptoms and concern regarding COVID-19 among Chinese college and primary school students: A cross-sectional survey	China	209 primary school students (127 in the 5 <sup>th</sup> grade, 82 in the 6 <sup>th</sup> grade; 93 boys and 116 girls)  198 college students	To explore the impact of the COVID-19 pandemic on psychosomatic symptoms among primary school and college students	Quantitative study  Participants completed two questionnaires: - Questionnaire about concerns regarding COVID-19 - Somatic Self-rating Scale  Statistical analyses conducted on responses	<ul style="list-style-type: none"> <li>- Significant differences between primary school and college students in the degree of concern in the three domains (higher concerns among college students regarding daily life necessities; concerns regarding the efficacy of prevention and control measures; and concerns regarding threat to life and health posed by COVID-19, to both the respondent and their family)</li> <li>- Total concern score higher for college students compared to primary school students</li> <li>- The incidence of somatic symptoms among the primary school students was 2.39% (all mild)</li> <li>- For the primary school students, only concern regarding the threat to life and health posed by COVID-19 significantly predicted somatic symptoms</li> <li>- Primary school students were mainly concerned about the threat to life and health posed by COVID-19 (39.7% of respondents); this concern was associated with anxiety, but not depression.</li> </ul>
Oosterhoff et al. (2020). Adolescents' motivations to engage in social distancing during the covid-19 pandemic: Associations with mental and social health.	United States	683 adolescents between the ages of 13 and 18 years (M=16.35)  75.3% female	To examine adolescents' motivations for social distancing, their engagement in social distancing, and their mental and social health.	Quantitative study  Participants completed multiple surveys/ questionnaires.  Statistical analyses conducted for associations	<ul style="list-style-type: none"> <li>- Most respondents (98.1%) reported engaging in at least a little social distancing; 26.9% were engaging in social distancing a lot and 56.6% a great deal</li> <li>- Most commonly reported motivations for social distancing concerned prosocial motivations – social responsibility (78.1%) and not wanting others to get sick (77.9%)</li> <li>- Motivations such state or city lockdowns (60.9%) and parents making youth social distance (54.5%) associated with greater social distancing.</li> </ul>

		participants, 22.7% male and 4.9% identifying as nonbinary		among adolescents' motivations to engage in social distancing, perceived amount of social distancing, anxiety symptoms, depressive symptoms, burdensomeness, and belongingness	<ul style="list-style-type: none"> <li>- Fewer youth reported personal motivations for social distancing, such as not wanting to personally get sick (57.8%) and preferring to stay home (21.3%), having no alternatives (17.8%)</li> <li>- Youth social distancing because their city was on lockdown, their parents were making them, and being socially responsible were social distancing more than youth not endorsing these reasons</li> <li>- No association between degree of social distancing and any indicator of mental health</li> <li>- Youth social distancing because they did not want to personally get sick or because they wanted to avoid judgment reported greater anxiety symptoms.</li> <li>- Those social distancing because they would have otherwise preferred to stay home reported less anxiety and depressive symptoms</li> <li>- Youth engaged in social distancing because a friend told them reported greater depressive symptoms</li> <li>- Youth who were social distancing because they did not want to get personally sick reported lower feelings of burdensomeness, and those who were social distancing because their parents made them reported greater belongingness</li> </ul>
Safdar & Yasmin (2020). COVID-19: A Threat to Educated Muslim Women's Negotiated Identity in Pakistan	Pakistan	<p>3 mothers</p> <ul style="list-style-type: none"> <li>- One single parent with 5 year old daughter</li> <li>- Double parent mother with three sons</li> </ul>	To explore how the lockdown measures during the COVID-19 pandemic has threatened educated Muslim women's negotiated identity regarding wifeness and motherhood in urban Pakistan	<p>Qualitative study</p> <p>Semi-structured interviews with participants</p>	<p>Major themes:</p> <ol style="list-style-type: none"> <li>1) Compromised identity and mental stress in familial environments during the COVID-19 lockdown period → The pandemic situation caused women who were usually professionals to be locked down in their homes where they are expected to fulfil the roles of traditional mother and wife, which also dealing with harsh behaviours of their male life-partners, which added to the pandemic-related stress</li> <li>2) Struggles to re-position and re-resist → the married women used different strategies to counter the domineering behaviour of her husband (ex. silence to reduce arguments, greater consciousness,</li> </ol>

		- Double parent mother with 5 year old daughter and 2 year old son	and how they struggle to reposition to reconstruct it		maintaining power through staying informed on COVID-19 situation and updating other family members) 3) Grievances against the state → lack of action on the part of the state for implementing its laws of women's empowerment
Secer & Ulas. (2020). An investigation of the effect of COVID-19 on OCD in youth in the context of emotional reactivity, experiential avoidance, depression and anxiety.	Turkey	598 adolescents, age range 14 and 18 years (M = 16.40)  61.1% female & 38.9% male participants	To examine the mediating role of emotional reactivity, depression-anxiety and experiential avoidance in the relationship between the fear of COVID-19 and OCD symptoms in adolescents	Quantitative study  Participants completed: - Obsessive Compulsive Inventory–Child Version - Emotional Reactivity Scale - Depression and Anxiety Scale for Children - The Fear of COVID-19 Scale - Experiential Avoidance Questionnaire  Statistical analyses conducted on responses.	- The fear of COVID-19 showed a significant and positive effect on OCD in adolescents (36%) - Fear of COVID-19 is a significant positive predictor of depression-anxiety symptoms in adolescents, and depression-anxiety also has a positive effect on OCD symptoms - The effect of COVID-19 fear on OCD is mediated by emotional reactivity, experiential avoidance and depression-anxiety
Tull et al. (2020). Psychological Outcomes Associated with Stay-at-Home Orders and the Perceived Impact of COVID-19 on Daily Life.	United States	500 adults  44.1% of participants reported having at least one child in their household	To examine relations of both stay-at-home orders and the perceived impact of COVID-19 on daily life to psychological	Quantitative study Participants completed questionnaires assessing psychological outcomes, stay-at-home order status, and the impact of COVID-19 on their life: - depression subscale of 21-item version	- Having a child was not associated with any significant findings, as written in article: ○ Results revealed no significant unique associations between having children in the home and any of the psychological outcomes of interest ○ Likewise, none of the interactions of having children in the home with stay-at-home order status or the perceived impact of

		(ranging from 1-3 children in the household)	outcomes (depression, health anxiety, financial worry, social support, and loneliness)	Depression Anxiety Stress Scales - The Short Health Anxiety Inventory - Family Economic Strain Scale - UCLA Loneliness Scale – Version 3 - Multidimensional Scale of Perceived Social Support  Statistical analyses conducted on responses.	COVID-19 were significant in any of the models
Wang et al. (2020a). Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (covid-19) epidemic among the general population in china.	China	1210 respondents  19.3% of respondents have a child 16 years or younger	To examine levels of psychological impact, anxiety, depression, and stress during the initial stage of the COVID-19 outbreak among general population	Quantitative study  Participants completed: - Questionnaire about COVID -19 knowledge - Impact of Event Scale-Revised (IES-R) to determine the psychological impact of COVID - Depression, Anxiety and Stress Scale (DASS-21)	- 50.9% of respondents were very worried or somewhat worried about a child younger than 16 years getting COVID-19 - High levels of concern about a child younger than 16 years getting COVID-19 were significantly associated with higher IES-R scores and DASS anxiety subscale scores
Wang et al. (2020b). A longitudinal study on the mental health of general population during the COVID-19 epidemic in China.	China	1738 respondents  Findings separated by age group, including age group	To evaluate the temporal psychological impact and adverse mental health status during the initial outbreak and peak	Quantitative longitudinal study.  First survey conducted when China was going through a phase of rapid increase in the number of newly diagnosed	Findings for 12 – 21.4 years age group: - Prolonged lockdown had several adverse impacts on mental health, especially among the second-survey respondents aged 12-21.4 years who demonstrated a higher psychological impact of COVID-19. This age group mainly comprised of students who were affected by prolonged school closure, requiring

		<p>12-21.4 years</p> <p>67.4% of first-survey participants had children; 68.6% of second-survey respondents had children</p>	<p>of COVID-19 epidemic and identity risk and protective factors among the general population in China.</p>	<p>COVID-19 cases and related deaths. Second survey was conducted after there was a rapid decline in the number of new and suspected cases and the downward trend continued thereafter, and many patients were recovering.</p> <p>Findings separated by age groups: (12-21.4); (21.4-30.8); etc.</p>	<p>online education support and uncertainty about examinations and matriculation arrangements.</p> <ul style="list-style-type: none"> <li>- The second survey respondents aged 12 to 21.4 years demonstrated significantly higher score of IES-R as compared to respondents aged 49.6-59 years</li> </ul> <p>Findings for parents with a child 16 years or younger:</p> <ul style="list-style-type: none"> <li>- Respondents from both surveys who were parents with children younger than 16 years of age were not associated with higher IES-R or DASS-21 scores.</li> </ul>
<p>Zhou et al. (2020). Prevalence and socio-demographic correlates of psychological health problems in Chinese adolescents during the outbreak of COVID-19.</p>	<p>China</p>	<p>8079 adolescents (12-18 years old)</p>	<p>To establish the prevalence rate and socio-demographic correlates of depressive and anxiety symptoms among Chinese adolescents affected by the outbreak of COVID-19</p>	<p>Quantitative study</p> <p>Online survey was completed to collect demographic data, assess students' awareness of COVID-19, and assess depressive and anxiety symptoms</p> <ul style="list-style-type: none"> <li>- Patient Health Questionnaire (PHQ-9) -</li> <li>-Generalized Anxiety Disorder (GAD-7)</li> </ul>	<ul style="list-style-type: none"> <li>- The prevalence of depressive symptoms was 43.7%, anxiety symptoms (37.4%), and a combination of depressive and anxiety symptoms (31.3%) among high school students during the COVID-19 outbreak</li> <li>- Differential symptomology among students from different regions –</li> <li>- Depressive symptoms among students in cities was lower than that in rural areas (37.7% vs. 47.5%), as well as proportion of anxiety symptoms (32.5% vs. 40.4%)</li> <li>- Female students had higher depressive and anxiety symptoms than male students</li> <li>- The higher the grade, the greater the prevalence of depressive, anxiety symptoms</li> <li>- Findings present a high prevalence of psychological health problems among adolescents, which are negatively associated with the level of awareness of COVID-19</li> <li>- Mild depression was 26.4%; moderate depression was 10.1%</li> </ul>

					<ul style="list-style-type: none"> <li>- Mild anxiety was 27.0%, and that of moderate anxiety was 7.4%.</li> <li>- In total 43.7% of participating students had mild-to-severe depressive symptoms and 37.4% had mild-to-severe anxiety symptoms</li> <li>- The prevalence of comorbid depressive and anxiety symptoms was 31.3% of participants.</li> <li>- Common signs of depression were little interest or pleasure in doing things (53.9%), feeling tired or having little energy (48.4%), poor appetite or overeating (45.6%)</li> <li>- Common anxiety symptoms: Feeling nervous, anxious or on edge (53.6%), worrying too much (47.3%), becoming easily annoyed or irritable (47.0%)</li> </ul>
--	--	--	--	--	--

**Table 3. H1N1 studies**

Authors, Title, Year	Geographic Location	Sample	Aims	Methods	Findings
Lohm et al. (2014). Biography, pandemic time and risk: pregnant women reflecting on their experiences of the 2009 influenza pandemic.	Australia and Scotland	14 pregnant women	To examine how pregnant women took account of risk, managed risk and shaped courses of action that assisted them to manage the pandemic threat in their lives.	Qualitative study in which women participated in semi-structured individual interviews and a focus group to respond to open ended questions about their own backgrounds, their experiences with influenza, and public communications and the public health response to H1N1. Thematic analysis conducted on transcripts.	<ul style="list-style-type: none"> <li>- Some participants felt uncertainty about their own health and that of their unborn baby, sometimes influenced by news stories of pregnant women ill with H1N1</li> <li>- Participants expressed emotional stress given their fear of the unknown effects of H1N1 and its vaccine</li> <li>- Public health risk management advice was endorsed, although choosing vaccination was a stressful decision to make due to uncertainty of side effects</li> <li>- Social distancing was used as a risk moderation strategy.</li> </ul>
Mesch et al. (2013). Attention to the media and worry over becoming infected: the case of the swine flu (h1n1) epidemic of 2009.	United States	Two adult samples (n = 1004) at the end of first wave of H1N1 outbreak and (n=1006) during second wave, including parents	To examine the relationship between attention to the mass media and concern about becoming infected with H1N1	<p>Quantitative study</p> <p>Survey based on two independent random digit dial samples representative of the US population (News Interest Index Survey) conducted by the Pew Research Center for People &amp; the Press.</p> <p>The first sampling took place from 1 May to 4 May 2009 (N = 1004) at which time the Spring H1N1 outbreak was slackening and the news coverage of it had initially peaked</p> <p>The second sampling was conducted from 28 August to 31</p>	<ul style="list-style-type: none"> <li>- Increase in worry about infection from H1N1 between two periods (35.9% of respondents in May 2009; 44.8% in August 2009). Interest in Swine Flu news over other news decreased between two periods (39.1 to 10.3%)</li> <li>- With social categories controlled, both those who followed the H1N1 outbreak closely and those who were more interested in reports about it were more likely to be worried about becoming infected</li> <li>- Among parents with children between 0-6 years of age, worry increased from 36.1 to 49.3%</li> <li>- Among parents with children between 6-11 years of age, worry increased from 35.5 to 47.3%</li> </ul>

				<p>August 2009 (N = 1006). This was the period in which both flu activity and media coverage began to increase after the summer lull</p>	<ul style="list-style-type: none"> <li>- Among parents with children between 11-17 years of age, 32.1 to 46.3%</li> <li>- Among the different social categories of participants, the extent of worry was highest among females and those whose families were large (i.e. those with six or more children), with worry increasing from 25 to 53.7% of these participants</li> </ul>
<p>Remmerswaal &amp; Muris. (2011). Children's fear reactions to the 2009 swine flu pandemic: The role of threat information as provided by parents.</p>	<p>South-Holland and Utrecht, Netherlands</p>	<p>Children aged 7-12 years (N= 223) and their parents (145 fathers, 202 mothers)</p>	<p>To investigate the contribution of threat information about the Swine Flu as provided by the parents to the development of children's fear of the Swine Flu within the context of the 2009 Swine Flu pandemic</p>	<p>Quantitative study in which children completed and parents were administered the following questionnaires:</p> <ul style="list-style-type: none"> <li>- Fear of Swine Flu Questionnaire (FSFQ) to</li> <li>- Sources of Information about the Swine Flu Scale (SISFS) to track where they gained knowledge about the Swine Flu</li> <li>- Subscale of the shortened Fear Survey Schedule for Children- Revised (FSSC-R) to measure general fear of medical affairs.</li> </ul> <p>Statistical analyses included correlations (corrected for gender and age) and regression analyses</p>	<ul style="list-style-type: none"> <li>- Children's fear of the Swine Flu was significantly related to parents' fear of this disease</li> <li>- Parent's transmission of threat information was positively associated with children's fear and this link remained significant when controlling for other sources of information (i.e., media, friends, and school) or direct experience with the disease</li> <li>- Threat information as provided by the parents played a role in the association between parents' and children's fear</li> <li>- A partial mediation model is offered in which parents' fear of the Swine Flu was related with parents' threat information transmission, which in turn was associated with children's fear of the disease</li> </ul>
<p>Sprang &amp; Silman. (2013). Posttraumatic stress disorder in parents and youth after health-related disasters.</p>	<p>Mexico, Canada, and six (6) states in the United States: Arizona,</p>	<p>398 parents (78% female)</p>	<p>To investigate traumatic stress responses, specifically PTSD symptoms, in children and</p>	<p>A mixed-methods study that used surveys, focus groups, and interviews. Parents completed the following questionnaires:</p>	<ul style="list-style-type: none"> <li>- Parental reports, saw criteria for PTSD was met in 30% of isolated or quarantined children, compared to 1.1% of children who had not been in isolation or quarantine</li> </ul>



	California Florida, New York, Texas, Kentucky		parents with varying disease- containment experiences	<ul style="list-style-type: none"> <li>- University of California at Los Angeles Posttraumatic Stress</li> <li>- Disorder Reaction Index (PTSD-RI) Parent Version that measures parent reporting of a child’s symptoms of trauma. Parents rated PTSD symptoms in their child(ren) for the previous month.</li> <li>- PTSD Check List Civilian Version (PCL-C), self-report that can be used for PTSD screening, diagnosis, or symptom monitoring.</li> </ul> <p>Parents who self-identified as being affected by the Swine Flu were recruited</p>	<ul style="list-style-type: none"> <li>- Significant difference in traumatic stress scores between the two groups, with isolated/ quarantined children 4 times higher than that of non-isolated children</li> <li>- 28% of quarantined/isolated parents met criteria for PTSD based on self-report, compared to 5.8% of parents who did not experience isolation</li> <li>- 33.4% of parents who were isolated/ quarantined, reported that their child(ren) began using mental health services, either during or after the pandemic as a result</li> <li>- Significant relationship between PTSD symptoms in parents and children within the same family: of parents meeting PTSD cutoff levels, 85.7% had children also meeting clinical cutoff scores for PTSD, while among parents not meeting PTSD criteria, only 14.3% had children with PTSD symptoms</li> <li>- Qualitative data from parents highlighted the various psychosocial impacts of the pandemic, including perceived threat, confusion, disruption, and isolation, and managing their own and their children’s’ anxiety surrounding the pandemic. Parents who were healthcare workers or hospitalized during the Swine Flu pandemic experienced unique stressors</li> </ul>
--	---	--	---	---	---

**Table 4. SARS studies**

Authors, Year, Title	Geographic Location	Sample	Aims	Methods	Findings
Chan et al. (2007). Parental response to child's isolation during the SARS outbreak	Hong Kong	7 parents of highly suspected SARS (HSS) pediatric patients (6 mothers, 1 mother and father)	To examine the needs and experiences of parents during their child's hospitalization with HSS, and to identify ways to improve their psychological preparedness and communication with health care professionals and their isolated children.	Qualitative study that involved semi-structured interviews with parents.  Data analysis was conducted by two researchers independently who read the transcripts and generated themes, patterns, and inductive codes following a grounded theory approach	Four major themes were identified from the interviews: 1) fear of immediate isolation and infection control procedure – most common concerns were immediate isolation of their children, with parents wanting more time to reassure their child, and lack of parental presence while their child was isolated 2) sources of anxiety – three main sources of anxiety were managing their hospitalized child and home responsibilities; disruption in their work life, and possible side effects of medications used for SARS 3) coping – strategies included distractions, not telling others about their child's hospitalization, and bringing personal items to hospitalized child 4) communication with children and health care professionals – parent visits were not permitted, and so pediatricians' daily call to parents was both a source of fear and helpful to parents.
Koh et al. (2005). Risk Perception and Impact of Severe Acute Respiratory Syndrome (SARS) on Work and Personal Lives of Healthcare Workers in Singapore: What Can We Learn?	Singapore	10, 511 healthcare workers (HCWS) (57% were married – of the married, 13.9% had one child, 21.7% had 2 children, and 14.2% had 2 or more children). Separate category for	To learn about the fears, anxieties, and reactions of HCWs during the SARS epidemic and the impact of the epidemic on their personal and working lives.	Quantitative study that used self-administered questionnaire that asked about individual characteristics and perceptions and impact of SARS on their lives  The Impact of Events Scale (IES) was also administered	- 49% of respondents thought that “people avoid me because of my job” and 31% felt that “people avoid my family members because of my job.” - Findings related to participants “married with children”: - Being married with children was one of the predictors of increased stress at work - Being married with children was a predictor for increased workload

		“married with children”		Statistical analyses was applied.	
Koller et al. (2010). Paediatric pandemic planning: children's perspectives and recommendations.	Toronto, Canada	21 child and adolescent participants (5-19 years of age) hospitalized during the SARS outbreak from a variety of medical areas: cardiac (n = 2), critical care (n = 2), organ transplant (n = 4), respiratory medicine (n = 8) and infectious diseases (patients diagnosed with suspected or probable SARS; n = 5)	To examine the perspectives and recommendations of children hospitalized during SARS for future pandemic planning	Qualitative study. Participants engaged in semi-structured interviews with reviews of their healthcare records	Participants suggested pandemic plans that address children’s unique needs during a healthcare crisis. Recommendations were categorized under 4 themes: 1) Psychosocial care - Making the presence/support of family/friends a priority - Having the same staff more consistently so that children could become comfortable with staff - Staff to maintain a sense of normalcy, not be overreactive, and help distract children - Having different play/distraction options 2) Infection control - Children understood the importance of infection control precautions and suggested that people continue to maintain good hygiene practices 3) Communication between staff, patients and families - Communication was difficult due to healthcare providers wearing masks that covered their facial expressions; recommend accurate information to be given to children in age-appropriate language - Most communication received by children produced anxiety, fear and confusion; recommend to not leave television on news in children’s isolation rooms as this can exacerbate their fears 4) Management of resources - Toys and activities provided to kids as distraction and help cope with loneliness

					<ul style="list-style-type: none"> <li>- Hospitals to be more creative in allocation of space so children could experience surroundings outside of their room</li> </ul>
<p>Koller et al. (2006a). Bowlby and Robertson Revisited: The Impact of Isolation on Hospitalized Children During SARS.</p>	<p>Toronto, Canada</p>	<p>23 participants: - 5 children hospitalized with SARS (6-18 yrs) - 10 parents - 8 pediatric healthcare providers</p>	<p>To examine the experiences and perspectives of children hospitalized because of SARS, their parents, and their pediatric healthcare providers</p>	<p>An ethnographic, qualitative study. Data collection: 1) In-depth, ethnographic semi- structured interviews 2) Patient healthcare record reviews</p> <p>Data analysis involved qualitative coding of interviews</p>	<p>Three main themes associated with pediatric isolation emerged from the findings: 1) Emotional impact of isolation on children hospitalized because of SARS – all participants experienced devastating emotions associated with the hospitalization of the children. - Children hospitalized expressed sadness and worry, missed their family, and had feelings of being punished, trapped and isolated - For healthcare providers, caring for these children in distress was a vicarious and sometimes traumatizing experience, and included challenges such as dealing with children’s separation anxiety - For parents, especially those who were hospitalized themselves at the time, the isolation and lack of ability to provide parental support was difficult 2) Changes in parental and professional roles - Healthcare providers, particularly nurses, assumed “pseudo-parent” roles for these children who were isolated from their parents and family - Parents expressed feelings of anger, discomfort, frustration, worry, and lack of control over their parental role and being unable to comfort their children in person 3) Familial experiences following discharge - Some children continued to show signs of distress months after discharge from hospital, such as distress when a parent left for work</p>

					- Some families engaged in greater emotional expression and appreciation for one another
Koller et al. (2006b). When family-centered care is challenged by infectious disease: pediatric health care delivery during the SARS outbreaks.	Toronto, Canada	23 participants: - 5 children hospitalized with SARS (6-18 yrs) - 10 parents - 8 pediatric healthcare providers	To explore the perceived experiences of (a) hospitalized children with probable or suspected SARS, (b) their parents, and (c) health care providers who provided care to these children	An ethnographic, qualitative study.  All participants engaged in an ethnographic semi-structured interview and patient healthcare records were reviewed.  Qualitative coding, including open, axial, and selective were applied to interviews to identify major themes.	Three themes related to experiences associated with pediatric SARS and providing family-centered care included: 1) The emotional impact of SARS - The ability of healthcare staff to provide family-centered care was compromised due to isolation measures, which had a distressing emotional impact on children, parents, and healthcare providers. Isolation measures prevented the usual relationship building between healthcare providers and family members, who were separated from hospitalized children. 2) Communication challenges - One of the greatest challenges to providing family-centered care was trying to establish effective communication with family members with the strict isolation measures in place. All participants regarded the telephone as an important resource, both for children and parents to have unrestricted opportunities for communication and for health providers to relay updates to parents. 3) Role changes - Many parents expressed frustration over their challenged parental role and rights during their child's isolation. Healthcare providers were required to act as a substitute family to children who were physically isolated from their parents. Healthcare providers were challenged to provide family-centered care that acknowledged family fears and stress while also enforcing hospital rules

<p>Lee et al. (2006). Psychological responses of pregnant women to an infectious outbreak: A case-control study of the 2003 SARS outbreak in Hong Kong.</p>	<p>Hong Kong, China</p>	<p>235 pregnant women</p>	<p>To examine the behavioral and psychological responses of pregnant women during the 2003 SARS outbreak in Hong Kong</p>	<p>Mixed methods study. <b>Qualitative</b> – ethnographic interviews with pregnant women to identify psychological and behavioral responses to the SARS outbreak <b>Quantitative</b> - a case-control study of pregnant women recruited during the SARS epidemic, and a historical cohort of 939 pregnant women recruited a year before the outbreak. Both cohorts completed standardized rating scales on depression, anxiety, and social support: Beck Depression Inventory (BDI); the Spielberger State-Trait Anxiety Inventory (STAI); the Medical Outcomes Study Social Support Survey. Scores of two cohorts were compared with statistical analyses.</p>	<ul style="list-style-type: none"> <li>- Women in the SARS cohort adopted behavioral strategies to mitigate their risk of contracting infection, with 92% refraining from leaving home and a third were homebound</li> <li>- Pregnant women tended to overestimate the risk of contracting SARS. More than half of the women worried about their spouses, newborns, or themselves contracting SARS. About 67% of women were scared of going to the hospital for antenatal visits and a third had cancelled or postponed hospital appointments</li> <li>- SARS cohort had slightly higher anxiety state scores than that of the pre-SARS control</li> <li>- No statistical difference was found between the depression levels of the two cohorts</li> <li>- Women in the SARS cohort had significantly better social support – affectionate support, positive social interaction, informational support – compared to pre-SARS cohort, except for the domain of tangible support</li> <li>- When examining the relationship between the level of social support and depression among the SARS cohort, there was a significant negative correlation between the depression (BDI) score and the total social support score</li> </ul>
---	-------------------------	---------------------------	---	---	--

**Table 5. Location of studies**

<b>Location</b>	<b>COVID-19</b>	<b>H1N1</b>	<b>SARS</b>	<b>Total</b>
Canada	2	0	2	<b>4</b>
China	5	0	3	<b>8</b>
Croatia	1	0	0	<b>1</b>
Italy	1	0	0	<b>1</b>
Iran	1	0	0	<b>1</b>
Ireland	1	0	0	<b>1</b>
Multiple countries	1 <sup>a</sup>	2 <sup>b</sup>	0	<b>3</b>
Pakistan	1	0	0	<b>1</b>
Singapore	0	0	1	<b>1</b>
The Netherlands	0	1	0	<b>1</b>
The Philippines	1	0	0	<b>1</b>
Turkey	2	0	0	<b>2</b>
United States	3	1	0	<b>4</b>

<sup>a</sup> Cameron et al. (2020) included participants from primarily Canada, but also US and international countries

<sup>b</sup> Lohm et al. (2014) included participants from both Australia and Scotland; Sprang & Silman (2013) included participants from Mexico, Canada, and the United States