

Management of Parenting Preparedness at Home in COVID-2019 Pandemic based on Individual and Family Self-Management Theory (IFSMT): A Systematic Review

Resti Utami^a, Sri Iswati^b, Christrijogo Sumartono Waloejo^c, Moses Glorino Rumambo Pandin^{d*}

^aPh.D. Candidate, Doctorate Program, Faculty of Nursing, Universitas Airlangga resti.utami-2019@fkn.unair.ac.id

^bPostgraduate School, Universitas Airlangga iswati@feb.unair.ac.id

^cMaster of Disaster Management, Postgraduate School, Universitas Airlangga christrijogo@fk.unair.ac.id

^dResearch Group on Disaster Management, Master of Disaster Management, Postgraduate School, Universitas Airlangga; and Faculty of Humanities, Universitas Airlangga moises.glorino@fib.unair.ac.id

Abstract

Background: COVID-19, which emerged from the novel zoonotic coronavirus-2, continues to spread rapidly throughout the world and becomes a pandemic. Some countries say they have the resources to deal with the co-19 pandemic situation. Still, when it comes to children's physical and emotional security, this must be through because preparing children for a pandemic like this requires a lot of effort and proper planning. This systematic review aims to identify and summarize the available evidence about parenting preparedness strategies to a successful/recommended pandemic to reduce COVID-19 threats to children in self and family management and assist policymakers in evidence-based decision making for better pandemic preparedness and provide direction for future research.

Methods: A systematic review of the literature was carried out by following the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) diagram following the predetermined eligibility criteria. 250 research articles produced from the beginning, 15 articles were found that met the inclusion criteria and were included in the review.

Results: The parenting preparedness strategy in the COVID-19 pandemic is important to improve the scientific preparedness associated with COVID-19 in children.

Conclusion: COVID-19 has occurred in children but seems to show a mild impact on the disease. However, parenting preparedness of children at home can help reduce the transmission rate of COVID-19 in personal and Family management. Any future crisis can be handled more quickly and easily.

Keywords: Children, COVID-19, pandemic, preparedness, parenting

1. INTRODUCTION

Since December 2019, the World Health Organization (WHO) has declared the coronavirus 2 respiratory syndrome (SARS-CoV-2), a pandemic that causes the novel disease coronavirus 2019 or known as COVID-19 (Saxena, 2020; World Health Organization, 2020). Infection from this virus has increased exponentially and has spread more than 196 countries in the past 2-3 months, and has affected more than 300,000 people worldwide (Maben and Bridges, 2020; Saxena, 2020). WHO situation report said that coronaviruses are highly contagious and can cause human-to-human transmission more than ten times in 10 days (World Health Organization, 2020; Yen *et al.*, 2020). World Health Organization (WHO) declared the Covid-19 outbreak as a pandemic by considering the alarming level of infection and severity (Ludvigsson, 2020; Sundaram *et al.*, 2020).

The Covid-19 pandemic does not only affect adults, but children can also be diagnosed with a COVID-19 case. Studies reveal that children are equally susceptible to COVID-19 infection. The Chinese COVID-19 Emergency Response Epidemiology Team found that around 2% of 44,672 cases of COVID-19 were children aged 0-19 years,

of which 0.9% were under 10 years of age when diagnosed with COVID-19 (Ludvigsson, 2020). COVID-19 was more dominant in children aged ≥ 15 years in the early stages of the outbreak, and the proportion of confirmed cases among children was relatively small (She, Liu, and Liu, 2020). Most cases of COVID-19 in children may be asymptomatic or may show mild or moderate symptoms, which can include fever, cough, runny nose, dry cough, and fatigue, including upper respiratory symptoms (Cui *et al.*, 2019; Chan *et al.*, 2020). Conversely, the risk is statistically more significant for older adults and people with other health problems. So far, no medication or vaccine is available to cope with this COVID-19, and the infection rate is increasing drastically across the globe. Therefore, efforts to preparedness parenting at home are essential in preventing and controlling COVID-19 transmission in children.

One of the things that can be done during a crisis period in preventing and controlling Covid-19 transmission by following WHO recommendations are to implement physical distancing. Physical distancing is maintaining a safe distance of space (at least 6 feet or about 2 arms) from others, including outdoor restraining activities (avoiding crowded

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places like schools, parks) (Azam *et al.*, 2020; Mukhtar, 2020). However, it has brought children into stressful situations (The Alliance for Child Protection in Humanitarian Action, 2019; Saxena, 2020). These stress conditions include distance limitation or better known physical distancing, movement restrictions (school closures, parks, immunization services, health services, alternative care facilities, community-based child protection programs, and case management for children who need additional personal care), where this can affect the growth and development of (The Alliance for Child Protection in Humanitarian Action, 2019; Brief, 2020). Acute stress can interfere with children's cognitive development and trigger long-term mental health challenges (Brief, 2020). The impact of this pandemic goes far beyond the scope of physical health. Pandemic has a profound effect on children's mental well-being, social development, safety, and security.

COVID-19 pandemic quickly changed the context of children's lives. Quarantine actions such as school closures and restrictions on movements disrupt children's routine and social support while also placing new stressors on parents and caregivers who may have to find new childcare options (The Alliance for Child Protection in Humanitarian Action, 2019). Families are expected to independently carry out care at home to children in the COVID-19 pandemic. The COVID-19 pandemic response requires close coordination and collaboration between several sectors (The Alliance for Child Protection in Humanitarian Action, 2019). As part of health services, nursing plays an important role in helping parents provide protection and ensure that children's needs are handled holistically, which is family-centered (Kuo *et al.*, 2012). This study aims to identify and summarize the available evidence about family strategies for parenting preparedness at home in the face of a successful/recommended pandemic to reduce the COVID-19 to children based on an Individual and Family Self-Management based framework Theory (IFSMT), which consists of building knowledge and beliefs, building self-regulatory abilities and skills, and social facilitation. This review also summarizes the epidemiological characteristics and patterns of COVID-19 transmission in children.

2. FINDINGS/RESULTS

a. Epidemiological Characteristics

1) Source of infection

The primary source of infection in patients infected by SARS-CoV-2 with or without clinical symptoms (Chen *et al.*, 2020). SARS-CoV-2 can be transmitted from person to person in homes or hospitals, from city to city, and country to country (She, Liu and Liu, 2020). The number of confirmed cases of children (1.5 months to 17 years old) worldwide is <0.02% of the total number of cases (no confirmed deaths in children). Children with cases that are Severe accounts for around 7.9% and most have close contact with infected cases or family cluster cases (Shen *et al.*, 2020). Research conducted by Min Wei supports this that the families of all 9 infants have at least 1 infected family member, with infant infections occurring after family member infections. No newborns born to mothers infected with 2019-nCoV were detected positively, and no cases of newborns have been reported. Children as vulnerable populations must try to avoid exposure to epidemic sources to reduce the risk of infection.

2) Transmission Patterns and Routes

Children are an exceptional group, mostly because of close family contact, and may be susceptible to cross infections (She, Liu and Liu, 2020). Characteristics and transmission patterns of Covid-19 children tend to show person-to-person

transmission. Epidemiological data report that 56% (34/61) of children with Covid-19 show clear transmission through family gatherings (She, Liu, and Liu, 2020). Close contact is also a transmission (e.g., contact with the mouth, nose, or conjunctiva of the eye through contaminated hands). New virus transmission routes spread through droplets when individuals cough, speak loudly, or sneeze (Chen *et al.*, 2020; Dong *et al.*, 2020; Thampi *et al.*, 2020)

While data on the incubation period of COVID-19 in the pediatric population is limited. The incubation period reported among pediatric patients ranges from 2 to 10 days (Jiehao *et al.*, 2019; Sun *et al.*, 2020). The median time from the initial disease to diagnosis is 2 days (range: 0 to 42 days). There is a rapid increase in disease in the early stages of the epidemic, and then there is gradual and stable healing (Dong *et al.*, 2020). The cases were initially diagnosed based on clinical manifestations and a history of exposure.

Based on nine mothers in China, found no evidence of vertical transmission of COVID-19 during pregnancy. Furthermore, all breast milk samples taken from the mother after the first breastfeeding were also negative for the COVID-19 virus. All possible risks of COVID-19 transmission through breastfeeding have not been reported to date. Therefore, guidelines for infant feeding should be followed by proper respiratory hygiene during breastfeeding (mothers use masks) and always wash hands with soap and water before and after contact with the baby ((Guidance, 2020; Min Wei, Jingping Yuan, 2020). Besides sterilize toys and baby feeding equipment regularly (Min Wei, Jingping Yuan, 2020).

COVID-19 cases are relatively fewer among children compared to cases among adult patients (Centers for Disease Control and Prevention, 2020). Children are usually well cared for at home and may have relatively fewer opportunities to expose themselves to pathogens and sick patients. Besides, Angiotensin-converting enzyme II (ACE2), known as a cell receptor for 2019-nCoV, indicates that ACE2 is also a possible 2019-nCoV cell receptor, so it is thought that children are less sensitive to 2019-nCoV (the ability to bind ACE2 to children is lower than in adults) (Dong *et al.*, 2020; Licari *et al.*, 2020). The distribution of Covid-19 cases in children appears to be different in several countries; 2% of Covid-19 cases in the United States are confirmed to be aged <18 years (Centers for Disease Control and Prevention, 2020); 2.2% of Covid-19 cases in children in China are between the ages <19 years (Al-Tawfiq, Kattan and Memish, 2016; Dong *et al.*, 2020); 1.2% of Covid-19 cases in children in Italy are between the ages <18 years (Das and Lee, 2016); 0.8% of Covid-19 cases in children in Spain are <18 years of age (Centers for Disease Control and Prevention, 2020; (Chan *et al.*, 2020). However, in China, the average age of novel coronaviruses 2019 (Covid-19) in children is 6.7 years (interquartile range: 2-13) (Dong *et al.*, 2020; Sundaram *et al.*, 2020). The proportion of cases for the age group <1 year (10.6%), 1-5 years (7.3%), 6-10 years (4.2%), 11-15 years (4.1%) and ≥16 years (3.0%) (Dong *et al.*, 2020).

3) Clinical manifestations

The most common clinical manifestations in children with Covid-19, according to (Shen *et al.*, 2020), namely:

1. The most common symptoms are fever (50%) and cough (38%) (Raissaki *et al.*, 2020; Zimmermann and Curtis, 2020); some pediatric patients may experience mild or no fever (asymptomatic); Some children do not show fever, but only cough or real diarrhea, and even fewer can be asymptomatic. Some children and newborns show atypical symptoms, manifested as vomiting, diarrhea, other gastrointestinal symptoms, or only asthma and shortness of breath (Cui *et al.*, 2019; She, Liu, and Liu,

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2020).

2. Fatigue, myalgia, nasal congestion, runny nose, sneezing, sore throat, headache, dizziness, vomiting, and stomachache (Consensus *et al.*, 2020));
3. In the initial phase of the disease, the number of white blood cells is normal or decreases, or with a decrease in the number of lymphocytes;
4. No other pathogens have been detected that can fully explain the clinical manifestations.

Clinical characteristics of existing pediatric cases, children with Covid-19, can be divided into five clinical types: asymptomatic, mild, general, severe, and very severe infections. One published study reported that among 134 children diagnosed with fever (high fever [n = 11], low and moderate fever [n = 17], and unknown [n = 61]), and 28 showed no fever. The duration of fever is 1 to 2 days, and the longest is 8 days. Most children diagnosed with this disease experience mild symptoms, faster recovery, shorter detoxification time, and a good prognosis (She, Liu, and Liu, 2020). Several retrospective cohort studies identify severe COVID-19 risk factors, including age <12 months, immunocompromise, underlying lung conditions (e.g., asthma, chronic obstructive pulmonary disease, lung transplantation), and co-infection with other respiratory pathogens (Rajapakse and Dixit, 2020).

b. Search Result

Initial manuscript was identified (n = 250); Fifteen manuscripts that met the inclusion criteria were included in this study. Manuscripts were obtained entirely in the form of a review (n = 15).

c. Descriptive Results Articles

(Appendix 1)

d. Quality Assessment of Articles

A systematic review of quality reviews is carried out using the CASP checklist instrument consisting of 10 question items widely used in research quality assessments. The CASP checklist consists of answers, "Yes," "No," and "Not mentioned." Article scoring is not recommended in this instrument. Reviews that meet the 10 item criteria are considered the best quality.

e. Articles Features

None

3. DISCUSSION

a. Management of Parenting Preparedness at Home in Covid-2019 Pandemic based on Individual and Family Self-Management Theory (IFSMT)

Family preparedness to deal with children's anxiety depends on the authenticity of the Family's information. According to information circulating through the media, the risk of COVID-19 exposure is lower in children compared to adults (Saxena, 2020). Parenting preparedness at home based on family self-management in the COVID-2019 pandemic is a primary consideration for the results of the Family's ability to care for children in the COVID-2019 pandemic. Family self-management facilitates and supports families in caring for children at home in the Covid-19 pandemic (Lerret, 2019). Individual and Family Self-Management Theory is a theoretical framework for Family in carrying out self-management (Ryan and Sawin, 2009). This family self-management intervention uses the Individual and Family Self-Management Theory (IFSMT) approach as a strategy for families parenting preparedness at home in the Covid-2019 pandemic. The Individual and Family Self-

Management Theory contains four main constructs, including context (risk and protective factors), process (self-management process), proximal results, and distal results (Lerret *et al.*, 2020). In this section, strategies for families parenting preparedness at home will be developed as a translation of the construction process in the Individual and Family Self-Management Theory (IFSMT) that develops a family self-management process.

b. Strategies for preparing Covid-19 care at home based on Individual and Family Self-Management Theory (IFSMT)

Fear or anxiety is an ordinary part of a child's normal development. However, pessimistic information around children during the Covid-19 pandemic can give children a fear of post-traumatic stress disorder. The following is a strategy to prepare for Covid-19 care at home with the Individual and Family Self-Management Theory (IFSMT) approach in a family self-management process, namely:

a) Develop knowledge and belief

Developing knowledge and confidence through communication with doctors or health professionals trained in Covid-19 care can convince and maximize families the possibility of preparing appropriate child care during the Covid-19 pandemic (A. Mahmood *et al.*, 2020). This communication can be in the form of telehealth or through mass communication media. Telehealth encompasses rehabilitation, telecare, teleconsultation, telemedicine, and non-clinical long-distance services that involve various information and communication technologies outside the traditional face-to-face approach, from hospitals to patients' homes (a collaboration of health workers and families) (Fazzi and Galli, 2020). Families actively explore information about the Covid-19 pandemic to provide understanding to children about:

1. Control the source of infection (Shen *et al.*, 2020)
 - a. Children infected with COVID-19 are the main source of infection. If infected with Covid-19 must be isolated at home or treated in a designated hospital under the guidance of a health worker depending on the severity of the medical condition;
 - b. Reducing the possibility of contact with others, and providing a room for the isolated with adequate ventilation of the room;
 - c. Use disposable masks correctly and discard the mask properly after use.
2. Blocking the transmission route/minimizing the risk of spread (Shen *et al.*, 2020)
 - a. Prevents transmission through the respiratory system and contact by way of:
 - 1) Cover the mouth and nose with tissue or towels when you cough or sneeze, and don't touch your mouth, nose, or eyes.
 - 2) Adaptation of effective hand hygiene is vital, where one of the best advice by WHO is to wash hands with soap or >60% alcoholic hand sanitizer, respectively (A. Mahmood *et al.*, 2020). Wash hands for children frequently, or teach children the seven steps of handwashing, washing hands before and after eating, drinking and using the toilet with soap and water (at least 20 seconds) or with alcohol-based hand sanitizers (minimum 30 seconds) (Sankar *et al.*, 2020)
 - 3) Clean and disinfect high-touch surfaces in shared household areas, including toys (Licari *et al.*, 2020; Sankar *et al.*, 2020). Regular disinfectant action by heating at 56°C for 30 minutes, alcohol, or disinfectants containing alcohol (e.g., Isopropyl 70% or ethyl alcohol 70%) can be used on clean surfaces

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where bleach is not suitable for use. Cellphones, laptops, keys, pens, etc. (Ravikumar *et al.*, 2020; Shen *et al.*, 2020). The main parameter to consider when disinfecting in a household is to avoid contact with infected surfaces such as those obtained from the upper and lower respiratory tract in humans) can last up to 3 hours, up to 4 hours on copper surfaces, up to 24 hours on cardboard, and 2-3 days on plastic and stainless steel (Saxena, 2020);

- b. Reducing exposure infection, according to Ravikumar *et al.* (2020) in a way:
 - 1) Avoid public transportation in epidemic areas, and wear masks when it is crowded or in poorly ventilated public places;
 - 2) Avoid touching or eating wild animals and going to markets that sell live animals.
- c. Monitoring children's health utilizing:
 - 1) Children with a history of close contact with infected patients need to be monitored for body temperature and clinical pictures routinely.
 - 2) When experiencing suspicious symptoms, children should be taken to the hospital designated for screening (Shen *et al.*, 2020).

Improve the ability and skills of self-regulation,

Self-regulation is involved in planning certain behaviors related to changes in health behavior (Ryan and Sawin, 2009). The Family prepared parenting at home to increase the ability and skills of self-regulation in a way:

1. Increase immunity

Facilitating the provision of a balanced diet, improving oral health, adequate exercise, regular rest, avoiding excessive fatigue in children (Shen *et al.*, 2020);

2. Maintain emotional stability and mental health.

COVID-19 pandemic impacts school closure, promotion of social distance, lack of social interaction with peers, constant media exposure and social media coverage, and significant disruption to life and daily routines that will affect children's mental health (Rajapakse and Dixit, 2020). This can cause psychological stress (Wu *et al.*, 2020) separately for children. When children are stressed, the body will respond differently, such as screaming, hiding, being sad, etc. Helping children cope with this response is to involve children in various activities such as:

- a. Reading book
- b. Engaged in arts and crafts
- c. Assisting parents in their daily work
- d. Gardening to stay close to nature
- e. Look for online learning options
- f. Socialization by phone

The quarantine's psychological impact reveals that the child in quarantine shows experiences related to stigma and discrimination to cause anger, confusion, frustration, fear, and symptoms resembling post-traumatic stress disorder (Brooks *et al.*, 2020). Things that can be done related to the above provide counseling and connecting individuals through online social networks (S. Mahmood *et al.*, 2020) or telehealth (Fazzi and Galli, 2020; Woo Baidal *et al.*, 2020).

b) Social facilitation

Social facilitation where families get social support, and collaborations are negotiated between children, families, governments, and health professionals (Ryan and Sawin, 2009) by:

1. Families impose restrictions on social interaction and time of children with older adults, and people with chronic medical conditions practice maintaining social distance and avoid travel plans (Licari *et al.*, 2020). Maintaining social distance has been adopted as a precautionary principle to prevent infection spread (Fazzi

and Galli, 2020). Maintain social distance by keeping a distance (at least 6 feet or about 2 arms) unless required for an examination or procedure.

2. Contact and drop prevention measures: minimize direct contact, ensure hand hygiene, and cough etiquette. The Family encourages play activities at home and monitors any signs and symptoms of Covid-19 that may occur in children.
3. Contact tracking
Contact tracing is a standard procedure applied during a pandemic to determine the level of outbreaks by identifying and maintaining contact with people exposed to confirmed cases (S. Mahmood *et al.*, 2020). Families can utilize effective and efficient child care follow-up services through contact tracking in health services where nurses can follow up on family complaints related to child care at home amid the Covid-19 pandemic from time to time by telephone without requiring face-to-face contact and the risk of further infection.
4. The government and health professionals plan family support to prioritize keeping children safe in the family environment, provide knowledge to families, caregivers, and children about how to prevent the spread of COVID-19, including in situations with limited water/soap access, and provide available resources such as hygiene kits, and ensure that knowledge and resources are accessible to children and / parents (The Alliance for Child Protection in Humanitarian Action, 2019).

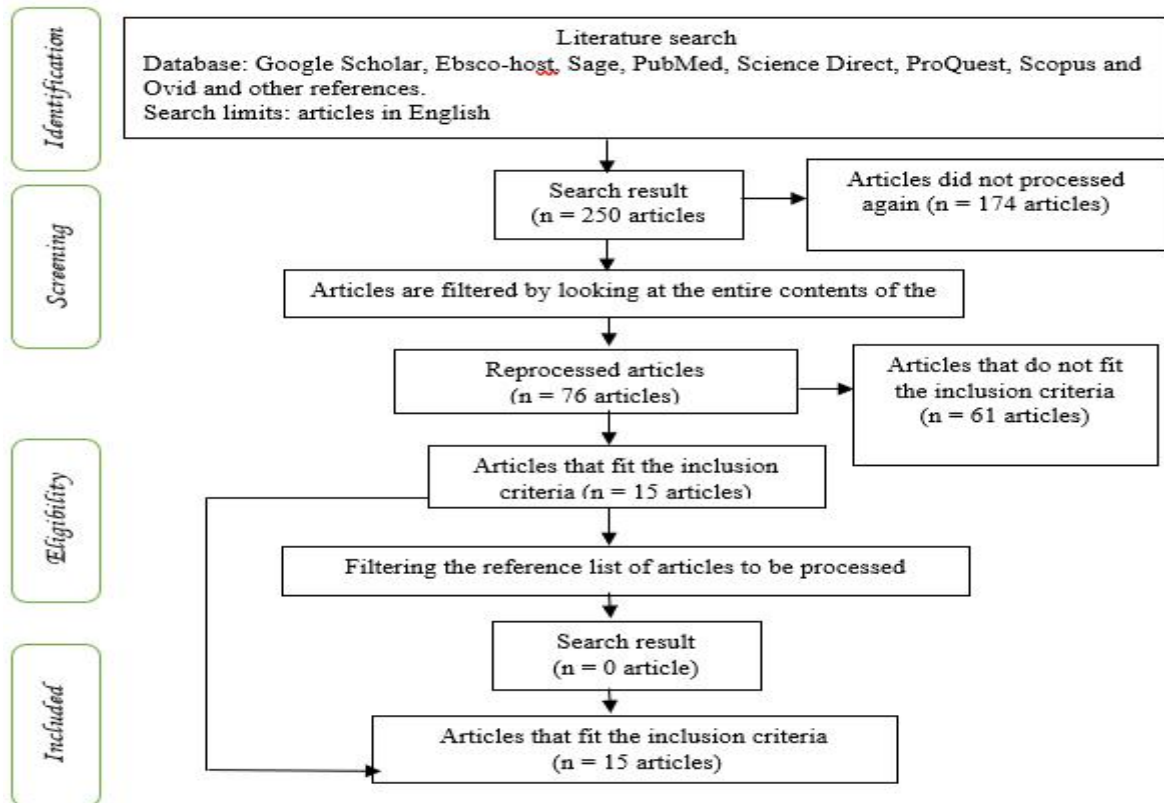
4. METHODS

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This review begins by conducting a systematic review using the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) diagram. Three steps of the search strategy have been carried out in this systematic review, namely: 1) using keywords that match the research topic, including: "COVID-19 preparedness management", "COVID-19 preparedness and management in children", "COVID-19 disaster management ", " COVID-19 mitigation management "; 2) search for articles through a database such as Google Scholar, Ebscohost, Sage, PubMed, Science Direct,

registered with PROSPERO. Ethical approval is not required for this review.

The criteria for article inclusion are: 1) describing the problems that occur in children and families in the face of the Covid-19 pandemic (developing knowledge and beliefs, increasing the ability and skills of self-regulation, social facilitation. Exclusion criteria are 1) articles do not provide sample descriptions, and 2) articles do not have sufficient detail about strategies for preparing childcare at home in the face of the Covid-19 pandemic. The study also reviewed the



ProQuest, Scopus and Ovid, and other references; 3) search for relevant articles from other references. Journal publications are taken from 2019 to 2020. The focus is on self and family management parenting preparedness in the COVID-19 pandemic. The CASP assessment checklist tool is used to assess the quality of the article. This review was not

epidemiological characteristics and patterns of transmission in children with Covid-19. More and more research has focused on the 2019 novel coronavirus (Covid-19) since the outbreak, but little data is available about age susceptible to Covid-19 in children.

Figure 1. Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA)

5. CONCLUSION

The Covid-19 pandemic caused by 2019-nCoV has become a severe concern to humanity throughout the world. The application of COVID-19 infection control practices is critical to control infection sources, block transmission routes, and protect vulnerable populations. The ongoing Covid-19 pandemic shows that although children are at lower risk, children's mental trauma must be handled very well by planning to prepare parenting at home in the Covid-19 pandemic through self and family management.

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Notes

- a. Abbreviation
- COVID-19 : Corona viral disease-2019
- CDC : center for disease control and prevention
- WHO : world health organization
- ACE2 : angiotensin-converting enzyme II
- SARS : Severe acute respiratory syndrome

Appendix 1 (Included Studies Characteristic)

No.	Authors/Objective	Main topic	Methodologies	Results
1.	The COVID-19 outbreak: Impact on mental health and intervention strategies (Talevi <i>et al.</i> , 2020)	Psychological and psychological implications in the context of the Covid-19 pandemic	Systematic review	Some general steps can be taken to deal with the inevitable mental health consequences of the COVID-19 pandemic: 1. Families and health policymakers must protect the child population from contact with pathogens and provide social, emotional, and practical support. 2. Families need help to access mental health services online through telemedicine (a method of providing health care services through innovative technology). 3. Practical advice for the community on how to manage time and manage physical and mental health include: managing media consumption and accessing information that allows protecting themselves and their families; doing daily sports activities; arrange regular telephone calls or video conferences with Family, friends, and colleagues to bridge the gap caused by social distance. The most consistent findings are the need for clear communication of knowledge about infectious diseases, enforcement of infection control procedures, access to adequate personal protective equipment (PPE), adequate rest, and practical and psychological support.
2.	Occurrence, prevention, and management of the psychological effects of emerging virus outbreaks on healthcare workers: rapid review and meta-	The psychological impact of increased workload, the need for personal protection, and concern for infection for oneself and Family	Rapid review and meta-analysis	The most consistent findings are the need for clear communication of knowledge about infectious diseases, enforcement of infection control procedures, access to adequate personal protective equipment (PPE), adequate rest, and practical and psychological support.

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	analysis (Kisely <i>et al.</i> , 2020)			
3.	Zooming Towards a Telehealth Solution for Vulnerable Children with Obesity During Covid-19 (Woo Baidal <i>et al.</i> , 2020)	A telehealth solution to provide intensive family-based child weight management during Covid-19	Review	<ol style="list-style-type: none"> 1. The use of smartphone applications for patient visits and telehealth portals can help bridge the digital divide, health literacy and linguistic barriers can make it difficult for populations disproportionately burdened to navigate patient portals and electronic medical records. For this reason, contact the Family at least one week before the initial telehealth visit to discuss the telehealth visit, help install and test the software, and explain the privacy risks and billing obligations 2. Virtual approaches are needed to overcome social needs and linguistic barriers 3. Challenges for reimbursing health costs: Reimbursement of the expenses for group visits and individual visits with nutritionists, physical activity specialists, and social work staff is lacking. Telephone visits provide limited reimbursement and no reimbursement for SMS interventions, although there is additional evidence of their effectiveness 4. Effectiveness, especially virtual child weight management: Rigorous trials are needed to identify effective ways to provide interventions that are entirely virtual, or mostly virtual, that increase retention, compliance, and healthy body weight.
4.	Diagnosis, treatment, and prevention of 2019 novel coronavirus infection in children: experts' consensus statement (Shen <i>et al.</i> , 2020)	Standardization of prevention and management of 2019-nCoV disease in children	Review	Psychological counseling plays an essential role in the recovery of the disease. If the patient (especially older children) exhibits mood swings, fears, or psychological disorders, active psychological intervention and treatment are needed.
5.	Management strategies for children with COVID-19: ESPR practical recommendations (Raissaki <i>et al.</i> , 2020)	Management and the need for the readiness of children with Covid-19 (a pragmatic strategy for imaging children in the pediatric radiology department with an emphasis on proven or suspected cases of COVID-19).	Systematic review	Clinical decision pathways for diagnosis, management, and treatment of COVID-19 vary in different countries. In general, RRT-PCR of viral RNA carried out in nasopharyngeal swab testing remains the reference standard for diagnosis. The sensitivity level is limited (around 70%), supplies are short and can take time to process (1-3 days). About 16% of children with COVID-19 show no radiographic findings, and in 7%, there are pneumonia imaging findings but no symptoms. The Royal College of Pediatrics and Children's Health and the Italian Society for Medical Radiology and Interventions strongly recommends that imaging should not be used routinely for the diagnosis of Covid-19 in children.
6.	The management of coronavirus disease 2019 (COVID-19) (Liu and Liu, 2020)	Covid-19's management focuses on early diagnosis, direct isolation, optimal and general supportive care, and infection prevention and control	Peer review	<ol style="list-style-type: none"> 1. Respiratory support Respiratory support ensures that the patient's respiratory status does not deteriorate (allows the patient to be given adequate oxygenation and ventilation) 2. Nutrition support Nutritional support includes food, oral supplements, tube feeding, and parenteral nutrition. For patients who get oral intake, a diet rich in protein, carbohydrates, and vitamins is recommended. Patients who cannot get oral intake but are compatible with enteral nutrition should be given enteral nutrition as soon as possible. For patients who are not consistent with enteral nutrition, parenteral nutrition must be given in time to meet energy needs 3. Mental health interventions General interventions in mental health include psychological first aid, crisis counseling, psychoeducation, family outreach, social support, and techniques to reduce anxiety. <p>The rapid identification of people at risk for COVID-19 and the management of COVID-19 patients is crucial to slowing the spread of COVID-19 worldwide.</p>
7.	Novel Coronavirus 2019 (2019-nCoV) Infection: Part I - Preparedness and Management in the Pediatric Intensive Care Unit in Resource-limited Settings (Ravikumar <i>et al.</i> , 2020)	Preparedness strategy to handle Coronavirus Novel 2019 (COVID-19)	Systematic review	<ol style="list-style-type: none"> 1. A preparedness strategy to deal with a pandemic is a current need and involves establishing an ICU cohort with isolation space. The reallocation of resources in managing this crisis involves careful planning, stopping elective operations, and training health workers. 2. Control of infection through personal protective equipment and disinfection is the key to resisting disease transmission.
8.	COVID-19 in Children: Clinical Approach and Management (Sankar <i>et al.</i> ,	Management Covid-19 in Children	Literature review	<p>Advice for Parents / Adults who have Covid-19 and stay at home with children</p> <ol style="list-style-type: none"> 1. The affected person must live in a separate room. 2. Affected people must wear 3-layer surgical masks. 3. The household member must live in a different room and be separated from that person as much as possible.

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	2020)			<ol style="list-style-type: none"> 4. Only assigned family members must be given the task of caring for the person and must help with food, recipes, and other personal needs. 5. Use disposable gloves when cleaning surfaces or handling dirty linen. 6. Wash hands after removing gloves and before and after eating, drinking, and using the toilet with soap and water 7. Toys that children play with should be washed frequently, wherever possible.
9.	COVID-19: How to Prepare for the Pandemic? (Lodha and Kabra, 2020)	Evaluation and management of Covid-19 patients in Children	Literature review	Supportive care and the use of several prevention strategies are crucial to arresting the Covid-19 pandemic
10.	A systematic review of COVID-19 in children show milder cases and a better prognosis than adults (Ludvigsson, 2020)	Identifying papers on Covid-19, caused by acute coronavirus 2 (SARS-CoV-2) respiratory syndrome	Systematic review	<ol style="list-style-type: none"> 1. Children so far account for 1-5% of diagnosed Covid-19 cases, often having milder diseases than adults. 2. Newborns have developed symptomatic Covid-19, but evidence of vertical intrauterine transmission is rare. Suggested treatments include providing oxygen, inhalation, nutritional support, and maintaining fluid and electrolyte balance.
11.	Preparedness and proactive infection control measures of Pakistan during COVID-19 pandemic outbreak (Mukhtar, 2020)	Identifying proactive infection control measures for COVID-19 prevention	Review	Infection control readiness and prevention measures are the best tools to minimize the risk of COVID-19 transmission. Covid-19 control and prevention measures, namely: testing, contract tracking sourced from the digital crowd, strict quarantine of both confirmed and suspected cases, suggesting the isolation and quarantine themselves as the main strategies for alternative distribution, relaxation calculated from locking conditions, implementing distancing measures (monitoring asymptomatic and pre-symptomatic transmission in the tested population) and control (effects of emergent drug treatment, mortality rates, intensive care capacity of health care.
12.	New clinical needs and strategies for care in children with neuro-disability during COVID-19 (Fazzi and Galli, 2020)	Continuous strategy for treating mental health problems that may arise in children with Neuro-disability in locking or quarantine during the COVID-19 pandemic	Review	<ol style="list-style-type: none"> 1. Maximizing communication is a priority when it comes to the mental health of children who are quarantined. This is the key to supporting 'virtual' relationships between medical staff and patients and their families, especially when isolation or quarantine is the primary protection strategy. There are four main types of this strategy: telerehabilitation, telecare, telephone consultation, telemedicine, and remote non-clinical services 2. Telecommunications rehabilitation appears to be effective, flexible, and individual intervention, which saves high costs. Patients report high levels of satisfaction, reinforcing the hypothesis that rehabilitation services at a distance are a viable alternative to routine care
13.	Global Preparedness Against COVID-19: We Must Leverage the Power of Digital Health (S. Mahmood <i>et al.</i> , 2020)	Infection control, home-based diagnosis and screening, empowerment through information, public health surveillance, and epidemiology	Review	<ol style="list-style-type: none"> 1. WHO has recommended that suspected COVID-19 cases with mild symptoms and without underlying problems can be treated at home with careful clinical monitoring through teleconsultation and telemedicine 2. Implement a proactive infection control tool that resembles a security monitoring station 3. Centralized training and capacity building, delivered digitally about infection control, isolating infected people, and tracing contacts from suspected cases. 4. Home-based diagnosis can alleviate the need for a suspected COVID-19 case to travel, allowing people to continue the suggested independent quarantine 5. Centralized Help Channels for COVID-19 Information through formal media such as T.V., newspapers, or guides based on international and national websites providing "firehose" information
14.	Coronavirus Infections in Children Including COVID-19 An Overview of the Epidemiology, Clinical Features, Diagnosis, Treatment, and Prevention Options in Children (Zimmermann and Curtis, 2020)	Epidemiological, clinical, and diagnostic, as well as treatment and prevention options for circulating and new infections in CoVs in humans with a focus on infections in children	Review	<ol style="list-style-type: none"> 1. SARS-CoV-2 seems to affect children less commonly and less severely compared to adults. This may be because children are less often exposed to the main source of transmission 2. Ideally, each patient is placed in a single negative pressure chamber. 3. The majority of children infected with novel CoVs reported so far have documented household contact
15.	A Systematic Review of COVID-19 Epidemiology Based on Current Evidence (Park <i>et</i>	Identify and summarize available evidence about the epidemiological characteristics of SARS-CoV-2 and the	Systematic review	<ol style="list-style-type: none"> 1. The effectiveness of quarantine is very dependent on when it is applied and the proportion in quarantine 2. Working distance is more effective in reducing the spread of COVID-19 than closing schools 3. The combined strategy of case isolation and close contact quarantine, school closure, and work distance is the most effective in reducing the size of outbreaks, with an

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	al., 2020)	effectiveness of control measures to inform policymakers and leaders in formulating management guidelines	estimated median number of infections reduced by 99.3% (IQR 92.6-99.9), 93.0 % (81.5-99.7), and 78.2% (59.0 –94.4)
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Appendix 2 (CASP Checklist Question for Systematic Review)

Item 1	Did the review address a clearly focused question?
Item 2	Did the author look for the right types of paper?
Item 3	Do you think all the important, relevant studies were included?
Item 4	Did the review's authors do enough to assess the quality of the included studies?
Item 5	If the results of the review have been combined, was it reasonable to do so?
Item 6	What are the overall results of the review?
Item 7	How precise are the results?
Item 8	Can the results be applied to the local population?
Item 9	Were all important outcomes considered?
Item 10	Are the benefits worth the harm and cost?

Appendix 3 (CASP Checklist Question for Quantitative Studies)

Item 1	Did the study ask a clearly focused question?
Item 2	Was this a randomized controlled trial (RCT), and was it appropriately so?
Item 3	Were participants appropriately allocated to intervention and control groups?
Item 4	Were participants, staff, and study personnel 'blind' to participants' study group?
Item 5	Were all of the participants who entered the trial accounted for at its conclusion?
Item 6	Were the participants in all groups followed up and data collected in the same way?
Item 7	Did the study have enough participants to minimize the play of chance?
Item 8	How the results presented, and what are is the main result?
Item 9	How precise are these results?
Item 10	Were all important outcomes considered so the results can be applied?