Jordan Journal of Nursing Research, Volume **5**, No. **3**, **2026**
DOI: https://doi.org/10.14525/JJNR.2026.27

Jordan Journal of Nursing Research

https://jjnr.just.edu.jo/jjnr

Child and Parent Reported Psychosocial Impact and Coping of School-Aged Children during COVID-19 in Jordan: A Cross-Sectional Study

Murad Sawalha, RN, PhD [1*]; ***Jamila Abuidhail, RN, PhD*** [1]; ***Sanaa AbuJilban, RN, PhD*** [1]; ***Shaher Hamaideh, RN, PhD*** [2]; ***Raghad Abdelkader RN, PhD*** [3]; ***Zyad T. Saleh, RN, PhD*** [4]; ***Rami A. Elshatarat, RN, PhD*** [5]; ***Atika Khalaf, RN, PhD*** [6,7]; ***Anas Alsharawneh, RN, PhD*** [8,9]

1 *Department of Maternal, Child and Family Health Nursing, Faculty of Nursing, The Hashemite University, Zarqa, Jordan.*
** Corresponding Author. Email: msawalha@hu.edu.jo*
2 *Department of Community and Mental Health Nursing, Faculty of Nursing, The Hashemite University, Zarqa, Jordan.*
3 *Department of Maternal and Child Health, Faculty of Nursing, Applied Science Private University, Amman, Jordan.*
4 *Department of Clinical Nursing, School of Nursing, The University of Jordan, Amman, Jordan.*
5 *Department of Medical and Surgical Nursing, College of Nursing, Taibah University, Madinah, Saudi Arabia.*
6 *Hind Bint Maktoum College of Nursing and Midwifery, Mohammed Bin Rashid University of Medicine and Health Sciences (MBRU), Dubai, UAE.*
7 *Faculty of Health Science, Kristianstad University, Kristianstad, Sweden.*
8 *Department of Adult Health Nursing, Faculty of Nursing, The Hashemite University, Zarqa, Jordan.*
9 *Hind Bint Maktoum College of Nursing and Midwifery, Mohammed Bin Rashid University of Medicine and Health Sciences (MBRU), Dubai, UAE.*

ARTICLE INFO

Article History:
Received: January 25, 2026
Accepted: May 13, 2026

ABSTRACT

Background: The COVID-19 pandemic has significantly affected the mental health of children worldwide. In Jordan, limited research has explored how school-aged children experienced the pandemic's psychological effects or the coping strategies they adopted. ***Purpose***: This study aimed to assess the psychosocial impacts of the COVID-19 pandemic on Jordanian school-aged children and examine the coping mechanisms they employed. ***Methods*****:** A correlational cross-sectional study was carried out involving 200 Jordanian children aged 6 to 12 years, who were recruited via Facebook, WhatsApp, and school networks. Data was collected using a structured Arabic-language questionnaire, completed jointly by children and their parents. The instrument measured demographic characteristics, COVID-19 knowledge, psychosocial impact, and coping strategies. Descriptive statistics and Pearson correlation analyses were performed. ***Results***: High levels of psychosocial distress were observed, with anxiety (54.0%), mood disturbances (52.0%), and sleep problems (56.0%) being most common. Behavioral issues were reported by 53.5%, and cognitive disturbances by 67.0%. Coping strategies included task-oriented (60.0%), emotional (68.0%), and avoidance coping (76.5%). Anxiety was strongly correlated with mood disturbances ($r = 0.77$, $p < 0.001$), and sleep problems with behavioral issues ($r = 0.71$, $p < 0.001$). Avoidance coping was negatively correlated with behavioral problems ($r = -0.20$, $p = 0.01$). ***Conclusion***: The COVID-19 pandemic significantly affected the psychosocial well-being of Jordanian school-aged children, emphasizing the need for culturally sensitive interventions to promote adaptive coping. ***Implications for Nursing*****:** Nurses in school, community, and primary healthcare settings play a key part in early identification of psychosocial distress and delivery of family-centered interventions during public health crises.

Keywords: COVID-19 pandemic, Psychosocial impact, School-aged children, Coping strategies, Mental health.

What does this paper add?

1. It documents significant psychosocial impacts of the COVID-19 pandemic on school-aged children in Jordan, with high levels of anxiety, sleep, mood, behavioral, and cognitive difficulties reported.
2. It shows that children commonly relied on emotional and avoidance coping strategies, while task-oriented coping was used less frequently.
3. It highlights the role of school, community, and primary healthcare nurses in identifying psychosocial distress early and supporting children and families during public health emergencies.

Introduction

The COVID-19 pandemic has significantly affected individuals worldwide, disrupting daily life and challenging physical, social, and psychological well-being (Rodríguez-Rey et al., 2020). School-aged children, in particular, are among the most vulnerable populations affected by these changes, as the pandemic has brought significant alterations to their routines, education, social interactions, and sense of security (Demaria & Vicari, 2021; Pfefferbaum & North, 2020; Segre et al., 2021). While measures, such as school closures, physical distancing, and prolonged isolation, were necessary to limit viral transmission, they also raised significant concerns about children's psychosocial well-being (Fegert et al., 2020; Spinelli et al., 2020).

Children also experienced disruptions to essential aspects of their psychosocial development, such as play, physical education, and social interaction, which are critical for their overall well-being (Orgilés et al., 2020; Orgilés et al., 2022). Prolonged isolation, increased exposure to media coverage, and difficulty in understanding the evolving situation contributed to feelings of frustration, anxiety, and confusion among children (Garfin et al., 2020; Liang et al., 2020). Furthermore, parents often struggled to communicate effectively with their children about the pandemic, exacerbating stress levels within households (Spinelli et al., 2020).

Research indicates that while most children recover emotionally after stressful events, others remain at risk for long-term psychological issues, depending on the coping strategies they employ (Delvecchio et al., 2022). Coping strategies among children typically fall into three categories: task-oriented (e.g., focusing on hobbies or schoolwork), emotion-oriented (e.g., seeking support from family), and avoidance-oriented strategies (e.g., disengaging from the stressor) (Ronen, 2021). Evidence suggests that task-oriented strategies are generally more effective in reducing stress, whereas reliance on avoidance strategies can lead to adverse outcomes (VanMeter et al., 2020; Segre et al., 2021).

In Jordan, the pandemic represented a major public health and social challenge. The government implemented strict control measures, including nationwide lockdowns, movement restrictions, mandatory mask use, and prolonged school closures enforced under Defense Law Orders (Alshoubaki & Harris, 2021). To maintain educational continuity, schools transitioned to online learning platforms and televised educational programs. However, these measures also disrupted children's daily routines, learning experiences, peer relationships, and emotional adjustment. Emerging evidence suggests that Jordanian children experienced considerable psychological strain during this period, including elevated anxiety, emotional distress, behavioral problems, decreased physical activity, increased screen time, and sleep problems, alongside limited access to structured mental health support (Al-Rahamneh et al., 2021; Tanaka et al., 2023). These findings underline the importance of examining the psychosocial consequences of the pandemic among children in Jordan.

Despite growing attention to the medical and preventive aspects of COVID-19, limited research has examined its psychosocial impact on children, particularly in Jordan (Al-Rahamneh et al., 2021; El-Khatib et al., 2020). Existing research has largely concentrated on specific populations, such as refugees (El-Khatib et al., 2020), university students (Bakkar et al., 2024) and healthcare workers (Al-Amer et al., 2020; Albataineh & Alhawatmeh, 2024; AlJaberi et al., 2024; Elneblawi et al., 2022), highlighting significant mental health challenges. However, the psychosocial impact on children and their coping strategies remain

underexplored (Liang et al., 2020; Segre et al., 2021; VanMeter et al., 2020).

Therefore, this study is significant, because it provides valuable insights into the psychosocial impact of the COVID-19 pandemic and the coping strategies used by school-aged children in Jordan. Understanding these psychosocial impacts and coping strategies might be important for guiding nursing practice, particularly in the early identification of psychosocial distress, the development of age-appropriate interventions, and the promotion of adaptive coping strategies within families and communities during public health crises.

Accordingly, the objectives of this study were to: (1) assess the psychosocial impact of the COVID-19 pandemic on school-aged children (6-12 years) in Jordan; (2) explore the coping strategies they employed; and (3) examine associations between these psychosocial outcomes and relevant demographic and contextual factors.

Methods

Design

A correlational, cross-sectional design was employed to assess the psychosocial impact of the COVID-19 pandemic and associated coping strategies among Jordanian school-aged children (6-12 years) enrolled in elementary schools. Data was collected using a structured questionnaire that assessed emotional, behavioral, and cognitive outcomes associated with the pandemic, as well as the coping strategies used by children.

Setting and Sample

This study was conducted in urban and metropolitan areas of Jordan after the COVID-19 pandemic was resolved. The target population comprised Jordanian school-aged children (6-12 years) enrolled in elementary education, with active parental involvement in the data collection. Parents gave electronic consent, assisted children with survey sections, and completed the coping strategies portion independently.

Eligible participants were Arabic-speaking families residing in Jordan with school-aged children who did not have severe chronic physical or cognitive conditions that could interfere with participation in the survey. Children with mild developmental delays were eligible if they were enrolled in regular schools and were able to participate with parental assistance. Recruitment was conducted via convenience sampling using Facebook parenting groups, WhatsApp, and community social media pages, allowing for broad participation from diverse socio-demographic backgrounds.

Using G*Power (version 3.1), the minimum required sample size was calculated to be 186 participants, based on a moderate effect size ($r = 0.30$), 80% power, and a significance level ($\alpha = 0.05$). To enhance statistical power and enable subgroup analysis, the sample size was increased to 200. Out of 284 invited participants, 200 completed questionnaires met the inclusion criteria and were included in the final analysis.

Data Collection Procedure

Data was collected between March and August 2021 using a structured electronic questionnaire administered through Google Forms. The online format allowed safe and convenient participation via smartphones or computers during ongoing public health restrictions. Because younger children may have limited reading ability, parents assisted them in reading and understanding questionnaire items while encouraging children to provide their own responses.

To maintain data integrity and prevent duplicate response, several measures were implemented. The Google Form was configured to accept only one response per device, and submission timestamps were monitored to identify irregular patterns. Participant's contact details (e.g., phone number, email address or WhatsApp/Facebook ID) were assigned unique research codes, which were cross-checked by a designated co-author to verify response authenticity. Participants were also asked to confirm that they had not previously completed the survey. These measures ensured data accuracy and enhanced the credibility of the findings. No missing data was present as the electronic questionnaire required responses to all items before submission.

Ethical Considerations

This study received ethical approval from the Institutional Review Board (IRB) of the Hashemite University (Approval No. 3/13/2020/2021). Prior to participation, parents were provided with an electronic information sheet outlining the study objectives, procedures, potential risks and benefits, and assurances of confidentiality. Parents were explicitly informed that their participation was voluntary and that they could

withdraw at any time without any consequences.

Electronic informed consent was obtained before access to the questionnaire was granted. Data confidentiality was strictly maintained through anonymization, assignment of identification codes, and removal of personal identifiers. All data was stored in encrypted, password-protected files accessible only to the research team, and analyses were conducted using aggregated data.

Data Collection Instrument

Data was gathered through a structured questionnaire in Arabic, which consists of four sections: (1) demographic and family characteristics, (2) children's knowledge about COVID-19, (3) psychosocial impact of COVID-19, and (4) coping strategies during the pandemic as perceived by parents. Translation and validation procedures are described under instrument validation and pilot testing.

Demographic Information

This section gathered child and family demographic characteristics, including child age, gender, school grade, parental education and employment status, household income, and place of residence (urban or rural). These variables were used to describe the sample and examine potential socio-demographic influences on children's psychosocial outcomes.

Children's Knowledge about COVID-19

Children's knowledge was assessed using a brief author-developed questionnaire consisting of five multiple-choice items addressing the definition of COVID-19, transmission routes, common symptoms, and preventive practices. The items were developed based on public health guidelines and previously used in related research (Aldemir & Kurt, 2024; Göktaş & Ersoy, 2022). Content validity was evaluated by two clinical research experts and a respiratory physician, all holding doctoral degrees, who assessed clarity, accuracy, and age appropriateness.

Total knowledge scores were categorized as low (fewer than 50% correct responses), moderate (50%-75%), or high (more than 75%), enabling structured analysis of children's awareness level. Internal consistency reliability for the knowledge scale in the current study was good (Cronbach's $\alpha = 0.84$).

Psychosocial Impact of COVID-19

The psychosocial impact of the pandemic was assessed using a modified Arabic version of the Impact Scale of COVID-19 and Confinement on Children and Adolescents developed by Orgilés et al. (2020). This instrument has been widely used internationally and demonstrated strong psychometric properties.

The scale assesses six domains: anxiety-related symptoms, mood disturbances, sleep problems, behavioral changes, nutrition-related issues, and cognitive changes. It consists of 31 items rated on a 5-point Likert scale from 0 ("much less than before COVID-19") to 4 ("much more than before COVID-19"), allowing comparison of symptom changes relative to the pre-pandemic period. Parents assisted children in completing this section to ensure comprehension. Reliability testing from previous studies demonstrated acceptable to strong internal consistency, with Cronbach's alpha values ranging from 0.63 to 0.87 across subscales (Orgilés et al., 2020). In the present study, the overall internal consistency of the scale was good (Cronbach's $\alpha = 0.83$).

Parents' Perception of Child Coping Strategies during COVID-19

Children's coping strategies were evaluated using an 11-item scale adapted from Orgilés et al. (2021), which itself is a pediatric adaptation of the Coping Inventory for Stressful Situations (CISS) developed by Parker and Endler (1992). The instrument categorizes coping into task-oriented, emotion-oriented, and avoidance-oriented strategies. Parents recorded whether each behavior was observed using "Yes" or "No" responses, with higher scores reflecting greater reliance on a given coping style. The scale has demonstrated acceptable reliability in previous COVID-19 research (Orgilés et al., 2021). In the present study, internal consistency reliability was acceptable, with Cronbach's alpha values of 0.82 for task-oriented coping, 0.79 for emotion-oriented coping, and 0.76 for avoidance coping. The overall internal consistency of the coping scale was good (Cronbach's $\alpha = 0.87$), reflecting the combined contribution of all coping items across domains.

Instrument Validation and Pilot Testing

A rigorous translation process was applied to ensure linguistic accuracy and cultural appropriateness of the instruments. Original tools were first translated into

Arabic and subsequently translated back into English by a bilingual specialist with doctoral qualifications. A panel of three experts in pediatric nursing, psychiatric mental health, and respiratory clinical research evaluated the translated instruments for face and content validity.

To further evaluate clarity and practical applicability, a pilot test was conducted with 23 parent–child pairs. Feedback from participants informed minor wording adjustments to enhance comprehension and cultural suitability. Internal consistency reliability was assessed using Cronbach's alpha. The results demonstrated acceptable reliability across the study instruments, with coefficients ranging from 0.83 to 0.87. These findings support the psychometric adequacy of the adapted Arabic instruments.

This study was conducted and reported in accordance with the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) checklist for cross-sectional studies.

Data Analysis

Data analysis was conducted using IBM SPSS Statistics, version 28. Participant characteristics, levels of COVID-19 knowledge, psychosocial indicators, and coping strategies were summarized using descriptive statistical techniques. Composite scores were calculated for knowledge, psychosocial domains, and coping strategies by summing relevant item scores. Pearson correlation tests were performed to examine associations between demographic variables, psychosocial outcomes, and coping strategies. A significance level of $\alpha = 0.05$ was used for all statistical tests. For descriptive purposes, the presence of symptoms or coping strategies (n, %) was determined based on scores above the median of each domain.

Results

Sample Demographics and Characteristics

A total of 284 participants were invited via social media and school networks; 200 met the inclusion criteria and were included in the final analysis (response rate 70.4%). The sample was primarily from metropolitan areas (81.0%). Most fathers (43.5%) and mothers (52.5%) held undergraduate degrees. Employment was reported by 69.0% of fathers and 55.5% of mothers, with household income most commonly between 400 and 700 JD (39.5%). Most families (79.0%) reported previous COVID-19 exposure, based on parent-reported information collected through the questionnaires without independent clinical verification. Children were evenly distributed by gender, with 52.0% male and 48.0% female. Most children were in Grade 6 (24.0%); only 6.5% had a diagnosed developmental delay. Parents were the main source of COVID-19 information (81%), followed by schools (61%), television (57.5%), social media (49.5%), and the internet (47.5%) (Table 1).

Table 1. Sample demographics and characteristics (N = 200)

Sample Demographics and Characteristics	n (%)
Father Education	
≤ High school	51 (25.5%)
Diploma (associate degree)	22 (11.0%)
Undergraduate degree	87 (43.5%)
Postgraduate degree	40 (20.0%)
Mother Education	
≤ High school	31 (15.5%)
Diploma (associate degree)	34 (17.0%)
Undergraduate degree	105 (52.5%)
Postgraduate degree	30 (15.0%)
Father Employment	
Employed	138 (69.0%)
Self Employed	28 (14.0%)
Unemployed	26 (13.0%)
Unemployed due to COVID-19	8 (4.0%)

Mother Employment	
Employed	111 (55.5%)
Self Employed	3 (1.5%)
Unemployed	83 (41.5%)
Unemployed due to COVID-19	3 (1.5%)
Household Monthly Income (JD *)	
< 400 JD	71 (35.5%)
400 – 700 JD	79 (39.5%)
701 – 1200 JD	40 (20.0%)
> 1200 JD	10 (5.0%)
Residency	
Rural	38 (19.0%)
Metropolitan	162 (81.0%)
Previous Exposure to COVID-19	
No	42 (21.0%)
Yes	158 (79.0%)
Child Sex	
Male	104 (52.0%)
Female	96 (48.0%)
Child with Developmental Delay	
Yes	13 (6.5%)
No	187 (93.5%)
Child Grade Level (Age)	
Grade 1 (7 years)	39 (19.5%)
Grade 2 (8 years)	29 (14.5%)
Grade 3 (9 years)	30 (15.0%)
Grade 4 (10 years)	23 (11.5%)
Grade 5 (11 years)	31 (15.5%)
Grade 6 (12 years)	48 (24.0%)
Source of children information	
Parents	162 (81.0%)
School	122 (61.0%)
TV	115 (57.5%)
Social Media	99 (49.5%)
Internet	95 (47.5%)
Friends	40 (20.0%)
Other Family Members	26 (13.0%)

Note. JD = Jordanian dinar (1 JD = 1.4 USD).

Children's Knowledge about COVID-19

Overall knowledge was moderate, with 48.0% demonstrating moderate knowledge, 30.0% low knowledge, and 22.0% high knowledge (Table 2). Only 36.5% correctly defined COVID-19. Knowledge of transmission varied, with 52.0% identifying contaminated objects, 38.0% respiratory droplets, and 40.5% airborne spread. Awareness of preventive practices was higher for hand hygiene (62.5%) and physical distancing (55.0%) than mask use (37.5%). While most children correctly identified fever (62.5%), joint pain (57.5%), fatigue (54.0%), and loss of smell or taste (55.0%) as symptoms, misconceptions, such as weight gain (45.0%) and hair loss (37.0%) were common (Table 2).

Table 2. Children's knowledge about COVID-19

Variable	Correct Answers n (%)
Definition of COVID-19: "What is COVID-19 disease?"	73 (36.5%)
It is a viral disease that affects the respiratory system.	
It is a bacterial disease that affects the respiratory system.	
It is a mild fungal disease with no symptoms in most infected people.	
It is a viral disease that only affects animals.	
Ways of spreading infection	
It is transmitted through the respiratory system of an infected person when sneezing or coughing	76 (38.0%)
It is transmitted from the infected person to a healthy person even if they are in a different room	81 (40.5%)
It is transmitted through contaminated objects used by the infected person	104 (52.0%)
It is not transmitted through the respiratory system	85 (42.5%)
Means of prevention from the transmission of infection	
Wearing a mask when you are with other people	75 (37.5%)
Washing hands or using sanitizer regularly before putting on the mask and after removing it	125 (62.5%)
Keeping a distance of 1 to 2 meters from others	110 (55.0%)
Not opening the room's window	80 (40.0%)
Exercising indoors	100 (50.0%)
Reasons for curfew and quarantine	
It reduces contact with infected people	110 (55.0%)
It reduces the spread of infection	72 (36.0%)
It has no significant benefit	112 (56.0%)
It reduces contact with contaminated objects and surfaces carrying the virus	115 (57.5%)
Symptoms of Corona disease	
Loss of smell or taste, or both	110 (55.0%)
Weight gain	90 (45.0%)
Fever	125 (62.5%)
Hair loss	74 (37.0%)
Joint pain and aches	115 (57.5%)
General fatigue	108 (54.0%)
Level of children's Knowledge about COVID-19	
Low (< 50% correct responses)	60 (30.0%)
Moderate (50–75% correct responses)	96 (48.0%)
High (> 75% correct responses)	44 (22.0%)

Psychological Symptoms and Coping Strategies

Subscale scores were computed and interpreted using both continuous measures (mean, SD) and dichotomized prevalence (n, %) based on median values (Table 3). The prevalence values (n, %) represent the proportion of participants scoring above the median for each subscale.

Table 3. Descriptive statistics of psychological symptoms and coping strategies among children

Variables	n (%)	Mean (SD)	Range
Psychological Problems			
Anxiety symptoms (10 items)	108 (54.0%)	26.9 (6.5)	0 - 40
Mood disorder symptoms (6 items)	104 (52.0%)	16.4 (4.2)	0 - 24
Sleep disturbance problems (5 items)	112 (56.0%)	13.3 (3.9)	0 - 20
Behavior disturbance problems (6 items)	107 (53.5%)	16.6 (4.5)	0 - 24
Nutritional disturbance problems (2 items)	114 (57.0%)	5.2 (1.8)	0 - 8
Cognitive disturbance problems (2 items)	134 (67.0%)	5.7 (1.6)	0 - 8

Coping strategy			
Task-oriented coping strategies (5 items)	120 (60.0%)	2.9 (0.9)	0 - 5
Emotional coping strategies (3 items)	136 (68.0%)	2.0 (0.7)	0 - 3
Avoidance coping strategies (3 items)	153 (76.5%)	1.4 (0.5)	0 - 3

Note. n (%) represents the proportion of children scoring above the median for each subscale.

Participants reported a range of psychological symptoms and utilized various coping strategies. Anxiety symptoms were reported by 54.0% of participants (mean = 26.9, SD = 6.5 out of 40). Mood disturbances affected 52.0% (mean = 16.4, SD = 4.2 out of 24), sleep disturbances 56.0% (mean = 13.3, SD = 3.9 out of 20), and behavioral problems 53.5% (mean = 16.6, SD = 4.5 out of 24). Nutritional disturbances were observed in 57.0% of the sample (mean = 5.2, SD = 1.8 out of 8). Cognitive disturbances were the most frequently reported problem, affecting 67.0% of participants (mean = 5.7, SD = 1.6 out of 8).

Regarding coping strategies, 60.0% of participants used task-oriented coping (mean = 2.9, SD = 0.9 out of 5), while 68.0% relied on emotional coping (mean = 2.0, SD = 0.7 out of 3). Avoidance coping was the most prevalent strategy, reported by 76.5% of participants (mean = 1.4, SD = 0.5 out of 3).

Correlations of Participants' Characteristics, Psychological Problems, and Coping Strategies

As shown in Table 4, several expected associations were observed among children's psychological outcomes during the COVID-19 pandemic, including strong correlations between anxiety, mood, sleep, and behavioral symptoms.

Table 4. Pearson correlation matrix between participants' characteristics, psychological problems, and coping strategies

No.	Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
8	Total knowledge	.03	.10	.04	.11	.03	.05	.02	—								
9	Total anxiety	−.10	−.11	.00	.11	−.01	.01	−.02	.19*	—							
10	Total mood	−.05	−.08	−.07	.06	.02	.02	−.07	.13	.77**	—						
11	Total sleep	−.04	−.06	−.04	.10	−.06	−.04	−.06	.13	.67**	.65**	—					
12	Total behavior	−.08	−.08	−.10	.13	.01	.01	−.12	.09	.70**	.65**	.71**	—				
13	Total nutrition	.01	.02	−.04	.14	.03	.06	−.10	.15*	.49**	.38**	.53**	.51**	—			
14	Total cognitive	−.06	−.06	−.02	.11	.02	.05	−.13	.14*	.63**	.56**	.64**	.65**	.58**	—		
15	Task-oriented coping	.08	.07	−.04	−.07	.05	.06	−.03	.12	−.08	−.12	−.10	−.11	−.08	−.05	—	
16	Emotional coping	.01	−.03	−.03	−.09	−.01	−.02	−.08	.02	.03	.03	−.03	.03	−.08	.04	.24**	—
17	Avoidance coping	−.01	.01	−.03	−.08	.05	.09	.09	−.15*	−.05	−.06	−.08	−.20*	−.05	−.15*	.06	−.01

Note. r = Pearson correlation coefficient. Values are shown below the diagonal. * p < .05. ** p < .01.
Variable key. 1 = Age of father; 2 = Age of mother; 3 = Number of children (6–12 years); 4 = Monthly household income; 5 = Child age (years); 6 = Child grade level; 7 = Number of siblings; 8 = Knowledge level; 9 = Anxiety symptoms; 10 = Mood disorder symptoms; 11 = Sleep disturbance problems; 12 = Behavior disturbance problems; 13 = Nutritional disturbance problems; 14 = Cognitive disturbance problems; 15 = Task-oriented coping strategies; 16 = Emotional coping strategies; 17 = Avoidance coping strategies.

Anxiety symptoms showed a small positive association with overall COVID-19 knowledge ($r = 0.19$, $p = 0.01$), while strong correlations were observed with mood disturbances ($r = 0.77$, $p < 0.001$), sleep disturbances ($r = 0.67$, $p < 0.001$), and behavioral difficulties ($r = 0.70$, $p < 0.001$). Mood disturbances were also closely associated with sleep and behavioral symptoms ($r = 0.65$, $p < 0.001$). Nutritional disturbances showed moderate positive associations with anxiety symptoms ($r = 0.49$, $p < 0.01$), sleep disturbances ($r = 0.53$, $p < 0.01$), and behavioral difficulties ($r = 0.51$, $p < 0.01$). Cognitive disturbances also showed moderate to strong positive associations with anxiety symptoms ($r = 0.63$, $p < 0.01$), mood disturbances ($r = 0.56$, $p < 0.01$), sleep disturbances ($r = 0.64$, $p < 0.01$), and behavioral difficulties ($r = 0.65$, $p < 0.01$).

Regarding coping strategies, avoidance coping showed small, but statistically significant, negative associations with behavioral problems ($r = −0.20$, $p = 0.01$) and cognitive disturbances ($r = −0.15$, $p = 0.03$). These findings highlight the potential role of coping strategies as a more context-specific component of children's psychosocial responses.

Discussion

This study provides evidence that the COVID-19 pandemic exerted considerable psychological pressure on school-aged children in Jordan, reinforcing the urgent need to address their emotional well-being and coping in times of crises. Unlike adults, particularly healthcare workers, whose distress was often tied to occupational exposure, children were affected by disruptions to routine, education, social interaction, and their sense of security (Orgilés et al., 2020). The disruptions of children routine translated into increased levels of anxiety, mood and behavioral disturbances, cognitive challenges, and changes in sleep and nutrition patterns (AlJaberi et al., 2024; Elneblawi et al., 2022). The findings of the present study align with international literature, confirming that the pandemic's psychological toll was evident across multiple domains of child functioning (Orgilés et al., 2021; Spinelli et al., 2020).

Children in this study demonstrated a broad range of psychological symptoms, consistent with prior findings in Jordan. Al-Rahamneh et al. (2021) reported high levels of boredom, irritability, and nervousness among Jordanian children during lockdowns, which were similar to this study's findings of emotional and behavioral issues. Cognitive and sleep disturbances were particularly prevalent. While the associations of cognitive and sleep disturbances with emotional symptoms are well documented in the literature, the present findings primarily confirm existing evidence rather than represent novel contributions (Demaria & Vicari, 2021; Orgilés et al., 2021). However, these findings still indicate that psychological strain may have been associated with difficulties in children's concentration, sleep regulation, and daily functioning. These results support global evidence that prolonged school closures and social isolation may contribute to emotional dysregulation and may affect psychosocial development in children (Demaria & Vicari, 2021).

This study also examined children's coping strategies, revealing a heavy reliance on emotion-focused and avoidance-oriented coping, with task-oriented strategies being less common. Emotional coping—such as seeking comfort from family or expressing feelings—may offer temporary relief, but does not always support long-term adaptation. Avoidance strategies, although frequently employed, can mask deeper psychological needs and delay emotional resolution (Orgilés et al., 2020; Orgilés et al., 2021). Interestingly, avoidance coping demonstrated small, but statistically significant, negative associations with behavioral and cognitive disturbances ($r = -0.20$ and $r = -0.15$, respectively; Table 4), suggesting a modest short-term reduction in observable behavioral and cognitive difficulties rather than a strong protective effect**.** In addition, a small negative association was observed between children's COVID-19 knowledge and avoidance coping ($r = -0.15$), indicating that children with greater awareness may have been less likely to rely on avoidance strategies. Although modest, this finding may suggest that increased understanding of the situation could encourage more engagement-oriented responses. These trends are supported by findings from Rodríguez-Rey et al. (2020) and Ronen (2021), who emphasized the limitations of avoidance in fostering psychological growth. In contrast, task-oriented coping, which was associated with improved emotional regulation, was underutilized. This may reflect limited parental awareness of effective coping strategy choices and highlights an area for intervention through structured family or school-based activities (El-Khatib et al., 2020; Orgilés et al., 2020; Orgilés et al., 2022). Importantly, the prominence of avoidance and emotional coping strategies, along with their relationships with psychosocial symptoms, provides context-specific insight into how children in Jordan responded to pandemic-related stressors.

A particularly notable result was the positive association between children's knowledge of COVID-19 and their anxiety levels. While a moderate level of knowledge was observed in nearly a half of the children, those with more awareness reported higher anxiety—suggesting that understanding the threat of infection, without sufficient reassurance or context, may be associated with increased fear. Although this association was small in magnitude, it was statistically meaningful and consistent with theoretical models of threat appraisal**,** supporting the notion that cognitive exposure without emotional scaffolding may heighten distress (Garfin et al., 2020). Garfin et al. (2020) further argued that inappropriate delivery of health information during crises may increase psychological stress. Similarly, Tanaka et al. (2023) found that mental health among Jordanian children declined after the pandemic, with little evidence

of effective interventions to mediate these effects.

The role of parents as primary informants was another key factor in children's coping. Most participants reported relying on their parents for COVID-19 information, which confirms the essential role of caregivers in influencing children's understanding and emotional responses (Liang et al., 2020; Parker & Endler, 1992). However, unsupervised exposure to media—including TV, social media, and internet sources—was also common and has been associated with increased psychological distress and elevated anxiety, as well as the spread of misinformation during public health crises (Garfin et al., 2020). The coexistence of parental support, stress arising from media exposure, and possible limited parental awareness of effective coping strategies emphasizes the importance of intentional, developmentally appropriate family communication and parent-focused guidance during public health crises, as similarly noted by Azak et al. (2022) and Spinelli et al. (2020).

Broader health and social infrastructure also influenced children's pandemic experiences in Jordan. Although restrictions and school closures were necessary public health measures, they introduced additional challenges (Al-Iede et al., 2021; Alshoubaki & Harris, 2021). Rapid deployment of distance learning was hindered by technological barriers in rural and underserved areas, exacerbating educational and psychological disparities (Alshoubaki & Harris, 2021). Health system strain and restricted pediatric services further contributed to poorer outcomes for children living with chronic conditions (Al-Khlaifat et al., 2023; Burayzat et al., 2022), potentially compounding psychological vulnerability by limiting both preventive and responsive care.

Overall, the findings illustrate that the COVID-19 pandemic affected Jordanian school-aged children across multiple psychological domains. These outcomes underscore the importance of developing focused and culturally responsive mental health approaches to address children's needs during large-scale public health crises. Strengthening emotional awareness, supporting effective coping skills, delivering clear and reassuring health information, and reinforcing family- and school-based support networks may help reduce the long-term psychosocial effects of such crises on children (Al-Rahamneh et al., 2021; Alshoubaki & Harris, 2021; Orgilés et al., 2020; Orgilés et al., 2021).

Implications for Nursing

The findings of this study underscore the necessity for comprehensive, multi-disciplinary responses to reduce the psychological impact of the COVID-19 pandemic on school-aged children in Jordan. Nurses working in school, community, pediatric, and primary care settings are well placed to identify early signs of distress and to provide assessment, guidance, and ongoing psychosocial support for children exhibiting emotional, behavioral, cognitive, and physical difficulties. These findings extend existing evidence on the pandemic's mental health consequences and highlight the critical contribution of nursing-led interventions that are culturally sensitive and appropriate to children's developmental stages (Al-Iede et al., 2021; Al-Rahamneh et al., 2021).

At the school level, school and community nurses, in collaboration with educators and mental health professionals, can support structured psychosocial education programs that enhance children's emotional regulation, media literacy, and task-oriented coping (Alshoubaki & Harris, 2021; Al-Tammemi, 2020; Larsen et al., 2022). These programs should incorporate clear, age-appropriate messaging about public health measures, as confusion regarding quarantine and restrictions was linked to heightened anxiety. Given the positive association between knowledge levels and anxiety, nurses may be well placed to frame health information with reassurance, clarity, and emotional safety (Alshoubaki & Harris, 2021; Haug et al., 2020.) Moreover, the scarcity of effective child-focused interventions in Jordan underscores the importance of nursing-led screening practices, timely referral mechanisms, and structured psychosocial support programs (Tanaka et al., 2023).

Parental involvement remains essential for children's resilience, and family-centered nursing practice is fundamental in this context. Nurses can support caregivers through education and guidance that promote early recognition of emotional distress and effective crisis communication. As most children relied on parents as primary sources of COVID-19 information, nurses can reinforce protective strategies, including maintaining routines, encouraging emotional expression, and supervising media exposure to reduce fear and enhance psychological security (Ronen, 2021; Spinelli et al., 2020; VanMeter et al., 2020).

At the community level, community and public

health nurses can advocate for safe recreational opportunities and peer-interaction programs to mitigate social isolation. The observed associations between sleep, nutritional, and cognitive disturbances also suggest that nursing-led community health initiatives should include education on sleep hygiene and nutrition as protective factors against psychological stress (Fidancı et al., 2021). Collaboration between health centers and municipal governments, with nursing involvement, is important to ensure fair access to these services.

From a research and policy perspective, nurses can contribute as investigators and policy advocates by supporting longitudinal research that examines the sustained psychological consequences of pandemic-related stress among children. The strong correlations observed across multiple symptom domains highlight the need for continued nursing surveillance and follow-up. Future studies should use larger, more diverse samples and mixed-method designs to inform inclusive, evidence-based mental health interventions for children and families.

Study Limitations

Convenience sampling, with most participants recruited from metropolitan areas, may have introduced selection bias and limited the generalizability of the findings, particularly to rural populations and families with limited internet access. Although a proportion of participants reported lower household income, the sample may still not fully represent more socioeconomically disadvantaged or less connected groups. Reliance on self-reported data may also be affected by recall bias and socially desirable responses.

The lack of pre-pandemic mental health data limits the ability to attribute observed psychological symptoms directly to the COVID-19 pandemic. Furthermore, electronic data collection may have excluded families with limited internet access, potentially skewing the sample toward more connected households. Parental involvement in survey completion, while necessary given the age of participants, may have influenced children's responses. Nevertheless, the findings offer valuable contributions to understanding the psychosocial experiences of school-aged children during a major public health crisis.

Conclusion

This study reveals that the COVID-19 pandemic was associated with substantial psychological burden among school-aged children in Jordan, reflected in high rates of anxiety, mood changes, sleep difficulties, behavioral problems, and cognitive challenges. Emotional and avoidance coping strategies were the most frequently used, while task-oriented coping was less frequent. Higher COVID-19 knowledge was associated with increased anxiety, and strong associations were observed among anxiety, mood, and sleep disturbances. Although avoidance coping was linked to fewer behavioral problems, its overall effectiveness in supporting long-term psychological health remains limited.

From a nursing perspective, the results highlight the essential contribution of nurses in the early identification of psychological distress and in supporting adaptive coping among children and families. School, community, and pediatric nurses are well positioned to deliver developmentally appropriate mental health screening, provide family-centered guidance, and reinforce healthy routines related to sleep, emotional regulation, and daily functioning. Integrating mental health promotion and coping support into routine nursing practice, particularly during emergencies, may be important to alleviate long-term psychological consequences. Future nursing research should adopt longitudinal approaches to evaluate the effectiveness of nursing-led interventions and inform evidence-based strategies for supporting children's mental health during and beyond public health crises.

Ethics Approval

This work was approved by the Institutional Review Board of the Hashemite University (IRB No. 3/13/2020/2021).

Conflict of Interests

The authors have no conflict of interests to declare.

Funding or Sources of Financial Support

This work was funded by the Hashemite University, Deanship of Research, project number (2021/67/683). The funding source had no role other than financial support.

Author Contributions

Study Design: **MS, JA**. Data Collection: **MS, SA, AA**. Data Analysis: **SA, AA**. Study Supervision: **MS, JA, SH**. Manuscript Writing: **MS, RE, ZS, RA, AK**. Critical Revision for Important Intellectual Content: **MS, JA, SH, RE**.

REFERENCES

Al-Amer, R., Malak, M., Aburumman, G., Darwish, M., Nassar, M., Darwish, M., & Randal, S. (2020). Prevalence and correlates of psychological reactions among Jordanian nurses during the coronavirus disease 2019 pandemic. *Research Square*, 1-16. https://doi.org/10.21203/rs.3.rs-35820/v1

Al-Iede, M., Waters, K., Aleidi, S. M., Alqutawneh, B., Alnawaiseh, H., Alshraideh, A., Almaaitah, S., Mahmoud, R., Abualsoud, R., & Kiswani, A. (2021). Impact of COVID-19 lockdown on children with asthma in Jordan: A parental questionnaire. *BMJ Paediatrics Open, 5*(1), e001136. https://doi.org/10.1136/bmjpo-2021-001136

Al-Khlaifat, A. M., Al Quraan, A. M., Nimri, A. F., Khaled, N.E.B., Ramadina, N., Ayyash, F. F., Daoud, S. O., Hamlan, S. Y., Hababeh, B. M., & Al-Khlaifat Sr, A. F. (2023). Factors influencing the length of hospital stay among pediatric COVID-19 patients at Queen Rania Al Abdullah Hospital for Children: A cross-sectional study. *Cureus, 15*(2), Article e35000. https://doi.org/10.7759/cureus.35000

Al-Rahamneh, H., Arafa, L., Al Orani, A., & Baqleh, R. (2021). Long-term psychological effects of COVID-19 pandemic on children in Jordan. *International Journal of Environmental Research and Public Health, 18*(15), 7795. https://doi.org/10.3390/ijerph18157795

Al-Tammemi, A. A. B. (2020). The battle against COVID-19 in Jordan: An early overview of the Jordanian experience. *Frontiers in Public Health, 8*, 188. https://doi.org/10.3389/fpubh.2020.00188

Albataineh, R., & Alhawatmeh, H. (2024). The mediating effect of coping strategies on the relationship between perceived stress and quality of life among Jordanian registered nurses during COVID-19: A cross-sectional study. *Jordan Journal of Nursing Research, 3*(2), 143–154. https://doi.org/10.14525/JJNR.v3i2.09

Aldemir, F., & Kurt, F.Y. (2024). Evaluation of fear and stress levels and methods of coping with stress among parents having children with chronic diseases during the COVID-19 pandemic. *Journal of Pediatric Nursing, 78*, 37-43. https://doi.org/10.1016/j.pedn.2024.05.035

AlJaberi, M., Elshatarat, R.A., Sawalha, M.A., Al Hmaimat, N., AlBlooshi, H., Alshehhi, M., Ibrahim, A. M., Zaghamir, D.E., Saleh, Z.T., & Saifan, A. R. (2024). The psychological impact of COVID-19 on front-line healthcare providers in the United Arab Emirates: A cross-sectional study. *Journal of Education and Health Promotion, 13*(1), 335. https://doi.org/10.4103/jehp.jehp_1734_23

Alshoubaki, W.E., & Harris, M. (2021). Jordan's public policy response to COVID-19 pandemic: Insight and policy analysis. *Public Organization Review, 21*(4), 687-706. https://doi.org/10.1007/s11115-021-00564-y

Azak, M., Şahin, K., Korkmaz, N., & Yıldız, S. (2022). YouTube as a source of information about COVID-19 for children: Content quality, reliability, and audience participation analysis. *Journal of Pediatric Nursing, 62*, e32–e38. https://doi.org/10.1016/j.pedn.2021.06.024

Bakkar, S., AlAzzam, M., Hamaideh, S., & Abdalrahim, A. (2024). Prevalence and predictors of depression, anxiety, and stress symptoms among Jordanian university students amid COVID-19 pandemic. *Jordan Journal of Nursing Research, 3*(2), 1-11. https://doi.org/10.14525/JJNR.v3i2.03

Burayzat, S. M., Kilani, M., Al-Ghawanmeh, R., Odeh, M., Assi, O., & Alzoubi, K. H. (2022). Evaluation of the effect coronavirus lockdown had on chronic disease management care in pediatrics: A survey of Jordanian pediatricians. *International Journal of Clinical Practice, 2022*, 8710176. https://doi.org/10.1155/2022/8710176

Delvecchio, E., Orgilés, M., Morales, A., Espada, J. P., Francisco, R., Pedro, M., & Mazzeschi, C. (2022). COVID-19: Psychological symptoms and coping strategies in preschoolers, schoolchildren, and adolescents. *Journal of Applied Developmental Psychology, 79*, 101390. https://doi.org/10.1016/j.appdev.2022.101390

Demaria, F., & Vicari, S. (2021). COVID-19 quarantine: Psychological impact and support for children and parents. *Italian Journal of Pediatrics, 47*(1), 58.

https://doi.org/10.1186/s13052-021-01005-8

El-Khatib, Z., Al Nsour, M., Khader, Y. S., & Abu Khudair, M. (2020). Mental health support in Jordan for the general population and for the refugees in the Zaatari camp during the period of COVID-19 lockdown. *Psychological Trauma: Theory, Research, Practice, and Policy, 12*(5), 511-514. https://doi.org/10.1037/tra0000813

Elneblawi, N. H., Elshatarat, R. A., Elhefnawy, K. A., Ebeid, I. A., Aljohani, M. S., Alzahrani, N. S., Almarwani, A. M., & Saleh, Z. T. (2022). Nurses' perceptions regarding exposure to COVID-19 risks, and impact of COVID-19 outbreak on their work and psychosocial health: A cross-sectional study. *The Open Nursing Journal, 16*(1). https://doi.org/10.2174/18744346-v16-e221031-2022-51

Fegert, J. M., Vitiello, B., Plener, P.L., & Clemens, V. (2020). Challenges and burden of the coronavirus 2019 (COVID-19) pandemic for child and adolescent mental health: A narrative review to highlight clinical and research needs in the acute phase and the long return to normality. *Child and Adolescent Psychiatry and Mental Health, 14*, 20. https://doi.org/10.1186/s13034-020-00329-3

Fidancı, İ., Aksoy, H., Yengil Taci, D., Fidancı, İ., Ayhan Başer, D., & Cankurtaran, M. (2021). Evaluation of the effect of the COVID-19 pandemic on sleep disorders and nutrition in children. *International Journal of Clinical Practice, 75*(7), e14170. https://doi.org/10.1111/ijcp.14170

Garfin, D. R., Silver, R. C., & Holman, E. A. (2020). The novel coronavirus (COVID-2019) outbreak: Amplification of public health consequences by media exposure. *Health Psychology, 39*(5), 355–357. https://doi.org/10.1037/hea0000875

Göktaş, O., & Ersoy, C. (2022). Knowledge, attitude, and practice towards COVID-19: Research to develop a measuring instrument. *Atención Primaria, 54*(8), 102370. https://doi.org/10.1016/j.aprim.2022.102370

Haug, N., Geyrhofer, L., Londei, A., Dervic, E., Desvars-Larrive, A., Loreto, V., Pinior, B., Thurner, S., & Klimek, P. (2020). Ranking the effectiveness of worldwide COVID-19 government interventions. *Nature Human Behaviour, 4*(12), 1303–1312. https://doi.org/10.1038/s41562-020-01009-0

Larsen, L., Helland, M. S., & Holt, T. (2022). The impact of school closure and social isolation on children in vulnerable families during COVID-19: A focus on children's reactions. *European Child & Adolescent Psychiatry, 31*(8), 1–11.

Liang, Z., Delvecchio, E., Buratta, L., & Mazzeschi, C. (2020). Ripple effect: Psychological responses and coping strategies of Italian children in different COVID-19 severity areas. *Revista de Psicología Clínica con Niños y Adolescentes, 7*(3), 49–58. https://doi.org/10.21134/rpcna.2020.mon.2054

Orgilés, M., Francisco, R., Delvecchio, E., Espada, J.P., Mazzeschi, C., Pedro, M., & Morales, A. (2022). Psychological symptoms in Italian, Spanish and Portuguese youth during the COVID-19 health crisis: A longitudinal study. *Child Psychiatry & Human Development.*

Orgilés, M., Morales, A., Delvecchio, E., Francisco, R., Mazzeschi, C., Pedro, M., & Espada, J.P. (2021). Coping behaviors and psychological disturbances in youth affected by the COVID-19 health crisis. *Frontiers in Psychology, 12*, 565657. https://doi.org/10.3389/fpsyg.2021.565657

Orgilés, M., Morales, A., Delvecchio, E., Mazzeschi, C., & Espada, J. P. (2020). Immediate psychological effects of the COVID-19 quarantine in youth from Italy and Spain. *Frontiers in Psychology, 11*. https://doi.org/10.3389/fpsyg.2020.579038

Parker, J.D.A., & Endler, N.S. (1992). Coping with coping assessment: A critical review. *European Journal of Personality, 6*(5), 321-344. https://doi.org/10.1002/per.2410060502

Pfefferbaum, B., & North, C.S. (2020). Mental health and the COVID-19 pandemic. *New England Journal of Medicine, 383*(6), 510-512. https://doi.org/10.1056/NEJMp2008017

Rodríguez-Rey, R., Garrido-Hernansaiz, H., & Collado, S. (2020). Psychological impact and associated factors during the initial stage of the coronavirus (COVID-19) pandemic among the general population in Spain. *Frontiers in Psychology, 11*. https://doi.org/10.3389/fpsyg.2020.01540

Ronen, T. (2021). The role of coping skills for developing resilience among children and adolescents. In M. L. Kern & M.L. Wehmeyer (Eds.), *The Palgrave handbook of positive education* (pp. 345-368). Springer. https://doi.org/10.1007/978-3-030-64537-3_14

Segre, G., Campi, R., Scarpellini, F., Clavenna, A., Zanetti, M., Cartabia, M., & Bonati, M. (2021). Interviewing children: The impact of the COVID-19 quarantine on children's perceived psychological distress and changes in routine. *BMC Pediatrics, 21*(1), 231.

https://doi.org/10.1186/s12887-021-02704-1

Spinelli, M., Lionetti, F., Pastore, M., & Fasolo, M. (2020). Parents' stress and children's psychological problems in families facing the COVID-19 outbreak in Italy. *Frontiers in Psychology, 11*, 1713. https://doi.org/10.3389/fpsyg.2020.01713

Tanaka, E., Khader, Y., Izutsu, T., Al Hamawi, R., Al-Faouri, T., & Tsutsumi, A. (2023). *Mental health and psychosocial situation of children and adolescents in Jordan before and after the COVID-19 pandemic: A scoping review*.

VanMeter, F., Handley, E.D., & Cicchetti, D. (2020). The role of coping strategies in the pathway between child maltreatment and internalizing and externalizing behaviors. *Child Abuse & Neglect, 101*, 104323. https://doi.org/10.1016/j.chiabu.2019.104323