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# Exhausted and Burned Out: COVID-19 Emerging Impacts Threaten the Health of the Pediatric Advanced Practice Registered Nursing Workforce

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**Introduction:** The purpose of this study was to describe the holistic impacts of COVID-19 on pediatric advanced practice registered nurses (APRNs).

**Method:** A convenience sample of APRNs affiliated with the National Association of Pediatric Nurse Practitioners participated in this cross-sectional descriptive study. An investigator-developed survey explored multifocal, holistic impacts of COVID-19.

**Results:** A total of 886 participants were provided the survey, with 796 (90%) completing the entire survey. Respondents indicated adverse impacts across personal, clinical, educational, and research foci. Among the most alarming findings, 34% indicated moderate or extreme concern for feeling professionally burned out, 25% feeling nervous or anxious, and 15% feeling depressed or hopeless.

**Discussion:** The pediatric APRN workforce pipeline is at significant risk for provider burnout and compromised mental health. Acknowledgment of pandemic-related trauma on families, children and APRNs is essential. Sustained intentional efforts to cultivate holistic wellness are critically emergent. J Pediatr Health Care. (2021) 35, 414–424

## KEY WORDS

COVID-19, pediatric APRN, pandemic, nursing workforce

## INTRODUCTION

The novel COVID-19 global pandemic is dramatically impacting societal norms and causing widespread disruption across all health disciplines and consequential delays of care in health delivery systems (Czeisler et al., 2020). Nursing is the largest and most trusted health profession in the United

States, with nearly four million registered nurses ([American Association of Colleges of Nursing, 2019](#)). As the face of health care to the American public, perhaps no other health discipline has been more widely impacted by COVID-19 than nursing.

Multiple research surveys have been conducted by professional nursing organizations representing various broad populations of nurses to explore the impacts of COVID-19 during 2020, including the [American Nurses Association \(2020\)](#), the [American Association of Nurse Practitioners \(2020\)](#), the [American Organization for Nurse Leadership \(2020\)](#), [National Nurses United \(2020\)](#), [Nurse Practitioners in Women's Health \(2020\)](#), and several state nursing organizations, among others. Similar surveys of pediatric physicians include pediatricians ([Korioth, 2020](#)), pediatric emergency clinicians ([Walker & Tolentino, 2020](#)), and pediatric ophthalmologists ([Robbins, Packwood, Siegel, & AAPOS Socioeconomic Committee, 2020](#)). To date, no professional organization has evaluated the unique and sustained effects of COVID-19 on pediatric advanced practice registered (APRN) nursing professionals.

Although the physical disease burden (e.g., morbidity and mortality) of COVID-19 in children has not been as severe as other prior outbreaks of communicable diseases, such as polio ([Word, 2020](#)), the global pandemic conditions have fundamentally altered the norms of pediatric care delivery across the United States. Pediatric APRNs and agencies are experiencing significant disruption in care provision, patient presentations, clinic practices, immunization adherence, and revenue streams. Some pediatric APRNs have been recruited to work with adult populations in an unprecedented fashion ([Renke et al., 2020](#)). Others have been temporarily furloughed or permanently laid off because of disruptions in health supply service provision, with over demand for critical care nursing providers and under demand for primary care, preventive, and other health services deemed nonessential. Although telehealth has been more widely adopted in adult populations, unique challenges in pediatric telehealth encounters seem to preclude this modality as a significant supplemental source of income that has bolstered adult practices ([Pediatric EHR Solutions, n.d.](#)). Administration of routine vaccinations in primary care plummeted in the months following the initiation of shelter-in-place orders, including a reduction of influenza vaccine orders by more than three million and measles vaccines of nearly half a million ([Santoli et al., 2020](#)). Full recovery to prepandemic immunization rates is nowhere in sight ([Dinleyici et al., 2021](#)). With respect to revenue, children's hospitals estimated over \$5 billion in losses in 2020, with federal relief monies received totaling less than 1% of monies provided to all U.S. hospitals ([Fischer-Sanchez & McGiveny, 2020](#)). In primary care, dramatic reductions in visit volume have led to subsequent revenue shortfalls that have forced staff reductions and/or clinic closures.

This destabilized pediatric infrastructure disproportionately impacts marginalized children. Reports from the Centers for Disease Control and Prevention highlight the

painfully evident inequities in the disease burden of COVID-19 cases in children. Of the 121 deaths among children aged under 21 years, more than 75% were Hispanic, Black, and American Indian, although these groups are representative of just 41% of the U.S. population aged under 21 years ([Bixler et al., 2020](#)). Many families have lost access to critical social safety services and programs such as school meal programs, employer-sponsored health coverage, and regular childcare ([Patrick et al., 2020](#)). These losses have compounded family stressors; since March 2020, 27% of parents report worsening mental health for themselves and 14% for their children ([Patrick et al., 2020](#)). These impacts also increase the risk for child exploitation or abuse, including human trafficking ([Todres & Diaz, 2021](#)), particularly among children with medical complexity or the presence of other risk factors enhancing vulnerability.

Pediatric APRNs have anecdotally reported COVID-19 impacts spanning professional and personal domains. The long-term impacts on child mental health, academic progression, immunization status, developmental milestone attainment, and stability of an array of other biopsychosocial needs are simply unknown. Similarly, disruptions to care delivery, workflow, patient and family communication, and overall workplace morale pose a serious and potentially enduring negative impact on the pediatric APRN workforce.

The COVID-19 impacts on pediatric APRNs include professional and personal domains. With respect to care delivery, there are concerns over pediatric wellness, delayed or compromised clinical care, workflow disruptions, altered communication, and diminished workplace morale ([Nicholas et al., 2020](#)). These disruptions are anticipated to have enduring negative effects. At the same time, pediatric APRNs also experience personal mental health duress and crises because of the pandemic. Although uncertainty and fear are nearly universal given the global pandemic, health care providers also contend with fears over placing their loved ones at risk while working on the front lines during unprecedented demand. As a result, the sustained professional and personal impacts of the pandemic are placing pediatric APRNs at high risk for moral distress and professional burnout.

As the only professional organization dedicated to supporting and advancing pediatric APRN practice, the National Association of Pediatric Nurse Practitioners (NAPNAP) is committed to supporting a high-quality, accessible, affordable care continuum for pediatric patients while protecting and supporting the pediatric workforce pipeline. The purpose of this study was to describe the holistic impacts of COVID-19 on pediatric APRNs. Results from this study will inform scientific health literature in contributing to a more holistic picture of the historical impacts of COVID-19 on the pediatric APRN profession, with lessons to be learned to engage sustained effective response and to shape future pandemic preparedness. Similarly, findings will drive NAPNAP strategies to direct organizational resources to support the needs of the pediatric APRN workforce to optimize child and family health.

## METHODS

This study used a cross-sectional descriptive design. Data were collected using a confidential web-based survey via REDCap (Vanderbilt University, Nashville, TN), a secure web-based software platform designed to support data capture and management. All survey responses were anonymous and could not be connected to any participant identifiers.

### Sample

A total of 798 respondents completed the survey, with an additional 88 partial respondents (estimated 11% response rate). The criteria for inclusion were (1) pediatric-focused APRN, (2) APRN student, or (3) current or past member of NAPNAP. Exclusion criteria included those who were not aged 18 years or older. All respondents meeting the criteria were able to participate in the study. A convenience sample was recruited through a variety of electronic channels, including scheduled NAPNAP membership listserv e-mails, internal message boards, and social media posts. The survey was posted online from February 4 to March 10, 2021.

### Instrument

This study used an investigator-developed electronic survey that was reviewed and approved by NAPNAP Executive Committee and senior staff. COVID-19 survey items were grouped into the following sections: demographics (seven items), employment (eight items), personal impact (16 items), clinical practice impact (21 items), educator role impact (12 items), and impact on researchers (seven items). Demographic items included gender, racial, and ethnic identities, regional location, and NAPNAP membership status. All response groupings included an option to self-describe via an open text field. Employment items included certifications, number of years in practice, employment status, employment setting, and primary job foci.

Within each of the impacts sections, the survey included multiple select, matrix scaled responses and open-ended items. An example of multiple select is “Which, if any, health impacts have you experienced as a result of the COVID-19 pandemic? Select all that apply.” Matrix scaled response items used a five-point scale, such as “Please indicate your level of concern with the following items: overall mental health, ability to cope with stress, social support system,” with the five-point scale ranging from not at all concerned (1) to extremely concerned (5). To streamline participant experience, survey items were branched on the basis of participant job foci (clinical, education, research), such that only items related to the selected foci were presented (e.g., clinician-educators who did not select research were presented with the clinical and education items, not research). There were no required items within the survey; therefore, participants were able to omit any items.

### Procedure

The Baylor University Institutional Review Board determined that this study qualified as exempt from further

Institutional Review Board review (reference ID no. 1711293). NAPNAP staff sent survey invitations to the NAPNAP membership by e-mail (member listserv) twice, three posts to social media channels (Instagram and Facebook [Facebook, Inc., Menlo Park, CA]), and several times to internal message boards. All invitations included a brief description of the study and a web link to access the survey. Once accessed, the survey provided an overview of the study, potential risks and benefits, an emphasis that participation was voluntary, and a message that clicking “next page” implied consent. REDCap “branching” was used to automatically differentially display survey items on the basis of participant responses to employment focus/foci of clinical, education and/or research (e.g., research items displayed only for those indicating a research focus). REDCap recorded all participant responses, even if the entire survey was not completed. The total time burden for survey completion was estimated at 10–15 min.

### Statistical Analysis

Quantitative data were exported from REDCap to the SPSS (version 19; IBM, Armonk, NY). Given that none of the survey items were required, partial survey responses were included in analyses. Descriptive statistics were used to summarize participant demographics, employment, and COVID-19 impacts. In the interest of rapid dissemination of study findings, formalized content analyses of open-response comments were beyond the scope of this article and will likely be presented in a future manuscript. However, open-response comments were reviewed in their entirety. During these preliminary analyses, the research team determined that the majority of participant comments elaborated on quantitative findings; therefore, selected quotes were reported as a complement to the quantitative findings.

## RESULTS

### Demographics

A total of 886 participants participated in the survey, with 796 (90%) completing the entire survey. A total of 612 respondents (69%) reported being NAPNAP members, 20% not members, and 11% undeclared. Respondents primarily identified as female (87%), White (89%), and not Hispanic (91%; Table). For the geographic regional location, respondents reported Pacific West (12%), Mountain West (4%), Southwest (14%), Midwest (21%), Southeast (18%), Mid-Atlantic (14%), Northeast (16%) and other (1%).

### Employment

Most respondents reported pediatric nurse practitioner primary care certification (79%), with the next largest group reporting pediatric nurse practitioner acute care certification (10%). Several other certifications were reported, including adult or adult-gerontology nurse practitioner (3), lactation consultant (3), nurse educator (2) asthma educator (2), and orthopedic nurse practitioner (1). Additional certification responses included infection control, nurse executive, child–parent psychotherapy, and nursing certifications in

**TABLE. Demographic characteristics of the sample**

Demographics	<i>n</i> (%)	Employment	<i>n</i> (%)
Gender identity ( <i>n</i> = 788)		Certification(s) ( <i>n</i> = 884)	
Female	766 (86.7)	PNP primary care	701 (79.3)
Male	16 (1.8)	PNP acute care	92 (10.4)
Nonbinary	1 (0.1)	FNP	71 (8.0)
Prefer not to say	5 (0.6)	PMHS	45 (5.1)
Age ( <i>n</i> = 611), years		CNS	7 (0.8)
20–29	23 (3.8)	PMHNP	6 (0.7)
30–39	156 (25.5)	NNP	5 (0.6)
40–49	140 (22.9)	Other	29 (3.3)
50–59	157 (25.7)	Years as APRN ( <i>n</i> = 840)	
60–69	118 (19.3)	0–5	184 (21.9)
70–79	12 (2.0)	6–10	172 (20.5)
≥ 80	2 (0.3)	11–15	108 (12.9)
Prefer not to say	3 (0.5)	16–20	80 (9.5)
Race ( <i>n</i> = 786)		≥ 21	270 (32.1)
American Indian or Alaska native	5 (0.6)	APRN student	19 (2.3)
Asian	15 (1.9)	I am not an APRN	7 (0.8)
Black	22 (2.8)	Employment status ( <i>n</i> = 841)	
Hawaiian or Pacific islander	2 (0.3)	Working now	728 (86.6)
White	702 (89.3)	Furloughed (temporary)	17 (2.0)
More than one race	12 (1.5)	Looking for work, unemployed	44 (5.2)
Self-describe		On leave (FMLA, maternity, etc.)	13 (1.5)
Armenian	1 (0.1)	Student	11 (1.3)
Hispanic	2 (0.2)	Retired, not practicing	28 (3.3)
Latin/Latina	2 (0.2)	Practice setting ( <i>n</i> = 884)	
Middle Eastern	1 (0.1)	Community-based clinic or office	390 (44.1)
Ethnicity ( <i>n</i> = 772)		Inpatient	111 (12.6)
Hispanic or Latinx	42 (5.4)	Intensive/critical care	37 (4.2)
Not Hispanic or Latinx	700 (90.7)	Emergency or urgent care	43 (4.9)
Prefer not to say	26 (3.4)	Outpatient/ambulatory speciality	228 (25.8)
Self-describe		School-based	35 (4.0)
American	1 (0.1)	Other	38 (4.3)
Armenian	1 (0.1)	Area where you work ( <i>n</i> = 801)	
German and English	1 (0.1)	Large city	350 (43.6)
Area where you live ( <i>n</i> = 792)		Suburb near large city	242 (30.2)
Large city	259 (32.7)	Small city or town	126 (15.7)
Suburb near large city	323 (40.8)	Rural area	66 (8.2)
Small city or town	141 (17.8)	Other	6 (0.7)
Rural area	69 (8.7)	Not applicable	12 (1.5)

Note. PNP, pediatric nurse practitioners; FNP, family nurse practitioners; PMHS, primary care mental health specialist; CNS, clinical nurse specialist; PMHNP, psychiatric-mental health nurse practitioner; NNP, neonatal nurse practitioners; APRN, advanced practice registered nurse; FMLA, Family and Medical Leave Act.

pediatric nursing (4) and oncology nursing. Eighty-six percent of respondents reported working now, with 74% of those working full time. For job foci, a multiple select item, 770 respondents indicated clinical (87%), 116 (13%) education, 37 (4%) management or administration, and 25 (3%) research.

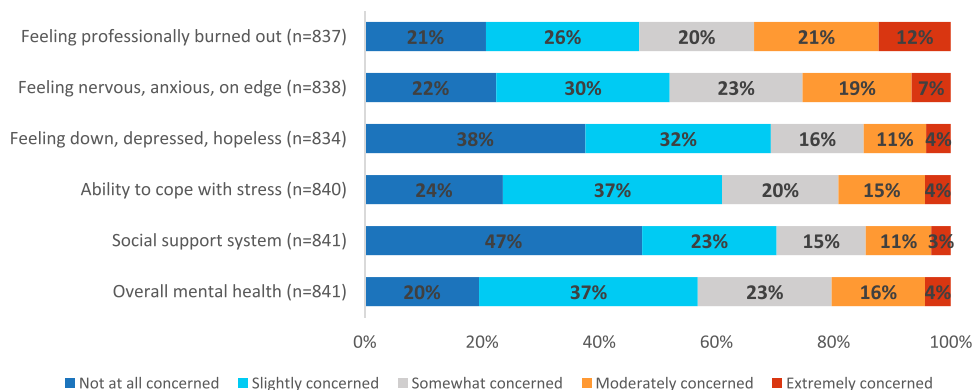
### Personal Impact

Ten percent of respondents reported testing positive for COVID-19, and 15% reported isolating themselves from their household members (Figure 1). Sixty-one percent reported a friend or family member tested positive, and 19% reported having a friend or family member die of COVID-19. Other personal impacts self-disclosed by participants included preexisting conditions increasing the risk for

COVID-19 complications (21%). With respect to vaccination status, 73% of respondents indicated having received two doses of the COVID-19 vaccine at the time of the survey. Another 12% had received one dose, 6% were waiting for vaccine access, and another 4% was indicating no plan to vaccinate. For personal mental health impacts of the COVID-19 pandemic, 20% of respondents indicated moderate or extreme concern for their overall mental health. One participant shared, “Personal stressors due to the pandemic make it harder to continue to perform at a high level. There are not enough available resources for our mental health and financial struggles.” In addition, 34% indicated moderate or extreme concern for feeling professionally burned out, 25% feeling nervous or anxious, 19% for coping with stress, and 15% feeling depressed or hopeless. With

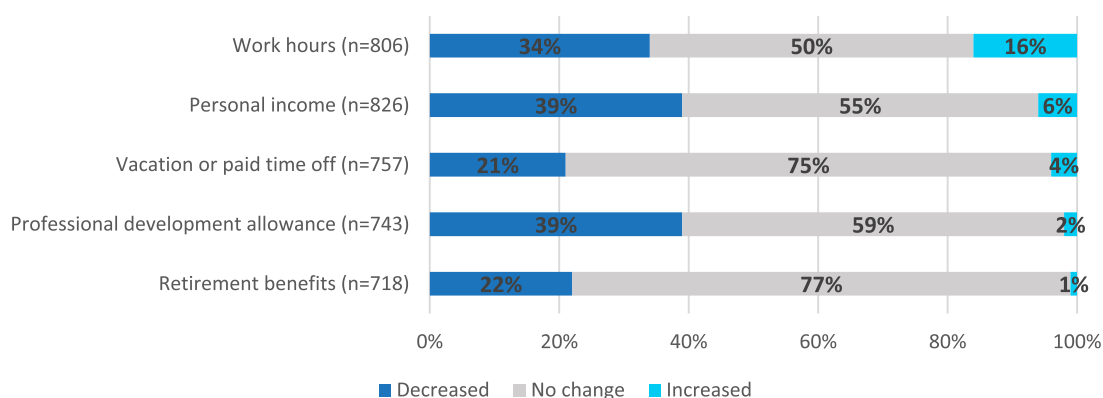


**FIGURE 1. Personal mental health of pediatric advanced practice registered nurse respondents**



(This figure appears in color online at [www.jpeds.org](http://www.jpeds.org).)

**FIGURE 2. Pediatric advanced practice registered nurse employment impacts of COVID-2019 pandemic**



(This figure appears in color online at [www.jpeds.org](http://www.jpeds.org).)

respect to mental health, a participant shared, “I am exhausted and trying to set a good example to friends and extended family to no avail.” Another disclosed, “I’m so lonely these days it’s hard to breathe.”

Among employment impacts of the COVID-19 pandemic, work hours were unchanged for 49%, with another 33% experiencing decreased work hours and 15% increased work hours (Figure 2). Respondents reported decreases in income (38%), professional development allowance (35%), vacation or paid time off (19%), and retirement benefits (19%). Other reported employment impacts included furlough ( $n = 3$ ), job loss ( $n = 2$ ), financial insecurity ( $n = 2$ ), under or uninsurance ( $n = 2$ ), seeking career change ( $n = 2$ ), early retirement ( $n = 1$ ) and food insecurity ( $n = 1$ ). For financial impacts, respondents reported use of personal savings ( $n = 2$ ), unemployment benefits ( $n = 2$ ), and COVID relief assistance ( $n = 1$ ). “Both personally and professionally, the impact of COVID-19 has impacted nearly every aspect of my life and has been nothing short of overwhelming.”

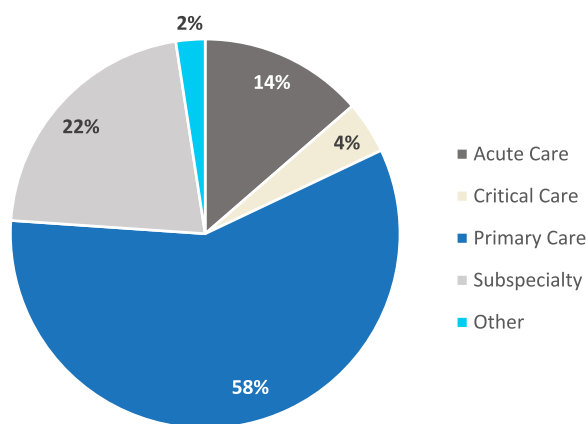
## Clinical Impact

Of the respondents indicating clinical practice as a focus of their job, 509 (58%) indicated a primary care focus, followed by 188 (21%) subspecialty, 119 (13%) acute care, 38 (4%) critical care, and 21 (2%) other (Figure 3).

## Personal protective equipment (PPE), testing, and policies

At the time of this survey (March 2021), 59% of respondents indicated having sufficient PPE for their care environment, though 16% reported providing care previously without proper PPE, and another 28% reported making their own or reusing PPE. With respect to safety, 22% reported feeling unsafe during a COVID-19 direct care situation. Sixty-two percent of respondents indicated having access to COVID-19 testing, and 40% reported actively testing for COVID-19 in their clinical setting. From a systems perspective, 60% reported clear guidelines for visitor screening, 37% reported policies in place for a COVID-19

**FIGURE 3. Clinical practice focus of pediatric advanced practice registered nurse respondents (n = 874)**



(This figure appears in color online at [www.jpeds.org](http://www.jpeds.org).)

community surge, and 26% reported sufficient continuing education courses or other training for COVID-19.

### Regulatory impacts

Among regulatory impacts on clinical practice, 42% reported federal telehealth waivers, 19% expanded coverage of services, and 8% increased reimbursement rates. At the state level, 11% reported an expanded scope of practice, 12% state-level waivers of the scope of practice limitations (such as the ability to prescribe home health services), and 3% ability to provide care in another state as an APRN.

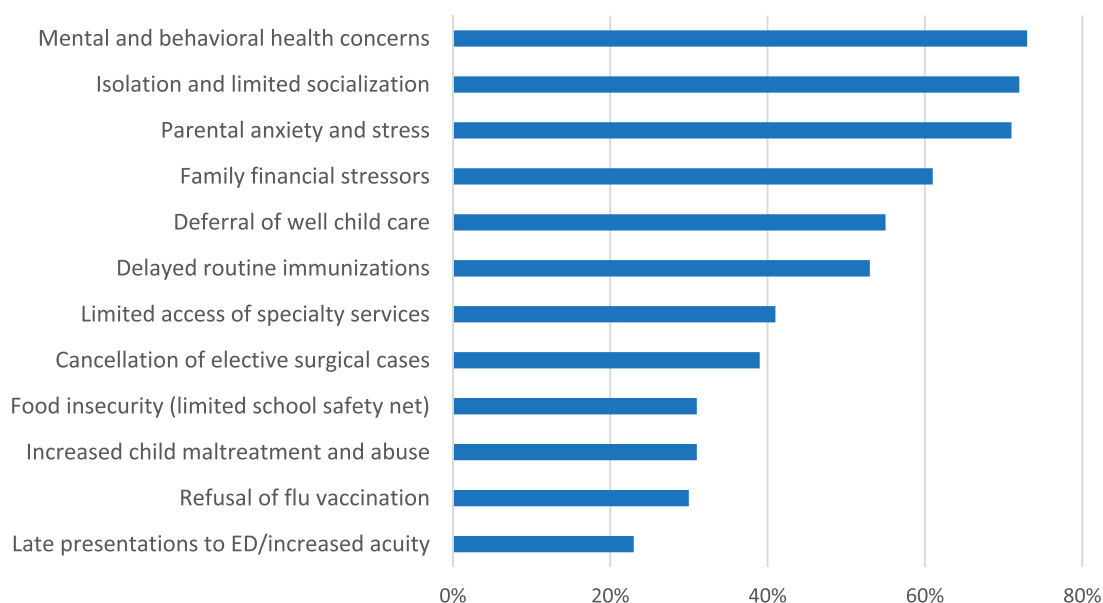
### Child and family impacts

Notable reported child and family concerns included increased clinical presentations of child mental or behavioral health concerns (73%), child isolation and limited socialization (72%), and parental anxiety and stress (71%) (Figure 4). One participant commented, “The moral injury and exhaustion of watching our kids in the community be the collateral damage of COVID is overwhelming.” Another shared, “we have seen children with academic decline, worsening maladaptive behaviors and social withdrawal.” Additional concerns included family financial stress (61%), deferral of well child care (55%) and delayed immunization (53%). “[The] collective grief of watching patients, families and colleagues go through the last several months, fear for high-risk family members, [and] small children out of school/no safe child-care options.”

### Clinical practice concerns

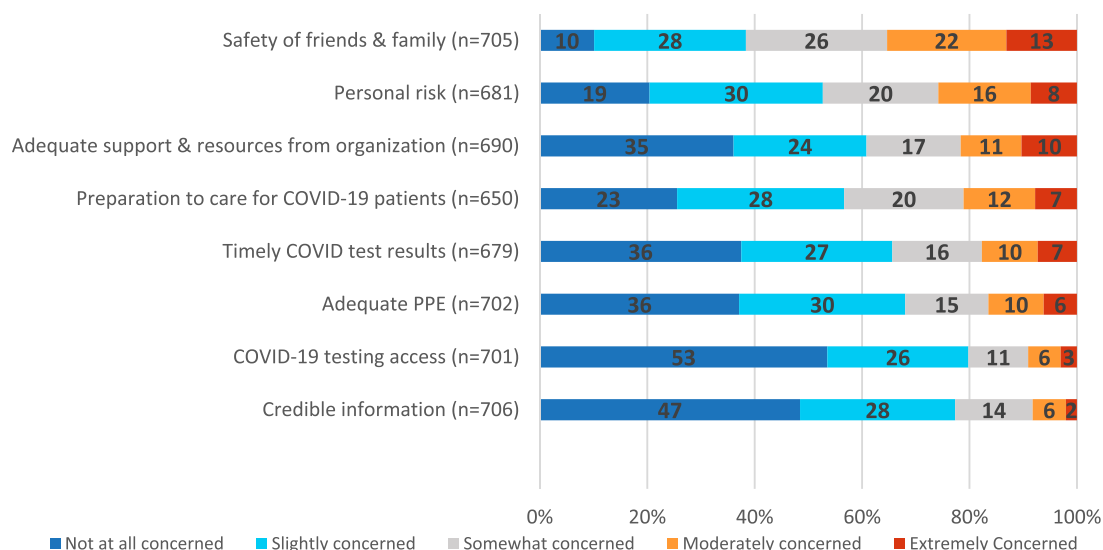
Thirty-five percent of respondents indicated moderate or extreme concern for the safety of friends and family (35%) and their own personal risk (24%; Figure 5). A participant commented, “I was forced to make the choice of coming back into an environment that I did not feel was safe to continue to work and take a pay cut.” Another shared, “I am completely exhausted to the point I’ve become concerned about my ability to practice effectively and safely.” The most commonly reported barriers to clinical practice included responding to disinformation (55%) and implementing rapid policy changes (37%; Figure 6). “[I am] fighting every day to reassure safety and need for vaccinations for health as well as misinformation about COVID. I have change fatigue from frequently changing protocols and policies.”

**FIGURE 4. COVID-2019 child and family impacts (n = 884)**



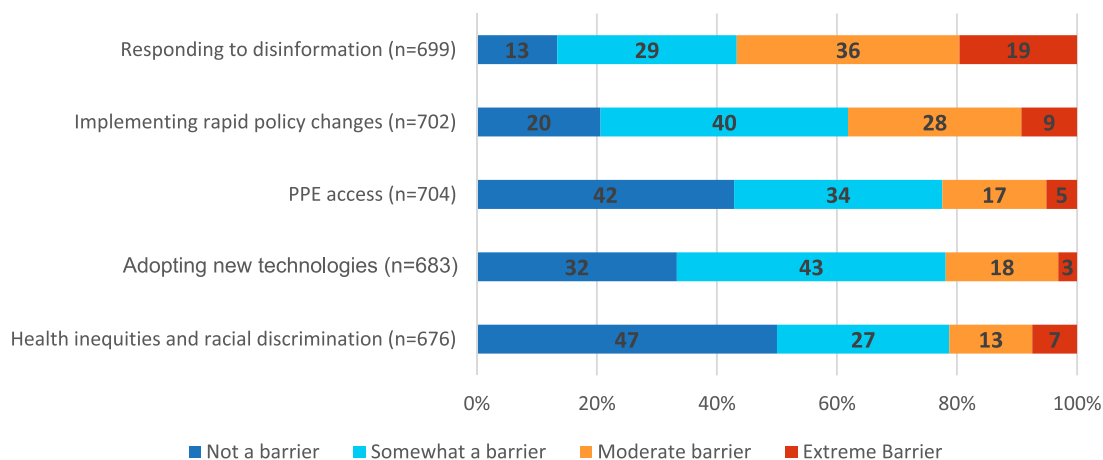
(ED, emergency department. This figure appears in color online at [www.jpeds.org](http://www.jpeds.org).)

**FIGURE 5. Clinical practice concerns**



(PPE, personal protective equipment. This figure appears in color online at [www.jpmedhc.org](http://www.jpmedhc.org).)

**FIGURE 6. Barriers to clinical practice**



(PPE, personal protective equipment. This figure appears in color online at [www.jpmedhc.org](http://www.jpmedhc.org).)

### Primary care clinical impacts

Among respondents who reported working in primary care, 24% reported reduced patient volume, 14% closure of waiting rooms, 9% reported conducting visits in alternative settings (cars, parking lots, or tents), and 5% reported practice site closure.

As an advanced practice provider, our hours have been drastically cut, our pediatricians have taken a cut in salary, we get sent home at the drop of a hat. We feel expendable, not well supported. I feel medicine has changed and I cannot provide adequate care to my patients due to new restrictions in place.

PPE reported use included 19% routinely using a gown and mask and 24% reporting routine use of eye protection. Barriers to primary care practice include lack of telehealth

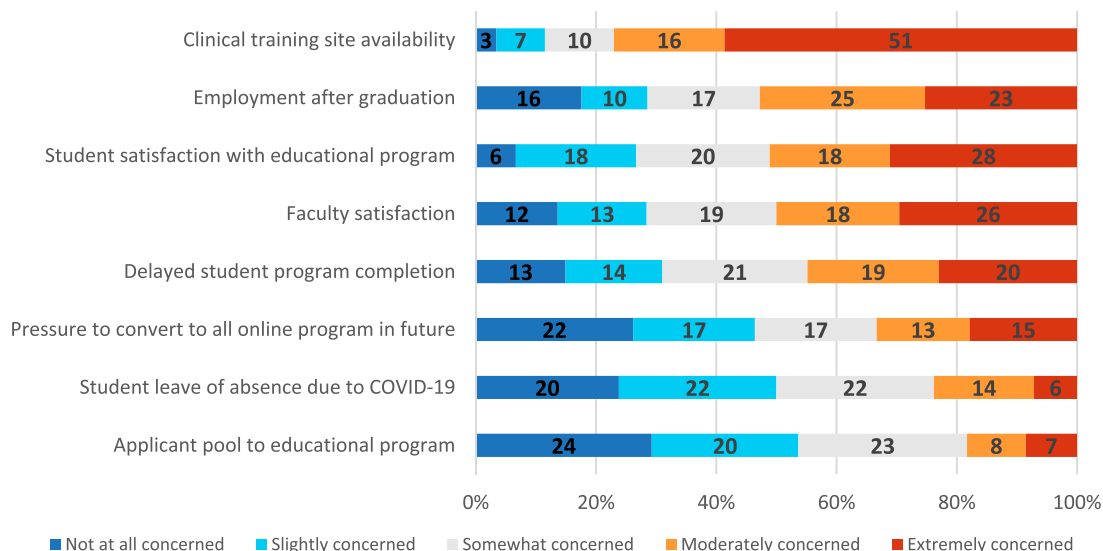
training (12%), insufficient Wi-Fi or broadband access (10%), and access to platforms needed for telehealth (9%).

### Inpatient care clinical impacts

Among respondents who reported working in inpatient settings, 32% reported providing direct care for pediatric patients with suspected or confirmed COVID-19, whereas only 24% reported working in settings with standardized protocols or guidelines for caring for patients with suspected or confirmed COVID-19. Barriers to inpatient clinical practice include cancellation or postponed elective procedures (26%), inadequate gold standard PPE (25%), decreased patient access to services deemed nonessential (24%), inadequate testing availability (19%), and medication or equipment shortages (15%). "As an inpatient nurse practitioner,

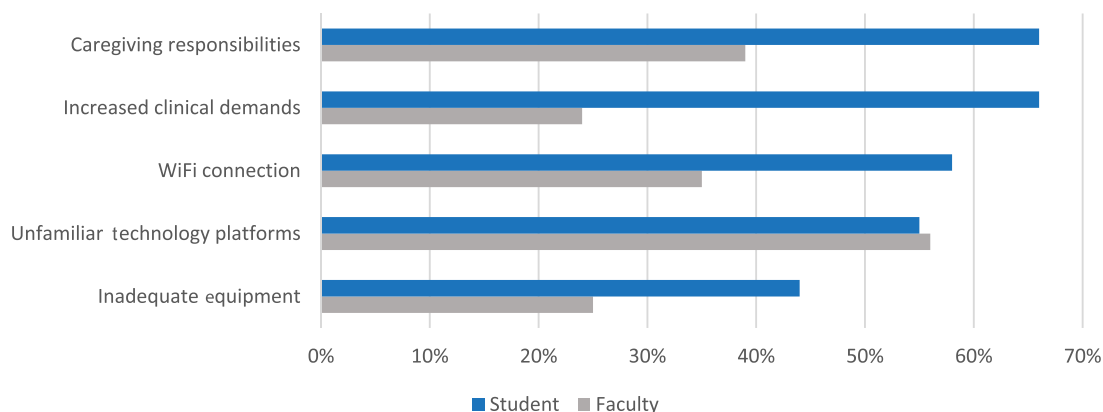


**FIGURE 7. Pediatric advanced practice registered nurse educator concerns (n = 105)**



(This figure appears in color online at [www.jpedhc.org](http://www.jpedhc.org).)

**FIGURE 8. Student and faculty education barriers (n = 105)**



(This figure appears in color online at [www.jpedhc.org](http://www.jpedhc.org).)

my job has only become more challenging during the pandemic and we have been asked to do more with less.”

### Education Impact

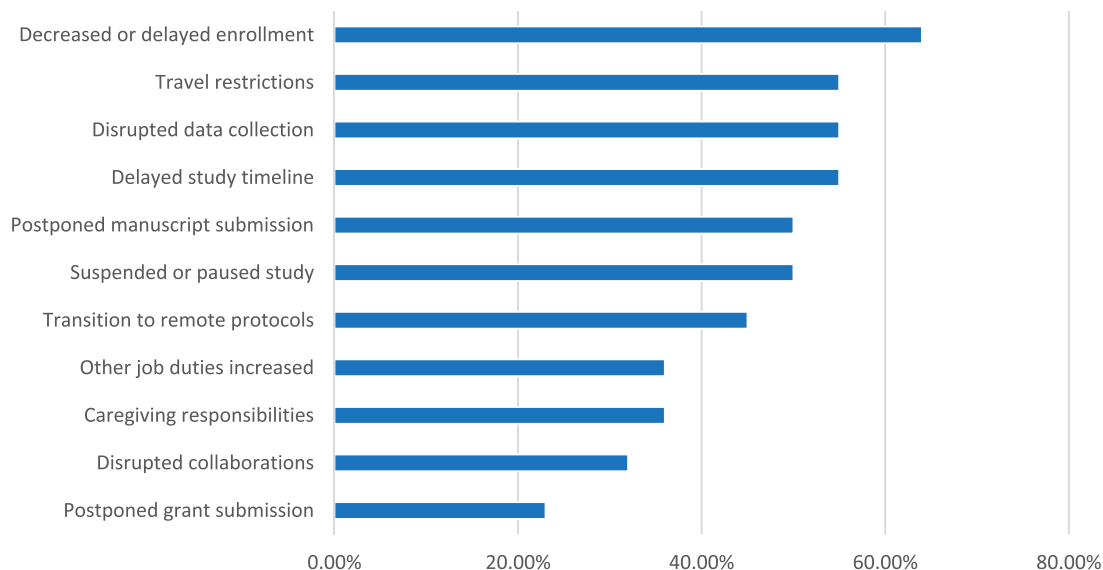
A total of 116 (13%) respondents indicated education as a primary job focus (Figure 7). Most of these respondents indicated adopting remote or distance instruction because of the pandemic (79%), with 87% reporting adopting new video-conferencing platforms. Fifty-one percent reported new adoption of asynchronous instruction, and 23% reported new use of third-party instructional services. “I feel like [I am] teaching on a remote island.” The greatest reported concern was clinical training site availability, with 67% of respondents indicating moderate or extreme concern. Other notable concerns included successful employment following graduation (48%), student and faculty satisfaction with the

educational program (46% and 44%, respectively), and delayed student program completion (39%).

### Faculty and student barriers

The most common reported faculty barriers to instruction included unfamiliar technology platforms (46%), caregiving responsibilities (39%), and insufficient Wi-Fi connectivity (35%; Figure 8). “At the beginning of the pandemic, we had 1 week to switch all face-to-face courses to all online.” The most common reported student barriers were unavailable clinical training sites (75%) followed by increased clinical or work demands (66%), caregiving responsibilities (66%), insufficient Wi-Fi connectivity, and unfamiliar technology platforms (55%). “The moral distress and trauma my APRN students have experienced is absolutely devastating.”

**FIGURE 9. Pediatric advanced practice registered nurse reported barriers to scholarship ( $n = 25$ )**



(This figure appears in color online at [www.jpeds.org](http://www.jpeds.org).)

### Research Impact

Only 25 (3%) respondents indicated a research job focus. Respondents reported that the COVID-19 pandemic had been very or extremely influential on their overall scholarly productivity (35%), including reduced capacity for mentoring and training (34%) and reduced scholarly dissemination (21%; Figure 9). One participant shared, “[I am] just now resuming 4 of the studies that I PI with decreased research support staff, incredibly increasing my personal workload.” Another commented, “I spent so much time pivoting and modifying my research protocol for all remote operations I lost time needed for my scholarly endeavors. . . keeping my study team calm and on track was mentally exhausting.” Reported facilitators to scholarship because of the COVID-19 pandemic included improved connectedness to collaborators and staff (23%) and innovations in methods (23%). However, numerous barriers to scholarship were also reported, including decreased or delayed study enrollment (64%), disrupted data collection (55%), and delayed study timeline (55%).

### DISCUSSION

As the largest and most trusted health professionals, nurses are critical leaders in emergent response to crises, including pandemics. Nearly 21,000 pediatric APRNs in the United States are uniquely qualified and play a critical role in ensuring access to specialized, quality, accessible, affordable care, with 75% working in primary health settings (Hittle Gigli et al., 2019). The COVID-19 pandemic has caused sustained cataclysmic effects on the pediatric APRN workforce across personal, clinical, education, and research domains.

Study participants reported deeply personal impacts, including 19% experiencing the death of a loved one from COVID-19. Approximately one-third of respondents are experiencing decreased work hours and/or income, which is

not surprising considering nearly 80% reported working in a primary care environment. One of the most alarming findings is the mental health impact on families and APRNs alike, with more than 70% of survey respondents noting an increase in reports of both child and parental mental health concerns. With 15% isolating themselves from their families and 21% concerned about their own preexisting conditions, mental health stressors continue to compound existing impacts. Extremely concerning are 20% self-reporting moderate-to-extreme concern over personal mental health and more than one-third reporting moderate-to-extreme burnout, whereas one-quarter report anxiety. Similar novel exploration of primary care APRNs ( $n = 396$ ) conducted pre-pandemic found 25.3% reported burnout. Favorable environments and organizational changes to the practice environments may be protective factors to optimize clinical practice (Abraham et al., 2021).

In clinical care delivery, 22% reported feeling unsafe in their practice settings. Although 32% cared for patients with COVID-19, only 24% reported feeling COVID-prepared and adequately supported in practice. Access to point-of-care testing continues to be a concern, with only 40% reporting COVID-19 testing availability in their practice setting. More than half of respondents reported disinformation as the second greatest clinical concern, falling behind only to the accessibility of COVID-19 testing. The joint commission (Vezina, 2020) voiced the admonition for nurses to leverage professional strengths to positively influence public dialogue. Engaging as highly visible and competent discourse leaders is not an inherent skill and must be considered in APRN education programs.

Significant impacts on pediatric APRN education should not be overlooked, with 39% of respondents reporting delayed student graduation, a significant and potentially

long-lasting impact on the nursing workforce pipeline. Although nearly 90% of faculty reported having to adapt to new videoconferencing technology and over half were implementing new asynchronous course elements, impacts on workload are inevitable yet relatively unstudied. Over 60% of faculty respondents reported difficulty accessing clinical sites, further constraining the pediatric APRN workforce pipeline. Preliminary recommendations to address these barriers to education include increased psychosocial support and more robust communication structures to prevent lost learning opportunities and student and faculty distress (Ulenaers, Grosemans, Schrooten, Bergs, 2021), although significant resources are needed to support further research efforts.

Despite the small sample size, nurse researcher respondents reported large-scale delays in scholarly productivity and dissemination. Pediatric APRN scholarship is essential to establishing evidence-based practice and clinical innovations in nursing. Such delays in productivity pose a serious risk to further delaying the already lengthy research to practice, estimated to be 17 years (Munro & Savel, 2016). As the only professional organization representing pediatric APRNs, any disruption of scholarly output supported and directed by NAPNAP risks further marginalizing already vulnerable children and families.

With impacts traversing personal, clinical, education, and research realms, the pediatric APRN workforce is facing multifactorial vulnerability with high degrees of complexity. Furthermore, with fewer medical school graduates choosing general pediatrics and more pediatric physicians rejecting primary care for more lucrative specialty practice, concern for the pediatric workforce specialty continues to grow. Pipeline workforce shortages of pediatric APRNs were predicted prepandemic (Hittle Gigli et al., 2019) while concerns about shortage accelerations continue to increase. This should be especially alarming given the numbers of APRNs who reported experiencing burnout in this survey.

The one notable bright spot in the survey results was related to pediatric APRN vaccination status. The findings showed that 73% of respondents had received two doses of a COVID-19 vaccine, whereas only 4% reported plans to decline vaccination. This may be potentially attributed to pediatric APRNs expertise and active advocacy in vaccination efforts, an underused strength that could be harnessed in helping to educate and reassure fears expressed by the U. S. public (Williams, 2019).

## Limitations

There are several limitations to this study that warrant consideration. First, the sample was homogenous, with most respondents identifying as female, White, and non-Hispanic. As such, this limits the generalizability of our findings for the entire pediatric APRN workforce. Second, given the widespread coverage of COVID-19 impacts, there is also the potential for confirmation bias among the research team. Finally, the cross-sectional nature of the survey precludes causal inference.

## Conclusions

A recently published systematic review warned of the imperative for governmental leaders, policymakers, health organizations, and professional nursing organizations to take actionable steps quickly to support nurses. “Without this, nurses are likely to experience substantial psychological issues that can lead to burnout and loss from the nursing workforce” (Fernandez et al., 2020, p. 7). Half of the nurses surveyed ( $n = 3,500$ ) by *Nursing Times* felt the current level of organizational support for mental health and wellbeing was insufficient, whereas one-third of respondents felt the need for support but the inability to request it. Most concerning, nearly 90% of respondents reported feeling more stressed and anxious than usual, whereas one-third described their own mental health status as “bad” or “very bad” (Ford, 2020).

In recognition of nursing distress, public offerings of adulation and generous gestures of gratitude are well-intentioned and appreciated, but these high-profile tributes clash with the servant posture of the nursing profession. Although the bedside care provided by nursing is widely celebrated, the voice of nursing lacks equal respect and consideration. There may be unintended consequences of a nobly directed but potentially damaging narrative lauding nurses as “heroes” and “angels” (Stokes-Parish, Elliott, Rolls, Massey, 2020). APRNs are highly educated scholars, experts, leaders, and care practitioners ideally positioned to provide voice and influence for pandemic preparedness and response.

COVID-19 has illuminated fissures in the U.S. health care systems, casting a spotlight on startling health inequities disproportionately impacting marginalized communities and serious threats to the existing and future health care workforce (Nikpour, Arrington, Michels, Franklin, 2020). Adequate attention and sustainable direction of resources must be quickly diverted at micro-, meso-, and macro-levels to adequately protect the morale and wellbeing of the health care workforce. Acknowledgment of pandemic-related trauma and subsequent programmatic efforts to cultivate holistic wellness are essential (Nicholas et al., 2020). APRNs, as ideally situated leaders at the epicenter of this global crisis, must be involved in decision-making processes seeking prompt and effective solutions to addressing health inequities, expanding and supporting nursing workforce roles, delivering primary care, converting care delivery to telehealth platforms, and continuing to serve as a resilient and innovative profession to maximize the untapped capacity of nursing professionals (Chen, Lai, & Tsay, 2020; Nikpour, Arrington, Michels, & Franklin, 2020). NAPNAP will immediately commence efforts to direct resources and advocacy tools to best support the critical needs of the pediatric APRN workforce who serve the American public as experts in pediatrics and advocates for children.

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