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The impact of the resumption of in-person school attendance on COVID-affected child abuse and neglect trends in Florida

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ABSTRACT

Background: The COVID-19 pandemic has led to fewer child abuse and neglect (CAN) hotline calls, CAN investigations, and foster care entries across the U.S.

Objective: To determine if there were decreases in CAN hotline calls, CAN investigations, foster care entries, and foster care exits in Florida (the largest among the few states that publishes monthly public data on the four areas) after the pandemic began, and to determine if there was any amelioration of these trends in Florida once schools had reopened for in-person learning.

Methods: Secondary data analyses of administrative child welfare data from January 2010 to June 2021 from Florida were used. Spline regression equations were calculated for CAN hotline calls, CAN investigations, foster care entries, and foster care exits during three periods: 1) before the COVID-19 pandemic (January 2010 to February 2020); 2) after the pandemic, but before schools reopened (March 2020 to October 2020); and 3) after the pandemic and after schools reopened (November 2020 to June 2021).

Results: Prior to the pandemic, there was a non-statistically significant increase of 1.35 hotline calls per 100,000 children per month ($p = .478$), a statistically significant increase of 0.01 investigations per 100,000 children per month ($p < .001$), a non-statistically significant increase of 0.01 foster care entries per 100,000 children per month ($p = .415$), and a statistically significant increase of 0.03 foster care exits per 100,000 children per month ($p < .05$). Once the pandemic started in March 2020, there were statistically significant decreases of 136.02 hotline calls per 100,000 children per month ($p < .001$), 102.84 investigations per 100,000 children per month ($p < .001$), 6.32 foster care entries per 100,000 children per month ($p < .001$) and 5.75 foster care exits per 100,000 children per month ($p < .01$). Once all schools reopened for in-person learning in November 2020, there continued to be statistically significant decreases of 47.86 hotline calls per 100,000 children per month ($p < .05$), 6.38 foster care entries per 100,000 children per month ($p < .001$) and 6.53 foster care exits per 100,000 children per month ($p < .001$). This suggests that there were an estimated 34,374 fewer CAN hotline calls, 2338 children who did not enter foster care, and 2587 youth residing in foster care (YRFC) whose foster care exits were delayed. The delay in foster care exits suggests that YRFC in Florida had stayed a combined cumulative equivalent of 477.1 years longer in care.

Conclusion: With the COVID-19 variants like Omicron continuing to wreak havoc in Florida, there will be a continued trend of decreasing CAN hotline calls, foster care entries and foster care exits even with in-person learning in all Florida schools. A real-time interoperable data system utilizing

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real-time predictive analytics must be developed in concert with the development of leaders and executives with advanced degrees in child welfare organizations who are able to maximize information from such systems.

1. Introduction

Child abuse and neglect (CAN) is a serious public health issue leading to CAN hotline calls on 37.4 million children nationally from Federal Fiscal Years (FFY) 2015 to 2019 inclusive (U.S. Children’s Bureau, 2021). In the same time period, there were CAN investigations on 17.3 million children, of whom approximately 14.0% were provided preventative services and another 16.8% were substantiated for CAN (U.S. Children’s Bureau, 2021). The largest sources of CAN reports came from school personnel (21.0%), law enforcement (19.1%) and medical professionals (11.0%).

COVID-19 was first detected in the United States in January 2020 (Auger et al., 2020). While national emergencies have led to increased child abuse nationally (Seddighi et al., 2021), COVID-19 has led to decreased child abuse reports (Rapoport et al., 2021), missed child abuse investigations across the U.S. (Nguyen, 2021a), and a decrease in the number of children who entered foster care in some states (Musser et al., 2021). Research has suggested that decreases in CAN reports were partly due to significant decreased contacts between children and school officials (Rapoport et al., 2021) due to the closure of schools (Auger et al., 2020) as schools are the largest source of CAN reports (Humphreys et al., 2020).

Florida had the ninth largest number of CAN hotline calls and sixth largest number of CAN victims in the U.S. in FFY 2019 (U.S. Children’s Bureau, 2021). In Calendar Year 2019, there were over 300,000 child abuse hotline calls in Florida, which led to 34,837 children who were confirmed to have been abused or neglected (Florida Department of Children and Families, 2022). The first COVID cases were detected in Florida in March 2020 and all school districts in the State suspended in-person learning by March 20, 2020 (Doyble et al., 2021). Florida was also one of the first states to reopen most of its school districts to in-person learning in August 2020 and by November 2020, all school districts had reopened to in-person learning.

1.1. Hypotheses

Given that the state of Florida has among the highest numbers of substantiated cases of child abuse and neglect in the United States, and that it was one of the first states to resume in-person school during the COVID-19 pandemic, the current study examined the impact of COVID-19 pandemic in Florida up to and including June 2021. The hypotheses are that: 1) when the pandemic began, there would be significant decreases in CAN hotline calls, CAN investigations, foster care entries, and foster care exits in Florida; and 2) once in-person attendance resumed in all school districts in Florida in November 2020, the decreases would subside in the number of CAN hotline calls, CAN investigations, foster care entries, and foster care exits.

2. Methods

The approximate monthly number of CAN hotline calls, children screened-in for CAN investigations, foster care entries, and foster care exits were identified from secondary administrative child welfare data from January 2010 to June 2021 from Florida for those youth under 18 years of age (Florida Department of Children and Families, 2022). Foster care in Florida can include placements with relatives (kinship care), in licensed foster homes, group homes, and juvenile detention facilities (Florida Department of Children and Families, 2022).

Regression analyses were utilized to see if there were any statistically significant changes to each of these four categories. Spline regression modeling has to be utilized as a traditional linear regression cannot be used to determine trends when there were two major events, the beginning of the pandemic and schools reopening to in-person learning, that could significantly change the slope of the line after each of these events suggesting a non-linearity (Marsh et al., 2021). Florida was also one of the first states to reopen most of its school districts to in-person learning in August 2020 and by November 2020, all school districts had reopened to in-person learning.

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\[ y = a + b_1x + (b_2(x-x^1)(k_1) + b_3(x-x^2)(k_2) + b_4(x-x^3)(k_3) \]

Based on the above, “y” represents the final value of the dependent variable, “a” represents the y-intercept, “b_1” represents the slope before the pandemic began, “b_2” represents the slope between the beginning of the pandemic and before schools reopened to in-person learning, “b_3” value at the start of the pandemic (i.e., 123 or the 123rd month or March 2020), “b_4” represents the dummy variable created if it was after the pandemic, but before schools reopened, “b_5” represents the slope after all schools reopened for in-person learning, “b_6” value at the school reopening (i.e., 131 or the 131st month or November 2020) when all children in Florida had returned to in-person learning (Doyble et al., 2021) and “b_7” represents the dummy variable created if it was after schools reopened. In essence, a regression equation was calculated for the first slope representing the line before the pandemic. A second regression equation was calculated representing the second slope of the line once the pandemic began, but before schools started. A statistical analysis was then done to see if there was a statistically significant difference between the second slope compared to the first slope. Then a third regression equation was calculated (representing the third slope of the line once in-person learning resumed). A statistical analysis was also done to see if there was a statistically significant difference between the third slope compared to the second slope.

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Table 1
From January 2010 to June 2021, the number of child abuse and neglect hotline calls, investigations, foster care entries, and foster care exits in Florida.

| CY   | January | February | March | April | May | June | July | August | September | October | November | December |
|------|---------|----------|-------|-------|-----|------|------|--------|-----------|---------|----------|----------|
| CY 2010 | 15,102 | 16,457   | 21,919 | 21,160 | 21,522 | 18,297 | 11,817 | 18,875 | 20,844   | 21,906  | 19,711   | 17,424   |
| CY 2011 | 21,383 | 21,926   | 22,539 | 22,807 | 22,539 | 22,307 | 23,541 | 18,091 | 21,359   | 20,690  | 21,359   | 24,546   |
| CY 2012 | 21,412 | 21,846   | 22,539 | 24,944 | 23,541 | 23,091 | 23,541 | 22,307 | 23,135   | 20,992  | 20,497   | 19,545   |
| CY 2013 | 22,854 | 21,569   | 22,708 | 24,837 | 25,844 | 20,436 | 19,723 | 20,690 | 23,585   | 20,992  | 20,436   | 20,690   |
| CY 2014 | 23,975 | 19,107   | 17,155 | 18,686 | 25,264 | 21,497 | 20,404 | 18,013 | 25,064   | 21,846  | 21,359   | 23,541   |
| CY 2015 | 26,062 | 26,064   | 24,356 | 25,762 | 26,064 | 21,497 | 20,720 | 17,828 | 21,452   | 21,846  | 21,359   | 23,541   |
| CY 2016 | 26,000 | 27,555   | 25,705 | 28,748 | 27,555 | 21,497 | 20,720 | 17,828 | 21,452   | 21,846  | 21,359   | 23,541   |
| CY 2017 | 26,235 | 28,432   | 27,214 | 29,073 | 28,432 | 21,497 | 20,720 | 17,828 | 21,452   | 21,846  | 21,359   | 23,541   |
| CY 2018 | 24,022 | 28,292   | 25,232 | 27,176 | 28,292 | 21,497 | 20,720 | 17,828 | 21,452   | 21,846  | 21,359   | 23,541   |
| CY 2019 | 22,143 | 26,332   | 22,594 | 27,236 | 26,332 | 21,497 | 20,720 | 17,828 | 21,452   | 21,846  | 21,359   | 23,541   |
| CY 2020 | 22,028 | 24,816   | 22,594 | 24,208 | 24,816 | 21,497 | 20,720 | 17,828 | 21,452   | 21,846  | 21,359   | 23,541   |
| CY 2021 | 22,028 | 24,816   | 22,594 | 24,208 | 24,816 | 21,497 | 20,720 | 17,828 | 21,452   | 21,846  | 21,359   | 23,541   |
| Average Number Prior to Pandemic | | | | | | | | | | | | |
Linear regression models assume that the residuals of the variables are independent of each other (Brower & Jeong, 2007). Autocorrelation must be addressed when examining time-series data used to generate traditional linear regression models (Graddy & Wang, 2007) and has been successfully used to examine child welfare trends during the pandemic (Nguyen, 2021a). A Durbin–Watson statistic (a measure of autocorrelation) was conducted which could range from 0 to 4 (Graddy & Wang, 2007). A Durbin–Watson statistic closer to 0 represents positive autocorrelation, a statistic of 2 represents no autocorrelation while a statistic close to 4 suggests negative autocorrelation. If there is autocorrelation, the Prais–Winsten method using an autoregressive two-stage model or AR(1) was conducted. The Prais–Winsten method estimates a weighted least-squares regression, then estimates the autocorrelation parameter for an AR(1) process in the error terms (Bittle & Zavodni, 2002). The AR(1) reduces the autocorrelation. SPSS was utilized to calculate the regression models accounting for autocorrelation (including both the Durbin–Watson statistic and the Prais–Winsten method).

Once numbers were calculated, they were transformed into the number of cases per 100,000 children using the estimate of the current number of children in Florida, or 3,704,499 (U.S. Census Bureau, 2022). In essence, for each of the resultant number of CAN hotline calls, children screened-in for CAN investigations, foster care entries, and foster care exits, the number was divided by 3,704,499 and multiplied by 100,000.

The estimated number of youth residing in foster care (YRFC) who stayed longer than predicted was then calculated. The estimated number of youth residing in foster care (YRFC) who stayed longer than predicted was then calculated. The estimated number of youth residing in foster care (YRFC) who stayed longer than predicted was then calculated. The estimated number of youth residing in foster care (YRFC) who stayed longer than predicted was then calculated.

### 3. Results

#### 3.1. General outcomes

The monthly changes in Florida can be seen in Table 1 for CAN hotline calls, CAN investigations, foster care entries, and foster care exits. Prior to the pandemic, the average monthly hotline calls ranged from 19,800 (June) to 24,816 (May). After the pandemic, the month with the lowest CAN hotline calls was April 2020 (17,176). Once all schools returned to in-person learning, the month with the lowest CAN hotline calls was June 2021 (21,689).

The average monthly investigations prior to the pandemic ranged from 15,120 (July) to 19,428 (May). After the pandemic, the month with the lowest investigations was April 2020 (10,941) and once schools returned to in-person learning, the month with the lowest investigations was June 2021 (13,901).

The average monthly foster care entries prior to the pandemic ranged from 1135 (December) to 1441 (May). After the pandemic, the month with the lowest foster care entries was May 2020 (2129). After the pandemic, the month with the lowest foster care entries was May 2020 (2129). After the pandemic, the month with the lowest foster care entries was May 2020 (2129).

### Table 2
Regression equations for child abuse and neglect (CAN) hotline calls, CAN investigations, foster care entries, and foster care exits in Florida: 1) before the Pandemic (January 2010 to February 2020); 2) once the Pandemic began, but before school starting (March 2020 to October 2020); and 3) after the Pandemic once schools reopened (November 2020 to June 2021).

| Area         | R²     | df   | Durbin-Watson Statistic | Regression Equation Before the Pandemic Jan 2010 to Feb 2020 | Regression Equation Once the Pandemic Began, but Before All Schools Reopened In-Person Mar 2020 to Oct 2020 | Regression Equation After the Pandemic, and Once Schools Reopened Nov 2020 to June 2021 |
|--------------|--------|------|-------------------------|---------------------------------------------------------------|-------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| Hotline Calls| 0.312  | 3133 | 1.737                   | \[y = 19,684.903 + 50.135x - 5089.066(x - 123)^{(0)} - 1823.105(x - 131)^{(0)}\] | \[y = 19,684.903 + 50.135x - 5089.066(x - 123)^{(1)} - 1823.105(x - 131)^{(0)}\] | \[y = 19,684.903 + 50.135x - 5089.066(x - 123)^{(0)} - 1823.105(x - 131)^{(1)}\] |
| Investigations| 0.133  | 3133 | 1.788                   | \[y = 16,906.020 + 0.4870x - 3810.299(x - 123)^{(0)} - 1994.954(x - 131)^{(0)}\] | \[y = 645,640.021 - 5038.931x p < .001\] | \[y = 258,511.6581772.97x p < .05\] |
| Foster Care Entries| 0.099  | 3133 | 2.137                   | \[y = 1267.008 + 0.467x - 234.628(x - 123)^{(0)} - 254.578(x - 131)^{(0)}\] | \[y = 1267.008 + 0.467x - 234.628(x - 123)^{(1)} - 254.578(x - 131)^{(0)}\] | \[y = 258,511.6581772.97x p < .05\] |
| Foster Care Exits| 0.127  | 3133 | 1.983                   | \[y = 1110.287 + 0.994x - 214.184(x - 123)^{(0)} - 242.934(x - 131)^{(0)}\] | \[y = 27,454.919 - 213.190x p < .01\] | \[y = 32,934.641- 241.940x p < .001\] |
was November 2020 (910). Once schools began in-person, the month with the lowest foster care exits was January 2021 (714).

3.2. Regression analysis

As seen in Table 2, prior to the pandemic, there were non-statistically significant increases of 50.1 hotline calls per month (p = .478) in Florida, and a statistically significant (p < .001) increase of less than one investigation (0.5) per month. There was a non-statistically-significant increase of 0.5 foster care entries per month (p = .415), and a statistically significant increase of 1.0 foster care exits (p < .05) in Florida prior to the pandemic.

After the pandemic began, but before schools fully opened in-person in November 2020, there were statistically significant decreases of 5038.9 hotline calls per month (p < .001) and statistically significant decreases of 3809.8 investigations per month (p < .001) in Florida. There was a statistically significant decrease of 234.2 foster care entries per month (p < .001) and a statistically significant decrease of 213.2 foster care exits per month (p < .01).

After all schools allowed in person attendance in Florida in November 2020, there were statistically significant decreases of 1772 hotline calls per month (p < .05), but a non-statistically significant decrease of 1994.5 investigations per month (p = .083). There was a statistically significant decrease of 254.1 foster care entries per month (p < .001) and a statistically significant decrease of 241.9 foster care exits per month (p < .001) once in-person school attendance was allowed in all school districts in Florida.

3.3. Significant rates

As seen in Table 3, once the pandemic began, the rates of CAN hotline calls went from a non-significant increase of 1.35 calls per 100,000 children to a significant decrease of 136.02 hotline calls per 100,000 children once school attendance began in person. The rate of CAN investigations went from a significant increase of 0.01 investigations per 100,000 children to a significant decrease of 102.84 investigations per 100,000 children once the pandemic began. Once the pandemic began, the rates of foster care entries went from a non-significant increase of 0.01 foster care entries per 100,000 children to a significant decrease of 6.32 foster care entries per 100,000 children, and to a significant decrease of 6.38 foster care entries per 100,000 children once school reopened for in-person learning. The rates of foster care exits went from a significant increase of 0.03 foster care exits per 100,000 children prior to the pandemic to a significant decrease of 5.75 foster care exits per 100,000 children once the pandemic began, and to a significant decrease of 6.53 foster care exits per 100,000 children once school attendance began in person.

3.4. Missed hotline calls/investigations/foster care entries/foster care exits

As seen in Table 4, there were approximately 34,374 fewer CAN hotline calls and 32,955 fewer investigations from March 2020 to June 2021 than the 12 months prior to the start of the pandemic. For the same period, there were an estimated additional 2338 children who would have had substantiated CAN and would have been removed into foster care, but were not. The overall lifetime economic impact of each new foster care case in 2022-adjusted dollars is estimated to be $271,043 (Fang et al., 2012). This would suggest a lifetime economic cost of $633.7 million of the estimated 2338 children who were missed for substantiated CAN and not

| Outcome | Outcomes per 100,000 Children per Month Before the Pandemic Jan 2013 to Feb 2020 | Outcomes per 100,000 Children per Month Once the Pandemic Began, but Before Schools Reopened In-Person Mar 2020 to Oct 2020 | Outcomes per 100,000 Children per Month After the Pandemic, and once Schools Reopened In-Person Nov 2020 to Jun 2021 |
|---------|----------------------------------------------------------------|-----------------------------------------------------------------|----------------------------------------------------------------|
| CAN Hotline Calls | Increase of 1.35 Calls | Decrease of 136.02 Calls*** | Decrease of 47.86 Calls* |
| CAN Investigations | Increase of 0.01 Investigations*** | Decrease of 102.84 Investigations*** | Decrease of 53.84 Investigations |
| Foster Care Entries | Increase of 0.01 Foster Care Entries | Decrease of 6.32 Foster Care Entries*** | Decrease of 6.38 Foster Care Entries*** |
| Foster Care Exits | Increase of 0.03 Foster Care Exits* | Decrease of 5.75 Foster Care Exits** | Decrease of 6.53 Foster Care Exits*** |

*p < .05, **p < .01, ***p < .001.
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Table 4
Difference in the number of children the current month and the 12 months prior to the start of the pandemic for CAN Hotline Calls, Foster Care Entries, and Foster Care Exits in Florida showing those that had decreased numbers

| Month     | Hotline Calls | Investigations | Foster Care Entries | Foster Care Exits |
|-----------|---------------|----------------|---------------------|------------------|
|           | 2020 | 2021 | 2020 | 2021 | 2020 | 2021 | 2020 | 2021 |
| January   | 2213 | 1246 | 185  | 235  |
| February  | 1160 | 455  | 90   | 139  |
| March     | 2638 | 2870 | 295  | 129  | 64   | 109  | 64   |
| April     | 11,897 | 8808 | 2642 | 293  | 165  | 83   | 148  |
| May       | 9177 | 6530 | 2401 | 260  | 303  | 366  | 335  |
| June      | 481 | 1027 | 54   | 70   | 3    | 47   |
| July      | 283 | 642  | 8    |      |      |
| August    | 2181 | 2534 | 129  | 17   | 188  | 91   |
| September | 1149 | 1153 | 180  | 180  |
| October   | 1456 | 1518 | 188  | 188  |
| November  | 853 | 839  | 37   | 440  |
| December  | 743 | 1456 | 435  | 9    |
| Cumulative Total | 34,374 | 32,955 | 2338 | 2587 |

Table 5
Estimated number of excess youth-months in foster care in Florida from March 2020 to June 2021.

| Month     | Referent Month Average Time in Care (a) | Exit Month Average Time in Care (b) | Difference (b-a) (c) | Number of Youth Who Stayed Longer than Average (d) | Excess Youth-Months in Care (c*d) |
|-----------|----------------------------------------|-------------------------------------|-----------------------|--------------------------------------------------|----------------------------------|
| Mar-20    | 17.11                                  | 18.35                               | 1.24                  | 109                                              | 135.16                           |
| Apr-20    | 17.20                                  | 19.20                               | 2.00                  | 83                                               | 166                              |
| May-20    | 17.10                                  | 20.00                               | 2.90                  | 366                                              | 1061.4                           |
| Jun-20    | 19.57                                  | 20.78                               | 1.21                  | 3                                                | 3.63                             |
| Jul-20    | 16.50                                  | 19.50                               | 3.00                  | 245                                              | 735                              |
| Aug-20    | 16.90                                  | 22.00                               | 5.10                  | 273                                              | 1392.3                           |
| Sep-20    | 17.72                                  | 18.70                               | 0.98                  | 0                                                | 0                                |
| Oct-20    | 17.50                                  | 20.10                               | 2.60                  | 91                                               | 236.6                            |
| Nov-20    | 20.10                                  | 18.70                               | -1.40                 | 440                                              | -616                             |
| Dec-20    | 18.21                                  | 19.10                               | 0.89                  | 9                                                | 8.01                             |
| Jan-21    | 17.20                                  | 20.10                               | 2.90                  | 235                                              | 681.5                            |
| Feb-21    | 17.30                                  | 19.70                               | 2.40                  | 139                                              | 333.6                            |
| Mar-21    | 17.11                                  | 20.32                               | 3.21                  | 64                                               | 205.44                           |
| Apr-21    | 17.20                                  | 20.10                               | 2.90                  | 148                                              | 429.2                            |
| May-21    | 17.10                                  | 19.80                               | 2.70                  | 335                                              | 904.5                            |
| Jun-21    | 19.57                                  | 20.62                               | 1.05                  | 47                                               | 49.35                            |
| Total     |                                        |                                     |                       |                                                  | 5725.69                          |

(Florida Department of Children and Families, 2021), this would suggest the equivalent of 36.43 child protective services workers. The salary of a child protective services worker in Florida is about $39,600 (Florida Department of Children and Families, 2021). With an estimated 50% in benefits, this would mean that a worker makes about $59,400 in Florida. With the equivalent of 36.43 child protective services workers, a delay would translate to a cost of approximately $2,834,217 over the 28-month period (from March 2020 to June 2021) or $101,222 per month.

4. Discussion

4.1. Hypotheses support

The hypothesis was supported for only one of the four categories. For investigations, once in-person learning resumed, there were no more significant declines in investigations. For CAN hotline calls, there was still a statistically significant decrease after schools resumed in-person. For both foster care entries and exits, there was actually a larger statistically significant decrease once in-person learning resumed in Florida.

In relation to decreased hotline calls, prior to the pandemic, the three largest sources of CAN reports were schools, law enforcement, and medical personnel (U.S. Children’s Bureau, 2021). Data from California shows that while the proportion of CAN reports from
schools dropped by 50.0% from the 12 months from April 2020 to March 2021 from the prior 12-month period (April 2019 to March 2020). CAN reports from medical professionals increased by 13.6% and law enforcement increased by 27.1% in the same time period (Webster et al., 2022).

Even though there were higher proportions on CAN reports from medical professionals and law enforcement increased, the number of CAN reports from both of these professions decreased in the same time period. For example, in California, the number of CAN reports from medical professionals and law enforcement officers decreased by 11.3% and 0.8%, respectively (Webster et al., 2022). The proportional increase among medication professionals is due to the fact that medical professionals, like physicians play a central role in preventing and addressing CAN (Flaherty & Stirling, 2010; Humphreys et al., 2020) since they come to know a family’s significant strengths and stressors, and will have frequent contact with children and their families during a crisis (Flaherty & Stirling, 2010) such as the pandemic. Even with an increase in CAN reports from medical professionals, COVID has had an impact on the ability of some physicians to identify CAN. Hospitals and other health settings have seen decreases in patient volumes (Cho et al., 2021; Edigin et al., 2020), less in-person consultation, and more social distancing measures (Cho et al., 2021; Edigin et al., 2020). At some medical training universities, medical students and interns had to take part in remote learning from home leading to a reduction in an adequate range of training on child abuse cases (Cho et al., 2021). This then reduces in-person physical examinations which is an essential skill that can only be mastered with years of practice (Edigin et al., 2020) that may lead to failing to identify sentinel injuries (such as minor injuries indicative of CAN) by not only medical students, but also less experienced physicians which could lead to a child being left in an abusive or neglectful environment (Whelan et al., 2021). In some cases, this failure may be due in part of to lack of training on the nuances of multi-faceted CAN diagnoses (Whelan et al., 2021) that was heightened during the pandemic.

There is some research to suggest similar issues around CAN identification during the COVID-19 pandemic in the law enforcement community. White et al. (2021) noted that training of police officers has historically been done primarily in-person. The shift to some of the online training has affected how police officers learn fundamental law enforcement topics (White et al., 2021). Further, under normal circumstances law enforcement receives minimal training on child abuse in comparison to their overall training. For example, in California, law enforcement receives an average of six hours of training on child abuse: four hours of standard mandated reporter training and two additional hours of specialized training for law enforcement (California Department of Social Services, 2022). This is in addition to the 4 h of training on child-related crimes in the police academy, which represents just 1.5% of the 670 h of total training that they receive in the police academy (California Commission on Peace Officer Standards and Training, 2022). This minimal training coupled with the fact that law enforcement officers had higher rates of mental health issues than other first responders (Stogner et al., 2020), has likely had an additive adverse impact on child abuse reporting.

It is surprising that not only was there a significant decrease in the number of foster care entries after the pandemic began, but that there was a larger significant decrease of foster care entries once in-person attendance resumed. Even though in-person attendance resumed for all students, not all students returned in-person. By late September 2020, only 45% of the students returned in-person in Florida (Doyle et al., 2021). Nationwide, African-American children make up the largest proportion of youth in the foster care system relative to the general population (Florida Department of Children and Families, 2022). In Florida, while African-Americans make up 16.9% of the general population in Florida (U.S. Census Bureau, 2022), they represent 27.3% of the CAN victims in the state (Florida Department of Children and Families, 2022). This may partly explain the continued significant decreases in CAN hotline calls after in-person attendance started in Florida as those youth who were at most risk for CAN, such as African-American children, were less likely to attend in-person even once schools in Florida reopened for in-person learning. African-American parents were less likely to send their children back to in-person learning due to potential fears of COVID-19 (Chua et al., 2021). African-American parents were also less likely than other racial groups to have wanted schools to reopen in person in Fall 2020, and were more likely than other racial groups to be concerned that other children would not follow COVID safety protocols, that their children could contract COVID while at school, and could bring home COVID (Gilbert et al., 2020). There is research to support the perception among African Americans that COVID-19 causes more health concerns. Research has shown that African-Americans are 2.8 times more likely than Whites to be hospitalized and 2.0 times as likely to die from COVID-19 than Whites (Tai et al., 2021).

For decreased foster care exits, this is the first study to provide statistical evidence that there was a significant decrease in foster care exits once the pandemic began. The media has reported that nationally, some 22,600 fewer YRFC left foster care from March 2020 to December 2020 than the same period one year prior (Ho & Fassett, 2021). They suggested that this was in part due the courts’ decreased ability to hold child welfare hearings because of lockdowns. This is supported by a survey of child welfare professionals and caregivers (Whitt-Woosley et al., 2022), as well as the Courts (Pisani-Jacques, 2020). However, it is also surprising that there was a larger decrease in the number of foster care exits once in-person school attendance resumed which could have been further heightened by loss of foster care beds (Whitt-Woosley et al., 2022), and continued delays or suspensions of court-ordered services (Pisani-Jacques, 2020). In fact, this has led to an average of 2.2 months of longer stays in foster care. While 2.2 months extra in care does not seem long, there are adverse implications for those who stay longer in foster care. Those who stay in foster care longer are more likely to have more medical issues (Sullivan & van Zyl, 2008) and are more likely to re-enter the foster care system (Lee et al., 2012). There is a very nuanced point about the lifetime economic cost of $633.7 million of the estimated 2338 children who were missed for CAN and not removed from foster care. There are also more costs (i.e., economic, developmental, social, behavioral, emotional, etc.) associated with youth who remain home with what would have been substantiated CAN and no foster care services. In the worst extreme case, they might even lead to more deaths. Chadwick et al. (2010) noted that there are up to 14 times as many deaths related to inflicted injuries as there are non-inflicted injuries. With an approximately national child fatality rate of 7.2 per 1000 children removed into foster care (U.S. Children’s Bureau, 2021), this could mean that an estimated 17 of the 2338 children who were missed for CAN and not removed from foster care might even die because they were not removed.
4.2. Policy implications

While there may have been reductions in CAN reports and investigations, it is unlikely that these reductions represent a drop in actual CAN (Whelan et al., 2021). In fact, research has shown that there were increases in the number and proportion of CAN. For example, there was an increase in the incidence of CAN at emergency rooms and hospitals (Sharma et al., 2021), as well as an increase in the proportion of CAN after the pandemic began (Kovler et al., 2020). Further, there was no change in severity in CAN that were seen in the hospitals (Kaiser et al., 2021).

Research has shown that those coming into foster care are less likely to have preventative services to begin with (Sanchez et al., 2010). Up to 95% of YRFC have at least one chronic physical health issue, more than half have multiple health issues (Sanchez et al., 2010), and they have significant increased risks of serious mental health disorders, including bipolar disorder, post-traumatic stress disorder, and schizophrenia (Heim et al., 2010), and are much more at risk of being given too many psychotropic medications at the same time at too high of a level at too young of an age (Nguyen, 2021b). Almost a third of the psychotropic medications used in foster care have not been approved for use in children by the Federal Drug Administration (Nguyen, 2021b), and YRFC under the age of 12 months were five times as likely as non-YRFC to be given psychotropic medications (U.S. Government Accountability Office, 2011). This is why back in 2007, the American Academy of Pediatrics along with three other primary care associations advocated for a set of joint principles using a medical home model (Sanchez et al., 2010) for vulnerable child populations which is important for YRFC. These principles included having a personal physician providing coordinated whole person integrated care through one health care system (Sanchez et al., 2010). These principles are true today, and are especially important given that non-urgent medical care has been postponed or cancelled because of the pandemic (Edgin et al., 2020).

Another policy implication is that there needs to be an interoperable system with real-time data access for child welfare jurisdictions based on some elements of predictive analytics. Russell (2015) notes that “...Predictive analytics can include a broad set of statistical and analytical tools that identify trends, relationships, and patterns within data that can be used to predict a future event or behavior.” (p. 183). There have been a number of successful partnerships between universities and public agencies on predictive analytics, and 11 states have deployed predictive analytics tools including the Alleghany [County, Pennsylvania, U.S.A.] Family Planning Screening Tool originally developed by researchers at the University of Queensland (New Zealand) and the University of Southern California (U.S.A.) (Loudenback 2022). In fact, children maltreated and classified by this predictive analytics tool have been found to have increased foster care placements, emergency room visits and hospitalizations for related injuries (Vaithianathan et al., 2020). Unfortunately, while the best predictive analytics model using the most advance statistical methods can only offer what might happen, it takes people with expertise to determine what to do with the information (Russell, 2015).

4.3. Limitations

There are several major limitations of this study. The first major limitation is that even the few state databases that have aggregate data do not share enough detail. For example, California’s child welfare data dashboard reports quarterly data (Webster et al., 2022), Florida’s child welfare data dashboard does not break down where the reports come from (Florida Department of Children and Families, 2022), and Wisconsin’s data dashboard combines some reporting types, specifically medical and mental health as one category (Wisconsin Department of Children and Families, 2022). It is also difficult to determine trends for specific types of child abuse allegations because of the lack of detail. For example, it would be difficult to examine if there was an increase in number of hotline calls related to educational neglect during the time of remote learning. Further, the Federal Government’s Child Maltreatment Report is 16 months old as soon as it is published in January of each year (U.S. Children’s Bureau, 2021). Currently, there is also no way to utilize interoperable systems as they do not exist between child welfare systems and electronic health records, even though such interoperable systems could be developed (Nguyen, 2014).

Another limitation was that this study did not address seasonal fluctuations in CAN hotline calls such as during the holiday seasons in the U.S. (e.g., November–December). Researchers have examined the brief period following the start of the pandemic (i.e., March 2020 to May 2020) and have found statistically-significant decreases in CAN reports (Rapoprt et al., 2021). As the COVID situation becomes more of an endemic issue in which we are able to better delineate the effects of seasonality, it will be very important to examine CAN reporting in the different seasons.

4.4. Possible innovations

Most of the current examples related to predictive analytics have focused on public agency-academic/research partnerships built upon strong relationships between leaders and executives in public agencies and the faculty and researchers from the universities and other research entities. These partnerships have a tendency to be hampered when information from one entity has to be screened/ vetted or continually transferred between entities. The partnerships may be further compromised if there are not enough experts in the public agency to understand the results of the research from academic/research entity, or there are not enough experts in the academic/research entity to understand the nuances of the impact of daily public agency operations. In essence, the interaction between the practitioners and the academics/researchers is critical as the data tools alone lack the practice insights and contextual knowledge to be able to provide truly valuable knowledge (Russell, 2015).

We need to build the human resources within public child welfare organizations in senior positions that have the expertise to lead efforts to analyze and interpret predictive analytics based on sophisticated statistical models, coordinate short-term efforts to respond to such analytics, and lay the foundation to influence and direct major policy and practice change. The best way to do this is to develop
opportunities for public child welfare staff to pursue doctorates (including those in social work) or to recruit those who have such advance degrees in academia/research to work in the public agency settings. In the social work field, there are two types of doctorates, the research doctorate (i.e., Ph.D.), and the professional doctorate (i.e., the Doctor of Social Work degree or D.S.W.) (CSWE/GADE, 2021). The research doctorate is more focused on research and careers are usually in the research or academic arenas while about half of the D.S.W. programs are focused on clinical practice while the other half tend to focus on community practice and teaching (CSWE/GADE, 2021).

We should model a program like the Title IV-E stipend for Bachelor’s of Social Work and Master’s of Social Work students to pursue careers in public child welfare (CalSWEC, 2022) in which for each year of the stipend, students work a year in public child welfare. With the innovation, but with a focus on doctoral-level pursuits, Title IV-E fellowships would be developed for doctoral students who want to pursue future careers focused on predictive analytics, applied research, quality improvement, and evaluation in child welfare organizations. The focus would be on developing leaders and executives who have the strong backgrounds in both the research and the practice approaches of doctoral-level learning. Child welfare organizations could then develop opportunities for such leaders and executives to take lead roles within the organization on predictive analytics, applied research, quality improvement, and evaluation or even members of agency executive teams.

5. Conclusion

Once in-person learning resumed in all schools in Florida, there continued to be statistically-significant decreases in CAN hotline calls, and larger statistically-significant decreases in foster care entries and exits. This meant that beginning November 2020, there were an estimated 4769 CAN hotline calls, 844 fewer foster care entries, and 1370 fewer foster care exits than the year before the pandemic began. The COVID-19 Omicron variant is more transmissible than previous variants which has led to a doubling of positive COVID-19 cases every three days in some parts of the world (Mahase, 2021). Since the first COVID-19 Omincron variant was detected in Florida in early December 2021, this variant is more infectious than the Delta variant with the potential of infecting most of Florida’s population, especially among unvaccinated individuals (Hladish et al., 2022). As even more variants are identified, this trend will likely continue to lead to statistically significant decreases in CAN hotline calls, foster care entries, and exits even with the resumption of in-person learning in all Florida school districts.

The issues noted thus far, as well as the limitations highlight the need to go beyond an a posteriori analysis of the trends of CAN hotline calls, CAN investigations, foster care entries and exits during the COVID pandemic. We need to be able to have an interoperable data system with real-time data that has the specificity to provide meaningful decision-making. Further, we need leaders and administrators with advance degrees like the Ph.D. and D.S.W. in order effectively address the future impact of disasters like the COVID-19 pandemic.

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