Title: Prevalence of Common Respiratory Viruses in Children: Insights from Post-Pandemic Surveillance

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Abstract

***Introduction*:** The COVID-19 pandemic has significantly affected healthcare systems worldwide, impacting the occurrence and management of respiratory illnesses. This has also influenced respiratory infections' role in childhood mortality. Surveillance of common respiratory viruses in Ghana is limited, making it crucial to assess the prevalence of respiratory viral infections, particularly in children, in the post-pandemic era. This study provides data on the prevalence of respiratory viruses and the associated risk factors in children aged 5 or younger in an urban paediatric hospital setting.

***Methods*:** The study was a cross-sectional study with a convenience sampling method, conducted in four health facilities: Asokwa Children's Hospital, HopeXchange Medical Centre, University Health Services-KNUST, and Kumasi South Hospital in Kumasi, Ghana, between August 2022 and June 2023. Recruitment was not done in parallel in each hospital. Oropharyngeal swabs were collected from children ≤ 5 years old and screened by RT-qPCR for common respiratory viruses.

***Results*:** Out of the 303 patients enrolled in the study, 165 (54.4%) were male, and 122 (40.3%) were aged from 13 to 36 months. The median age of the patients was 19 months. The most common symptoms reported were cough (87.0%), runny nose (87.0%), and fever (72.0%). Respiratory viruses were detected in 100 (33.0%) of the samples, with 36 (12.0%) testing positive for Human metapneumovirus (HMPV), 27 (8.9%) for RSV, and 20 (6.6%) for Human Adenovirus (HAdV). In 8.0% of the cases, multiple viruses were detected, with HAdV being the most common (75.0%). Children under 6 months (AOR: 4.81, 95% CI: 1.20-24.60) had a higher risk of RSV detection compared to children aged 37 to 60 months. Furthermore, it was found that caregivers with tertiary education had a higher risk of HMPV detection (AOR: 6.91, 95% CI: 1.71-47.3).

***Conclusion*:** The study's findings emphasize RSV infection in very young children and the potentially significant role of HMPV in causing respiratory infections among children in Ghana. Active surveillance of common respiratory viruses in healthcare facilities could enhance the management of viral respiratory infection cases in the paediatric population in Ghana.

***Keywords*:** respiratory viruses; children; co-detection; Ghana

Introduction

Acute respiratory infections (ARIs) are important causes of illness worldwide, significantly burdening public health. They impact all age groups with a higher child mortality, especially in less developed countries [1]. Children in Sub-Saharan Africa are more than 15 times more likely to die before the age of five owing to ARIs [2]. ARIs in Ghana are part of the top 10 causes of hospital admissions and mortality in children under 5 years old [3].

Respiratory viruses account for a great percentage of ARIs. Respiratory viruses have been infecting humans for a long time and have evolved, leading to new strains and variants that cause different symptoms. The viruses that have been implicated as the etiological agents of ARIs include respiratory syncytial virus (RSV), influenza virus, human parainfluenza virus (HPIV), human rhinovirus (HRV), human adenovirus (HAdV) and human metapneumovirus (HMPV) [4]. RSV has been reported as the leading cause of severe lower respiratory tract infections with a burden of hospitalizations, especially in children in developing countries [5, 6, 7]. Pneumonia due to human metapneumovirus has shown a higher risk of intensive care need in Moroccan children [8]. Influenza virus is also reported as contributing substantially to the burden of hospitalized febrile children in Ghana [9]. The recent coronavirus disease 2019 (COVID-19) pandemic, caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), has further highlighted the role of respiratory viruses in ARIs.

The COVID-19 pandemic has profoundly reshaped the landscape of respiratory infections. During the pandemic, respiratory healthcare faced challenges, including disruptions to routine healthcare services, delays in immunization campaigns, and changes in healthcare-seeking patterns [10, 11]. These disruptions significantly influenced the prevalence and patterns of respiratory infections among children [12, 13,14]. As the acute phase of the pandemic caused significant shifts in societal norms, public health initiatives, and healthcare use trends, the transition to the post-pandemic era provides new challenges for healthcare systems and policymakers.

Despite the significant burden of respiratory viral infections among children in Ghana, there remains a paucity of comprehensive epidemiological data on circulating viruses with most studies skewed towards RSV and Influenza viruses. This study provides new insight into the changing dynamics of a broad spectrum of respiratory viruses among children in Ghana. The aim was to determine the prevalence of respiratory viruses and identify associated risk factors in children aged 5 or younger in an urban pediatric hospital setting.

Materials and Methods

Ethical consideration

The protocols used for the study were reviewed and approved by the Committee on Human Research and Publication Ethics (CHRPE), School of Medicine and Dentistry, Kwame Nkrumah University of Science and Technology (KNUST), Ghana (CHRPE/AP/135/22, CHRPE/AP/087/23) and parental consent was obtained from the caregivers/guardians of all the participants by signing or thumb-printing written consent forms.

Study design and area

This was a cross-sectional hospital-based study conducted from August 2022 to June 2023 at the following facilities in Kumasi, Ashanti region of Ghana: The University Hospital, KNUST, Asokwa Children's Hospital, Kumasi South Hospital, and HopeXchange Medical Centre. The KNUST hospital caters for about 150,000 people from over 30 surrounding communities. The

Asokwa Children's Hospital, which solely focuses on the care and management of children younger than 12 years, attends to roughly 6,000 children every month. The Kumasi South Hospital has an outpatient department and a paediatric ward that attends to approximately 4000 children monthly. The HopeXchange Medical Centre is a private facility with a paediatric ward that caters to about 1,500 children every month. All children 2 - 60 months who presented to the healthcare facilities with signs and symptoms of acute respiratory infections as defined in the WHO Programme for the Control of Acute Respiratory Infections [15] were enrolled. Participant selection was done without consideration of ethnicity and gender. Patients were excluded if they were over five years old, unable or unwilling to participate, or if they had any chronic lung disease. At enrolment, clinical symptoms and exposure were assessed, and a clinical examination was conducted to measure weight, height, respiratory rate, and peripheral capillary oxygen saturation.

Data and sample collection

According to Obodai *et al* in 2019 [16], the prevalence of respiratory infections in Ghana was 23.0%. Considering this prevalence, the sample size was pre-determined to be 272 [$n = Z^2\frac{p.q}{e^2}$, z = 1.9, p = 0.23, q = 0.77, e = 0.05]. A convenience sampling method was used throughout the study and patient recruitment was not done in parallel in each hospital. The general demographics, including age, sex, and maternal education, were recorded using a standardised questionnaire. Clinical data were extracted from the paediatrician's folder. Clinical data included symptoms (cough, runny nose, headache, difficulty breathing, etc.) and diagnosis (URTI, bronchiolitis, pneumonia). Overall, 303 oropharyngeal swabs were collected with flocked swabs (Copan Group, Brescia, Italy) and inserted into 1.5mL Eppendorf tubes (Eppendorf, Germany) containing 500µl of viral transport medium (BioTeke Corporation Co., Ltd, China). The tubes were labelled with corresponding facility-specific identification numbers and transported on ice to the Kumasi Centre for Collaborative Research in Tropical Medicine (KCCR) for laboratory analysis.

Laboratory Analysis

Nucleic acid extraction was done using the RADI PREP Swab and Stool DNA/RNA KIT (KH Medical Co., Ltd, Republic of Korea) according to the manufacturer's instructions. Samples were eluted in a 70µl volume and SARS-CoV-2 viral RNA detection was performed using the RADI COVID-19 Detection Kit (KH Medical Co., Ltd, Republic of Korea) following the manufacturer's instructions. The Invitrogen SuperScript III One-step RT-PCR System was used for the detection of Flu A, Flu B, RSV, PIV I-III, HRV and HMPV. For HAdV testing, the Qiagen 10X PCR buffer with Taq polymerase was used. Viral nucleic acid detection was done by real-time Polymerase Chain Reaction (PCR) using the LineGene 9600 Plus thermocycler (FQD-96A, Bioer Technology, China). All samples with a threshold cycle (Ct) above 40 were considered negative. Positive and negative controls were included in each PCR run for validation.

Statistical Analysis

Data collected were entered into Microsoft Excel 2021, cleaned and exported to R programming language version 4.3.0 for analysis. Descriptive statistics were used to summarize the distribution of various variables into tables. Risk factors that had a significance level of $p \leq 0.05$ in the univariate binary logistic regression analysis were subjected to multivariate binary logistic regression analysis. The results were expressed as the adjusted odds ratio (AOR) and 95% CI. All statistical tests with p-values less than 0.05 were considered statistically significant.

Results

Patient characteristics

From August 2022 to June 2023, a total of 303 children aged less than 5 years were recruited in this study. A majority (54.4%) were males aged 13 to 36 months (40.3%), with a median age of 19 months. The study participants presented with more than one symptom, with the most predominant being cough (87.0%), rhinorrhoea (87.0%) and fever (72.0%). The least recorded symptoms were headache (34.0%) and vomiting (25.0%). Table 1 shows the characteristics of the study population.

Table 1: Characteristics of the study population

Variable	Number of participants (%)
Age (months)	
<6	45 (14.8)
6-12	61 (20.1)
13-36	122(40.3)
37-60	75(24.8)
Gender	
Male	165 (54.4)
Female	138 (45.6)
Caregiver Education	
No formal education	57 (19.0)
JHS/Primary	42 (14.0)
SHS/Secondary	54 (18.0)
Tertiary	104 (34.0)
Symptoms	

Fever	219 (72.0)
Cough	265 (87.0)
Headache	102 (34.0)
Shortness of breath	122 (40.0)
Poor feeding	115 (38.0)
Vomiting	76 (25.0)
Rhinorrhoea	265 (87.0)
Loss of appetite	117 (39.0)

Prevalence of respiratory viruses

Among the 303 samples tested, a respiratory virus was detected in 100 (33.0%) of the samples. In Table 2, it is shown that out of the samples tested, 92 (30.4%) showed single viral detections, while co-detections were observed in 8 samples (2.64%, 95% CI: 0.83-4.45). The most prevalent virus was HMPV with 36 cases (12.0%, 95% CI: 8.2-15.5), followed by RSV with 27 cases (8.9%, 95% CI: 5.7-12.1), and then HAdV with 20 cases (6.6%, 95% CI: 3.8-9.4). No PIV-I was detected.

Table 2: Prevalence of respiratory viruses

Viral respiratory pathogen	Frequency	Prevalence (%)
SARS-CoV-2	3	1.0
HAdV	20	6.6
HRV	6	2.0
PIV-I	0	0
PIV-II	2	0.7
PIV-III	2	0.7
FLU A	5	1.7
FLU B	7	2.3
HMPV	36	12.0
RSV	27	8.9

The most predominant virus identified in cases of co-detection was HAdV (n=6, 75.0%). Table 3 shows that HMPV co-detection was identified in 4 (50.0%) samples. SARS-CoV-2, HRV, Flu A, Flu B, PIV-II, PIV-III and RSV were each identified in single cases of co-detection.

Table 3: Single and double virus detections made during the study period

Virus	Number of samples (%)	SARS-CoV-2	HAdV	HRV	PIV-II	PIV-III	FLU A	FLU B	HMPV	RSV
SARS-CoV-2		**2**	1	0	0	0	0	0	0	0
HAdV		-	**14**	0	0	0	1	1	3	1
HRV		-	-	**6**	0	0	0	0	0	0
PIV-II		-	-	-	**1**	1	0	0	0	0
PIV-III		-	-	-	-	**1**	0	0	0	0
FLU A		-	-	-	-	-	**4**	0	0	0
FLU B		-	-	-	-	-	-	**6**	1	0
HMPV		-	-	-	-	-	-	-	**32**	0
RSV		-	-	-	-	-	-	-	-	**26**
SINGLE DETECTION	**92 (92.0)**	2	14	6	1	1	4	6	32	26
DOUBLE DETECTION	**8 (8.0)**	1	6	0	1	1	1	1	4	1
TOTAL	**100 (100.0)**	**3**	**20**	**6**	**2**	**2**	**5**	**7**	**36**	**27**

Risk factors associated with respiratory viral detection

The risk factor analysis was limited to HMPV, RSV, and HAdV due to the low prevalence of other respiratory viruses. According to the multivariate binary logistic regression analysis of the risk factors, children younger than 6 months (AOR: 4.81, 95% CI: 1.20-24.60) had higher odds of RSV detection when compared to children aged 37 to 60 months. It is evident from Table 4 that children with caregivers who had completed tertiary education (AOR: 6.91, 95% CI: 1.71-47.30) were more likely to test positive for HMPV compared to those with caregivers who had no formal education. The clinical risk factors evaluation in Table 5 showed that children presenting with headache (AOR: 3.95, 95% CI: 1.35-12.60) had higher odds of testing positive for HAdV compared to children without headache. In addition, children who presented with shortness of breath (AOR: 0.33, 95% CI: 0.13-1.02) had lower odds of testing positive for HMPV compared to children without shortness of breath.

Table 4: Risk factors associated with respiratory viruses in the study population

	OR (95% CI)						AOR (95% CI)					
Variable	**RSV**	**p-value**	**HMPV**	**p-value**	**AdV**	**p-value**	**RSV**	**p-value**	**HMPV**	**p-value**	**AdV**	**p-value**
Age group												
37-60	Ref		Ref		Ref		Ref		Ref		Ref	
<6	6.00 (1.68-28.30)	**0.010**	0.60 (0.13-2.20)	0.500	0.53 (0.08-2.44)	0.500	4.81 (1.20-24.60)	**0.036**	0.79 (0.16-3.11)	0.700	0.55 (0.07-2.71)	0.500
6-12	2.14 (0.50-10.80)	0.300	0.91 (0.29-2.78)	0.900	0.59 (0.12-2.36)	0.500	2.21 (0.48-11.90)	0.300	0.96 (0.29-3.06)	0.900	0.60 (0.12-2.48)	0.500
13-36	2.14 (0.63-9.8)	0.300	1.54 (0.66-3.93)	0.300	0.92 (0.32-2.84)	0.900	2.27 (0.64-10.70)	0.200	1.39 (0.57-3.62)	0.500	0.91 (0.31-2.86)	0.900
Gender												
Female	Ref		Ref		Ref		Ref		Ref		Ref	
Male	0.46 (0.20-1.02)	0.062	0.82 (0.40-1.65)	0.600	0.83 (0.33-2.07)	0.700	0.46 (0.19-1.05)	0.069	0.89 (0.41-1.96)	0.800	0.83 (0.31-2.18)	0.700

Caregiver												
Education												
No education	Ref		Ref		Ref		Ref		Ref		Ref	
JHS/Primary	0.44	0.200	0.67	0.700	1.38	0.700	-		0.90	0.900	1.00	0.900
	(0.11-1.40)		(0.03-7.23)		(0.25-7.83)				(0.04-10.50)		(0.15-6.48)	
SHS	-		7.03	**0.014**	1.06	0.900	-		6.91	**0.020**	0.98	0.900
/Secondary			(1.77-47.00)		(0.19-5.95)				(1.60-48.50)		(0.16-5.94)	
Tertiary	0.21		6.55	**0.014**	1.91	0.300	-		6.91	**0.017**	2.27	0.300
	(0.06-0.62)		(1.81-42.00)		(0.56-8.81)				(1.71-47.30)		(0.59)	

Table 5: Clinical symptoms associated with respiratory viruses in the study population

	OR (95% CI)						AOR (95% CI)					
Variable	**RSV**	**p-value**	**HMPV**	**p-value**	**AdV**	**p-value**	**RSV**	**p-value**	**HMPV**	**p-value**	**AdV**	**p-value**
Clinical Symptom												
Fever												
No	Ref		Ref		Ref		Ref		Ref		Ref	
Yes	1.38 (0.57-3.87)	0.500	0.86 (0.40-1.65)	0.700	1.16 (0.43-3.67)	0.800	1.68 (0.64-5.08)	0.300	0.88 (0.37-2.15)	0.800	0.83 (0.26-2.88)	0.700
Cough												
No	Ref		Ref		Ref		Ref		Ref		Ref	
Yes	-		2.65 (0.76-16.8)	0.200	0.55 (0.19-1.99)	0.300	-		2.77 (0.65-20.5)	0.200	0.48 (0.15-1.86)	0.200
Headache												
No	Ref		Ref		Ref		Ref		Ref		Ref	
Yes	0.54 (0.19-1.30)	0.200	0.85 (0.39-1.77)	0.700	3.22 (1.29-8.47)	**0.014**	0.75 (0.25-2.01)	0.600	1.12 (0.46-2.65)	0.800	3.95 (1.35-12.6)	**0.015**

Shortness of breath												
No	Ref		Ref		Ref		Ref		Ref		Ref	
Yes	1.02	0.900	0.38	**0.022**	0.79	0.600	1.07	0.900	0.33	**0.014**	0.76	0.600
	(0.45-2.27)		(0.16-0.84)		(0.29-1.98)		(0.45-2.50)		(0.13-1.02)		(0.26-2.06)	
Rhinorrhoea												
No	Ref		Ref		Ref		Ref	0.400	Ref		Ref	
Yes	1.87	0.400	0.44	0.067	-		1.98		0.36	0.055	-	
	(0.53-12.00)		(0.19-1.12)				(0.54-12.90)		(0.13-0.77)			
Poor feeding												
No	Ref		Ref		Ref		Ref		Ref		Ref	
Yes	0.80	0.600	0.43	**0.043**	1.37	0.500	0.81	0.600	0.39	0.052	1.07	0.900
	(0.33-1.81)		(0.18-0.93)		(0.53-3.41)		(0.32-1.94)		(0.15-0.97)		(0.38-2.94)	
Vomiting												
No	Ref		Ref		Ref		Ref		Ref		Ref	
Yes	0.84	0.700	0.34	**0.048**	2.11	0.120	0.81	0.700	0.55	0.300	2.13	0.140
	(0.30-2.05)		(0.10-0.89)		(0.80-5.31)		(0.27-2.11)		(0.15-1.64)		(0.75-5.84)	

Discussion

The present study emphasized the prevalence of various respiratory viruses including RSV, Flu A, Flu B, HPIV I, II, III, HAdV, SARS-CoV-2, HRV, and HMPV among children exhibiting respiratory symptoms and signs. The overall prevalence recorded among the study participants was 33.0% (95% CI: 27.70-38.30). Previous studies from Ghana, prior to the COVID-19 pandemic, have reported varying estimates of prevalence of respiratory viruses from 12.5% to 73.0% among the paediatric population [1, 17, 18,19]. From those studies, relatively higher viral prevalence has been observed among hospitalized cases with more severe symptoms than cases recruited in the outpatient department (OPD), as was done in the present study [1, 17, 18,19]. In other parts of Africa, higher viral prevalence was reported in Burkina Faso (85.0%), Kenya (68.0%) and Cameroon (65.0%) [20–22]. Generally, variations in prevalence of respiratory viruses can be attributed to a number of reasons, including the panel of viral agents tested, the duration of the study, climatic conditions and enrolment criteria [23]. The recruitment of outpatients in the present study could account for the relatively lower viral prevalence in comparison with previously published studies that recruited hospitalized patients. HMPV was the most predominant virus, identified in 12.0% of the recruited participants. Approximately 90.0% of the HMPV cases were detected in one site during a three-week period, leading to a higher prevalence compared to previous reports in Ghana [1,18,19]. This increase may have been caused by an undetected HMPV outbreak, driven by nosocomial infections which is an existing significant public health concern, especially among paediatric patients [24]. The absence of viral testing in Ghanaian healthcare facilities further complicates the detection of such outbreaks. Recent studies since the decline of SARS-CoV-2 cases have also reported high prevalence of HMPV in Myanmar (13.0%), USA (12.6%) and Nepal (13.3%) [5,25,26]. RSV, which has been implicated as a major cause of ARI in children, was identified in 8.9% of the study population. The aggressive implementation of non-pharmaceutical interventions (NPIs) during the COVID-19 pandemic led to a significant decline in RSV cases among young children globally, as reported in South Africa (4.1%), the United Kingdom (0.1%) and Canada (0.05%) [12,13,27]. However, with the gradual relaxation of NPIs, countries like Egypt (20.9%) and China (21.7%) witnessed a resurgence in RSV cases, particularly among young children [28,29]. The finding from this study emphasizes the importance of active surveillance in enhancing the management of RSV-related respiratory infections in young children. The prevalence of HAdV (6.6%), HRV (2.0%), flu A (1.7%), and Flu B (2.3%) in the present study was lower than previous studies conducted pre-COVID-19 pandemic among Ghanaian children [9,17–19]. Apart from Influenza, which is under routine surveillance in Ghana, respiratory viruses are not routinely sought for in Ghanaian healthcare facilities [(9)]. The relatively lower prevalence still, however, highlights the circulation of these viruses and a major implication of the failure to detect them may cause an increase in antimicrobial resistance as antibiotics are often prescribed to treat apparent respiratory infections [30]. Young children have been reported to be less often infected by SARS-CoV-2 when compared to adults [31], and unsurprisingly, the 1.0% prevalence from our study was similarly as low as reported among children (0.4%) during the peak of the COVID-19 pandemic in Ghana [32]. Comparisons with studies from other parts of the world revealed that regardless of the clinical profile, SARS-CoV-2 prevalence remains low among children [33–35]. HPIV-II and HPIV-III were both detected in 0.7% of the study group with no detection (0%) for HPIV-I. This was lower than previous reports in Ghana [36, 17,19], and other African countries like Cameroon and Niger [22,23]. It is possible there may have been low viral activity of HPIV since there was no year-round sampling. Generally, the limited diagnostic capacity of healthcare facilities to detect respiratory viruses increases the risk of infected children unknowingly transmitting these viruses to others in daycare, schools and households. Consequently, this adds more burden to the constrained healthcare system in Ghana.

HMPV and HAdV accounted for 3 (37.5%) of the 8 co-detections observed in this study. Single cases of co-detection were observed for the HAdV and RSV, HAdV and SARS-CoV-2, HAdV and flu A, HMPV and flu B, and PIV-II and PIV-III. Literature on viral co-detection in respiratory illness among children shows conflicting results. Some studies [37,38] suggest worse outcomes and longer hospital stays, whereas others [39,40] found no association between viral co-detection and illness severity. Our study however, did not determine the association between viral co-detection and its impact on health, as only outpatients were recruited.

We identified age as a risk factor for RSV detection in our study. Children aged younger than 6 months (AOR: 4.81, 95% CI: 1.20-24.60) had higher odds of testing positive for RSV when compared to those aged from 37 to 60 months. This is consistent with other studies that identified a higher risk of RSV infection among children less than 6 months than other age groups [41,42]. Children younger than six months are biologically more vulnerable to ARIs due to the ongoing development of their immune system and lungs, leaving them with insufficient immunity when exposed to infections [43].

Our study identified secondary and tertiary level of caregiver education as risk factors for HMPV detection. Children whose caregivers had attained secondary (AOR: 6.91, 95% CI: 1.60-48.50) and tertiary (AOR: 6.91, 95% CI: 1.71-47.30) education had higher odds of HMPV detection when compared to those with caregivers of no formal education. This was in contrast to findings by Ujunwa in Nigeria and Tazinya in Cameroon, who suggested that no formal education among caregivers led to poor hygienic practices in homes which increased the risk of respiratory viral detection among children [44,45]. A possible explanation for our finding could be that caregivers with higher education may enrol children in crowded daycare settings and kindergartens, potentially increasing the risk of respiratory virus transmission, such as HMPV. We identified headache as a clinical risk factor for HAdV detection in our study.

Children with headaches (AOR: 3.95, 95% CI: 1.35-12.60) had higher odds of testing positive for HAdV than those without headaches. This aligns with a study in Senegal linking HAdV detection to headaches in children with respiratory illness [46]. Headaches in infants have been associated with adenoviral pharyngitis, and common cold symptoms induced by HAdV, such as sneezing and sinus inflammation, which can contribute to headache sensations [47,48]. Children with shortness of breath (AOR: 0.33, 95% CI: 0.13-1.02) in our study had lower odds of testing positive for HMPV, contrary to previous studies associating dyspnoea with HMPV infection [49–51]. The discrepancy might be due to potential non-viral causes, like *Streptococcus pneumoniae* or *Haemophilus influenzae*, which were not assessed in this study but are known to cause bacterial pneumonia with similar symptoms [52].

Conclusion

The results of our study indicate that HMPV, the most common respiratory virus, may have a more significant impact on the cause of respiratory illness in Ghanaian children than previously believed. The increased scientific and public awareness of the burden of respiratory infections by the COVID-19 pandemic provides a good opportunity to make advances towards reducing the spread of common respiratory viruses. Further studies should be conducted in other geographical locations in the country to elucidate the viral prevalence patterns and provide a comprehensive overview of the respiratory virome in the Ghanaian paediatric population.

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Supporting information

S1_Checklist: Clinical Studies Checklist

S2_Checklist: STROBE checklist

S3 data. Dataset for study: DOI 10.17605/OSF.IO/QW2HU

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