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Brief Report

Factors Affecting Parental Intent to Vaccinate Against COVID-19 in Kansas

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ABSTRACT

Introduction. Vaccines have been highly effective in reducing severe illness and death from COVID-19, yet vaccine hesitancy remains a significant barrier to further lowering the incidence of morbidity and mortality. This study aimed to identify the factors influencing parental decisions about COVID-19 vaccination for their children in Kansas, including demographic variables, trust in medical professionals, vaccine safety, and the impact of misinformation.

Methods. Data were analyzed from Phase 3.7, Week 53 of the United States Census Bureau's Household Pulse Survey (N = 68,504), collected between January 4 and January 16, 2023. The analysis focused on data specific to the state of Kansas (N = 1,231), using standard descriptive statistics to assess the findings.

Results. The respondents were predominantly middle-aged, female, and Caucasian, with a high level of educational attainment and health insurance coverage. Among respondents, 45.7% (n = 563) had children under 18 living in their household. Of these, 73.5% (n = 414) expressed concerns that led them to refrain from vaccinating their children against COVID-19. The primary reasons for hesitancy included concerns about potential side effects, distrust in the vaccine's safety for children, and the belief that their children were not part of a high-risk group for having severe illness with COVID-19.

Conclusions. These findings underscore persistent concerns about COVID-19 vaccine safety and efficacy among parents, even within a relatively well-educated and insured population. Addressing these concerns with targeted public health messaging and education could be essential in increasing vaccination rates among children in Kansas.

INTRODUCTION

Vaccines have proven highly effective in reducing severe illness and death.[1-3] For example, childhood vaccinations in the U.S. have dramatically reduced the incidence, morbidity, and mortality of targeted diseases, preventing nearly 21 million hospitalizations, 732,000 deaths, and 322 million cases of disease between 1994 and 2013.[4] Furthermore, a study by Zhou et al.[5] estimated that routine vaccination of a cohort born in 2009 would save $13.5 billion in direct healthcare costs and $68.8 billion in total societal costs. Despite the clear benefits, vaccine hesitancy remains a significant barrier,[6-8] with around 1 in 5 parents in the U.S. expressing vaccine hesitancy immediately before and after the onset of the COVID-19 pandemic.[9,10]

Although national polls show broad public support for long-standing routine vaccinations, such as those for measles, mumps, and rubella, this support is not mirrored for COVID-19 vaccines.[11] Fewer than half (45%) of U.S. adults believe the preventative health benefits of COVID-19 vaccines are high, and a majority perceive the risk of side effects as "medium" or "high."[11] Additionally, COVID-19 vaccination rates for people aged 6 months to 17 years are less than one-third of those for influenza, varying widely by jurisdiction.[12,13]

In Kansas, as in many other regions, parental intent to vaccinate their children against COVID-19 is shaped by a complex interplay of factors.[14] Previous studies suggest that vaccine hesitancy may stem from fears of government overreach, the influence of social media, concerns about safety and efficacy, and unfounded theories, all of which have contributed to distrust between patients and clinicians.[7,8,14]

Understanding these factors is necessary for developing targeted strategies to increase vaccination rates among children.[15] This study explored the various determinants affecting parental decisions regarding COVID-19 vaccination for their children in Kansas, including demographic variables, trust in medical professionals, and the influence of misinformation. By identifying the key drivers of vaccine hesitancy among parents, this research aims to inform public health interventions that can effectively address concerns and promote higher vaccination uptake in the pediatric population.

METHODS

This study utilized data from Phase 3.7, Week 53 of the U.S. Census Bureau's Household Pulse Survey (HPS; N = 68,504), collected between January 4 and January 16, 2023. Specifically, data from the state of Kansas were analyzed for this study (N = 1,231). The impetus for this research stemmed from a previous study that analyzed HPS data on a national level.[16]

The HPS was launched in April 2020 to provide insights into the impact of the COVID-19 pandemic on households across the U.S. Initially, data were collected in one-week intervals, but this shifted to two-week collection periods beginning with Phase 2 in August 2020. Subsequent data releases are referred to as "Weeks" to maintain consistency with earlier phases.[17] The Census Bureau used its Master Address File as the source for sampling Housing Units (HUs) in the survey, employing a systematic sampling approach to select 66 defined sample areas from the identified HUs, each of which was interviewed once.[17] Each HU was contacted by email and short message service, if available, using Qualtrics, an online data collection platform. In Week 53, 1,049,855 HUs were identified, and surveys were completed by 68,504 respondents.[18] A local Institutional Review Board (IRB) reviewed the data, confirming that they were publicly available and de-identified. Consequently, this analysis did not involve human subjects and did not require IRB oversight.

Statistical Analyses. Standard descriptive statistics were used to create a demographic profile, describe participant likelihood of

vaccinating their children against COVID-19, and to describe the reasons for COVID-19 vaccine hesitancy in parents in the State of Kansas.

RESULTS

Respondent Characteristics. Table 1 represents the demographic information of respondents. The average age of respondents was 52.9 years old (standard deviation [SD], 16.3); 61.0% were biological female; 59.2% identified as female; and 89.9% were heterosexual. Most respondents (57.7%) reported being married; 94.8% were not from Hispanic, Latino, or Spanish origin; 90.3% were Caucasian or White alone; 48.7 % completed a bachelor's or higher degree; 36.2% reported their household gross income as $75,000 or higher; and 43.2% had health insurance coverage through a current or former employer or union.

COVID-19 Vaccine Hesitancy. As shown in Table 2, just over 45.0% (n = 563) of respondents reported having children under 18 years old in their household. Among these respondents, a portion indicated they would definitely not vaccinate their children against COVID-19. Specifically, 41% (n = 43) of respondents with children under 5 years old, 41.2% (n = 49) with children aged 5-11 years, and 39.7% (n = 27) with children aged 12-17 years expressed this intention. Nearly 74% (n = 414) of the respondents with children in their household reported several reasons for not getting children the COVID-19 vaccine. The top three reported reasons were: concerns about side effects on the children (21.3%), not trusting the vaccines as safe for the children (15.0%), and children in the household not being members of a high-risk group (14.7%; Table 2).

DISCUSSION

This study aimed to determine the prevalence of COVID-19 vaccine hesitancy and assess contributing factors among parents of children in Kansas. The findings provide valuable state-level demographic data and insights into the mindsets and attitudes of those hesitant to vaccinate their children against COVID-19, allowing for more accurately targeted and effective future interventions to boost vaccination rates.

The data in Table 2 reveal that 45.7% (n = 563) of respondents reported having children under 18 years old at home. Among these families, there was a level of parental hesitancy regarding COVID-19 vaccination for children, with 73.5% (n = 414) of respondents expressing reluctance. This high level of hesitancy is consistent with trends observed in previous studies, where concerns about vaccine safety and side effects have been prominent factors.[16,19,20] Specifically, 21.3% (n = 88) of respondents in this study cited fears of potential side effects, a figure that aligns with existing literature emphasizing parental worries about adverse reactions, particularly given the rapid development and approval of COVID-19 vaccines.[16,21]

Additionally, 15.0% (n = 62) of respondents expressed concerns about vaccine safety, aligning with findings from other studies that highlight general mistrust as a major barrier to vaccine uptake.[22,23] While public concerns about COVID-19 vaccine safety are understandable, given reported risks such as anaphylaxis, myocarditis, and pericarditis,[24,25] evidence shows these adverse events are rare and mostly associated with certain types of COVID-19 vaccines.[26] Public education should emphasize the rarity of these incidents and encourage individuals with safety concerns to consider alternative COVID-19 vaccines from different manufacturers. Addressing parental concerns directly may help increase vaccination rates among children.[27]

Moreover, 14.7% (n = 61) of parents believed their children were not at high risk for severe COVID-19 outcomes. This perception is consistent with the broader public's understanding that children typically experience milder COVID-19 symptoms.[27] However, this belief overlooks the importance of vaccination in mitigating community transmission and protecting vulnerable populations, particularly those who are immunocompromised or unable to be vaccinated.[28,29]

The reluctance observed in this study emphasizes the need for targeted public health campaigns to address specific parental concerns, such as safety and side effects, while reinforcing the broader public health benefits of vaccination. Interventions to improve vaccine hesitancy should emphasize providing accurate, easily accessible information and being transparent in addressing parental concerns. A study by Shen et al.[30] recommends presenting vaccination as a default approach, being honest about side effects, providing credible resources supporting proven scientific facts, and focusing on the protection of the child. Furthermore, targeted discussions should include the proven safety and efficacy of the vaccines, as evidenced by prior studies and communications.[31-34]

Limitations. This study had several limitations that need to be addressed. First, the reliance on self-reported surveys may introduce recall bias. The cross-sectional design does not allow for the assessment of changing parental attitudes over time. Additionally, the data collection spanned only two weeks, from January 4 to January 16, 2023, which may not reflect current attitudes towards the COVID-19 vaccine. Parental understanding of the vaccine may have increased since then due to national and statewide educational initiatives. Future studies could address this by using longitudinal data.

Respondents found to be vaccine-hesitant were asked to select their reasons from predetermined options for concerns regarding the COVID-19 vaccine for their children. While this allowed for easy classification, a free-response survey might have provided more accurate reflections of their reasons. Although this approach would complicate data analysis, it could offer greater detail in follow-up studies.

Finally, some parents chose not to respond to the survey, and their views on vaccination might differ from those who reported vaccine hesitancy. Follow-up studies assessing changes in vaccination attitudes also could provide valuable insights into the effectiveness of initiatives in addressing parental concerns.

Table 1. Demographic information.

Characteristics	Measure (N = 1,231)
Age	
Mean (SD), y	52.9 (16.3)
Median	54
Minimum	18
Maximum	88
Marital status, no. (%)	
Never married	207 (16.8)
Married	710 (57.7)
Divorced	201 (16.3)
Separated	23 (1.9)
Widowed	82 (6.7)
Prefer to not answer	8 (0.6)
Biological sex, no. (%)	
Male	480 (39.0)
Female	751 (61.0)
Gender identity	
Male	465 (37.8)
Female	729 (59.2)
Transgender	8 (0.6)
None of these	14 (1.1)
Prefer to not answer	15 (1.2)
Sexual orientation	
Straight/heterosexual	1,107 (89.9)
Gay or lesbian	26 (2.1)
Bisexual	54 (4.4)
Something else	17 (1.4)
Prefer to not answer	15 (1.2)
I don't know	12 (1.0)
Ethnicity, no. (%)	
Hispanic, Latino, or Spanish origin	64 (5.2)
Not of Hispanic, Latino, or Spanish origin	1,167 (94.8)
Race, no. (%)	
Caucasian/White alone	1,111 (90.3)
African American/Black alone	38 (3.1)
Asian alone	21 (1.7)
Any other race alone, or race in combination	61 (5.0)
Highest degree/level of school completed, no. (%)	
Less than high school	6 (0.5)
Some high school	17 (1.4)
High school graduate or equivalent (for example GED)	166 (13.5)
Some college, but degree not received or is in progress associate degree (for example AA, AS)	305 (24.8)
Associate's degree (for example AA, AS)	138 (11.2)
Bachelor's degree (for example BA, BS, AB)	332 (27.0)
Graduate degree (for example master's, professional, doctorate)	267 (21.7)

Table 1. Demographic information. *continued.*

Household gross income, no. (%)	
Less than $25,000	114 (9.3)
$25,000-$34,999	91 (7.4)
$35,000-$49,999	136 (11.0)
$50,000-$74,999	193 (15.7)
$75,000-$99,999	139(11.3)
$100,000-$149,999	176 (14.3)
$150,000-$199,999	62 (5.0)
$200,000 and above	69 (5.6)
Prefer to not answer	43 (3.5)
Missing	208 (16.9)
Health insurance coverage, no. (%)	*n* = 1,539*
Insurance through a current or former employer or union (self or through family member)	665 (43.2)
Purchased directly from ins company (self or through family member)	285 (18.5)
Medicare, for people 65 and older, or with certain disabilities	316 (20.5)
Medicaid, Medical Assistance, or any kind of government-assistance plan for low income/disability	104 (6.8)
TRICARE or other military health care	57 (3.7)
VA (including those who have ever used/enrolled for VA health care)	61 (4.0)
Indian Health Service	6 (0.4)
Other	45 (2.9)

* Raw numbers are more than the sample size because some participants reported multiple insurance coverage

Table 2. Respondents' information regarding COVID-19 and COVID-19 vaccines.

Characteristics	Measure (N = 1,231)
COVID-19 Vaccination status, no. (%)	
Received a vaccine	1,035 (84.1)
Not received a vaccine	181 (14.7)
Prefer to not answer	15 (1.2)
Tested positive or told by a physician or a health care provider that you have COVID?, no. (%) [at the time of the survey]	
Yes	611 (49.6)
No	583 (47.4)
Prefer to not answer	21 (1.7)
Missing	16 (1.3)
Children living in household	*n* = 563
Children under 5 in household	147 (26.1)
Children 5 through 11 years old in household	208 (36.9)
Children 12 through 17 in household	208 (36.9)
Likelihood of getting children vaccinated (under 5 years old), no. (%)	*n* = 103
Definitely get the children a vaccine	9 (8.7)
Probably get the children a vaccine	8 (7.8)
Be unsure about getting the children a vaccine	9 (8.7)
Probably NOT get the children a vaccine	20 (19.4)
Definitely NOT get the children a vaccine	43 (41.7)
I do not know the plans for vaccination of the children under 5 in my household	11 (10.7)
Prefer to not answer	3 (2.9)

Table 2. Respondents' information regarding COVID-19 and COVID-19 vaccines. *continued.*

Characteristics	Measure (N = 1,231)
Likelihood of getting children vaccinated (5 to 11 years old), no. (%)	*n* = 119
Definitely get the children a vaccine	8 (6.7)
Probably get the children a vaccine	5(4.2)
Be unsure about getting the children a vaccine	7 (5.9)
Probably NOT get the children a vaccine	29 (24.4)
Definitely NOT get the children a vaccine	49 (41.2)
I do not know the plans for vaccination of the children 5 to 11 in my household	16 (13.4)
Prefer to not answer	5 (4.2)
Likelihood of getting children vaccinated (12 to 17 years old), no. (%)	*n* = 68
Definitely get the children a vaccine	0 (0.0)
Probably get the children a vaccine	1 (1.5)
Be unsure about getting the children a vaccine	9 (13.2)
Probably NOT get the children a vaccine	19 (27.9)
Definitely NOT get the children a vaccine	27 (39.7)
I do not know the plans for vaccination of the children 12 to 17 in my household	10 (14.7)
Prefer to not answer	2 (2.9)
Reasons for not getting children vaccinated, no. (%)	*n* = 414
Concern about side effect of the COVID-19 vaccine for children	88 (21.3)
Plan to wait to see if it is safe/ may get later	38 (9.2)
Not sure if COVID-19 vaccine will work for children	9 (2.2)
Don't believe children need COVID-19 vaccine	56 (13.5)
Children in household not members of a high-risk group	61 (14.7)
Children's doctor has not recommended COVID-19 Vaccine	38 (9.2)
Parents/guardians in household do not vaccinate their children	7 (1.7)
Don't trust COVID-19 vaccines	62 (15.0)
Don't trust the government	38 (9.2)
Other reason	17 (4.1)

CONCLUSIONS

In conclusion, the high rate of COVID-19 vaccine hesitancy among parents and guardians in Kansas may be driven by concerns about side effects, safety, and the perceived risk of the disease. This study highlights key areas that initiatives can focus on to improve vaccine uptake and health outcomes. These initiatives could include public health campaigns centered on education, transparent communication, family-centered approaches using motivational interviewing, and making vaccines more accessible to increase vaccination rates among children. Addressing these concerns is important for controlling the spread of COVID-19 and achieving broader immunity in communities.

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