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Attitude of parents toward vaccination against COVID-19 for own children in Jordan: A cross-sectional study

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1. Introduction

The emergence and dissemination of a relatively secure vaccine against COVID-19s has been a major development in the COVID-19 epidemic fight. However, there is indeed a heated debate over whether the vaccine against COVID-19 should be administered to children and young adults [1–3]. The knowledge, wellness, and very well being of society are all at stake [3]. Furthermore, proof, suggestions from health organizations such as WHO scientific regarding vaccination have evolved significantly over time, with significant variation across countries [3,4].

The first stage of COVID-19 vaccinations targeted adults only, except for the Pfizer mRNA vaccine, which could be administered to adolescents aged 16 and up. As a result, the urgent administration of the Pfizer vaccine to children aged 12 and up was authorized in the United States in early April 2021 [5]. Pfizer vaccines were also given provisional approval for use in children [5]. For example, the Centers for Disease Control and Prevention and America (CDC) have both endorsed immunization of children aged in 2021. Moreover, many states found that 13% of children under the age of 18 have received full vaccinations [10].

In the European Union (EU), the Pfizer vaccine received temporary permission to use for children in late May 2021. Similarly, the EU approved Moderna mRNA for administration to older children 12 and up in July 2021. All these approvals were based on positive short-term trial results [6,7]. Vaccine against COVID-19 recommendations vary by country, especially when it comes to children. Many studies in the United States, the United Kingdom, and Sweden showed applying of various strategies to protect children [8,9].

Similarly, on July 19, 2021, the UK Joint Committee on Vaccination and Immunization expressed support for vaccination of children older 12–16 years just if they are highly susceptible due to severe neurodisability [11]. Most discussions about vaccination strategies and recommendations for children and young adults focus on the intangible benefits to individuals and society outside of these age groups because they account for a small proportion of the COVID-19 burden [12,13]. For instance, it is often expected that vaccinating the younger population assists families to return to normal activities and lower the spread to and death of older individuals who the younger people may infect. Access to the Vaccine against COVID-19 for children to the end of the pandemic is
Vaccine hesitancy is not a new thing in the US. A recent example is the re-emergence of measles years before the COVID-19 outbreak. Equally, there are specific population sub-groups across the globe from which high vaccine reluctance has been reported. Specifically, the World Health Organization stated that vaccine hesitancy was a major global health threat even before the emergence of the COVID-19 pandemic [1]. However, while significant interest and expectancy for the Vaccine against COVID-19 exist, limited information about the Vaccine against COVID-19 hesitance is available, especially among the US population [14]. Therefore, determining the populations and their characteristics regarding vaccine hesitancy will be helpful in the implementation of an effective strategy when the Vaccine against COVID-19 is made available to the public or young children [15]. Assessing parents’ attitudes towards COVID-19 vaccination for children in Jordan is important in developing an intervention to facilitate COVID-19 vaccination for children. These interventions will prevent misinformation, increase Vaccine against COVID-19 acceptability, and increase the number of children receiving the vaccine. Some parents may be distrustful or skeptical about vaccines in general, and then maybe with COVID-19 specifically [4]. Therefore, this study aims to assess parents’ attitudes toward the COVID-19 vaccination for their children and determine predictors of parents’ attitudes towards COVID-19 vaccination for their children.

2. Methods

2.1. Design and participants

This study is a cross-sectional study using surveys that fits with the aims of the study with assessing the attitude of parents toward vaccination for their children. The participants were Jordanian parents with a child less than 18 years old and living in Jordan at the time of data collection. A priori analysis was conducted to approximate the required sample size. Based on the total adult population in Jordan, which is ten million, with a 90% confidence level and a conservative 3% margin of error, approximately 1000 participants were needed. To ensure getting enough participants, the authors sent the study to 1500 participants using private messages for each participant on messenger, WhatsApp …. and other types of social media apps.

2.2. Instrument

The study instrument was titled Attitude of Parents Toward COVID-19 Vaccination for Children (APVC), and it was based on a previous research that used a comparable instrument to assess people’s attitudes toward COVID-19 vaccination. [16]. This instrument assesses theoretical constructs such as the perception risk of contracting COVID-19, the severity of COVID-19, the benefits of the Vaccine against COVID-19, the obstacles to having received the Vaccine against COVID-19, identity, behavioral control, trust in the government, anticipated regret, understanding, and subjective norms. These items also evaluated participants’ belief systems that vaccination would allow them to resume normal living and comply with social distancing, among other things. The study participants filled the questionnaires, rating their perception with statements that range from “strongly agree (1)” to “strongly disagree (5).” This instrument consists of 24 items. The score ranges from 24 to 120. The score ranges from 50 to 80 were considered moderate the participants were also asked if their school directed that child receive the Vaccine against COVID-19. The Cronbach alpha of the instrument was 0.87 [16]. This instrument was piloted for 20 parents to check for clarity and validity. It showed to be a valid instrument.

2.3. Ethical consideration

Jordan University of Science and Technology’s Institutional Review Board (IRB) approved the study for ethical reasons. The investigators assured the respondents who agreed to take part in the study that they had the right to withdraw at any time. All study participants received information about the study’s purpose, risks, and benefits. Within the study setting, data were saved in a secluded location on laptop computers. Furthermore, participant information was treated with strict confidentiality, as names and any other information that could potentially expose a participant’s identity were not included on the questionnaire survey. Helsinki Declaration has been followed for involving human subjects in the study.

2.4. Data collection

The collection of data was conducted through a survey distributed using google forms in October 2021. Further, the survey was advertised on different social media platforms, including Facebook and Twitter and other networks such as community organizations, academic posts, and private groups. The information on how to reach the authors was written in the advertisement. Parents who were interested in participating were sent an online consent form and survey on a private app to those who contacted the authors from. The study participants could only fill the questionnaires once on a computer or mobile phone with all data privacy and anonymity conditions provided upfront to all potential participants.

2.5. Data analysis

The Statical Package for Social Science (SPSS) 25 was used to analyze data from the survey (IBM Corporations). The researchers calculated the descriptive statistics to explain the demographic characteristics of the study participants. The authors used frequency and percentage for describing the response of participants for each statement of the attitude instrument of the 24 items that described the attitude toward vaccination. To determine the factors associated with attitude score, the General Linear Model Procedure was used. P value of less than 0.05 was considered significant.

3. Results

3.1. Demographic characteristics

The response rate was 1078 (71.8%). The participants were male 203 (18.8%) and female 875 (81.2%). Most of them are working full-time jobs 615 (57.1%) (Table 1).

3.2. Description of attitude of parents toward vaccination against COVID-19 for their own children

Table 2 shows parents’ attitude toward COVID-19 vaccination for their children. The attitude of parents toward vaccination against COVID-19 for their own children was moderate demonstrated by the parents’ responses. The mean of attitude score was 65 (SD = 8.4). Almost three quarters of parents (77.6%) disagreed that a COVID-19 vaccination should be mandatory for children. Almost 65% of the participants believe that if their child does not get a coronavirus vaccination and ends up getting coronavirus, they would regret not getting the vaccination (66.3%). Almost two thirds of parents disagreed that most people would allow their children to receive coronavirus vaccination (61.2%).

3.3. Determinants of parents’ attitude

The GLM model was used to determine the predictors and correlates for the attitude score of parents toward COVID-19 vaccination for their children. The predictors that examine were gender, nationality, job status, level of income and if their child had previously received
influenza vaccine. The study found that male, Jordanian, full-time workers, higher income, and having a child who had received the influenza vaccine previously were most likely to have a positive attitude toward COVID-19 vaccination for children. See Table 3.

4. Discussion

The present study is the first to consider Jordanian parents’ attitudes toward COVID-19 vaccination for their own children during the COVID-19 disease outbreak. Furthermore, it is the first study to provide parents with reference information for the ongoing vaccine hesitancy with COVID-19 in their children. Also, this study demonstrated important factors that influence parents’ attitude toward COVID-19 vaccination for their children, such as socio-demographic characteristics and other factors.

This study reveals a moderately positive attitude among parents toward COVID-19 vaccination for their own children. In comparison, a study in Turkey found a high rejection of parents toward COVID-19 vaccination under any circumstances [17]. Other results of previous studies regarding attitude of parents toward COVID-19 vaccination for their children were different 89% in England [18], 80% in New Zealand [19], 72.5% in China [20], 65.2% in the USA.21 According to some participants in our study 511 (47.4%) that COVID-19 vaccination may cause children to infect with COVID-19. More than third of the participants 411 (38.1%) said they know enough about the coronavirus illness to make an informed decision about whether to give the vaccine to my child”. In comparison, a Turkish study found that many parents preferred to use other measures such as social distancing rather than vaccination. 17 Almost 50% are concerned about the vaccine?? Safety compared to previous studies [20,21]. More than 30% believe that children are not at risk from viruses compared to other groups and have no need for vaccination (citation?). A study in China revealed elevated levels of COVID-19 vaccination acceptance among the adult population during the pandemic [22]. According to most participants (91.3%), they would receive the Vaccine against COVID-19 it was made available after successful development and approval. More than half of the participants (52.2%) in the group that would accept the vaccine wanted to receive the vaccine as soon as it was made available, while 47.7% of them would wait until the vaccine’s safety was confirmed [22].

Our study found that the attitude of parents toward COVID-19 vaccination for their own children was more likely to be significant and impacted by gender, nationality, job status, level of income and if their child had previously received influenza vaccine. In comparison to the Turkish study, the only factor correlated with parents’ attitude toward COVID-19 vaccination was working as a healthcare provider. A study found that older parents, male gender, higher income, and higher education were more likely to show a positive attitude toward COVID-19 vaccination for their children compared to other parents [23]. A study in Italy found that low income with lower education level was a major determinant of negative attitude toward COVID-19 vaccination for children [24]. Another study found that crucial factors influencing the vaccination of the participants who accepted vaccination included risk perception, the belief of the vaccine efficacy, marital status, value for doctor’s recommendations, gender, influence vaccination history, vaccine price or convenience [25,26]. In China, the acceptance of the vaccine against COVID-19 was higher than our study. This shows a difference in public perception about the COVID-19 pandemic considering the risk of infection, the vaccine’s attitude or importance, the severity of the disease, and macro-level factors such as cultural or social factors across countries [27–30].

The pandemic has had a significant impact on many life aspects among many nations, and in particular, persons in China [31]. However, China implemented many restricted measures to control COVID-19 transmission and these interventions played a significant role in the control of COVID-19 transmission. The China study showed that very few of the study participants (12.2%) perceived an elevated risk of contracting COVID-19 despite 74.7% of them reporting confirmed or suspected cases in the countries in which they live (citation here?). In contrast, a study in China found a firm belief of Vaccine against COVID-19 efficacy among residents compared to 89.5% who perceived vaccination as the most effective way for COVID-19 prevention and control even when the vaccine was still under development [32,33].

(In our study?) The attitude of parents toward vaccination against COVID-19 for their own children was moderate. In comparison, a study of adult people in China found a significant positive attitude toward COVID-19 vaccination, and the effect of the pandemic on life helps explain the optimistic response toward COVID-19 vaccination. They believe that the benefits of vaccination outweigh the risks [31].

The findings for our study provide a starting point regarding the children’s vaccination to establish public immunity of Jordanian population. As a result, the rapid development of the Vaccine against COVID-19 for children is a recommended response to the pandemic. Although the study observed elevated levels of acceptance, there are barriers to increasing the uptake of the vaccine. The behavior of parents is related to the uncertainty of concerns about the safety of the vaccine hence vaccine hesitation.

A study observed a delay in vaccination due to two fundamental reasons. First, the Vaccine against COVID-19 was still under investigation for use for children, and there was little to no information about the

Table 1

| Demographic characteristics for the Participants (N = 1078) | Frequency | Percent |
|--------------------------------------------------------|-----------|---------|
| Age                                                     |           |         |
| 18 to 25                                                | 32        | 3.0     |
| 26 to 35                                                | 351       | 32.6    |
| 36 to 45                                                | 507       | 47.0    |
| 46 to 55                                                | 164       | 15.2    |
| More than 55                                            | 24        | 2.2     |
| Gender                                                  |           |         |
| Male                                                    | 203       | 18.8    |
| Female                                                  | 875       | 81.2    |
| Health Insurance                                        |           |         |
| No                                                       | 268       | 24.9    |
| Yes                                                      | 810       | 75.1    |
| Children number                                         |           |         |
| <3                                                      | 290       | 26.9    |
| 3                                                       | 306       | 28.4    |
| >3                                                      | 482       | 44.7    |
| Working Status                                          |           |         |
| No working                                              | 341       | 31.6    |
| Full work                                               | 615       | 57.1    |
| Partial work                                            | 80        | 7.4     |
| Retired                                                 | 41        | 3.8     |
| Income for month (1 JD = 1.48)                          |           |         |
| Less than 400                                           | 437       | 40.5    |
| 400 to 600                                              | 429       | 39.8    |
| 600 to 800                                              | 117       | 10.9    |
| More than 800                                           | 95        | 8.8     |
| Education                                               |           |         |
| Primary or secondary degree                             | 6         | 0.6     |
| Less than diploma                                       | 193       | 17.9    |
| Associate                                               | 236       | 21.9    |
| Bachelor                                                | 499       | 46.3    |
| Higher degree                                           | 144       | 13.4    |
| Social status                                           |           |         |
| Married                                                 | 1024      | 95.0    |
| Separated or widowed                                    | 54        | 5.0     |
| Living Area                                             |           |         |
| City                                                    | 884       | 82.0    |
| Village                                                 | 194       | 18.0    |
| Smoking                                                 |           |         |
| NO                                                      | 871       | 80.8    |
| YES                                                     | 207       | 19.2    |
| Number of times hearing news for COVID-19               |           |         |
| Never                                                   | 144       | 13.7    |
| Rarely                                                  | 228       | 21.2    |
| Sometimes                                               | 279       | 25.9    |
| Always                                                  | 423       | 39.2    |
| Infected with viral infection related to respiratory system |           |         |
| No                                                      | 325       | 30.1    |
| Yes                                                     | 577       | 53.5    |
| Maybe                                                   | 176       | 16.3    |
| Getting Influenza vaccine                                |           |         |
| No                                                      | 890       | 82.6    |
| Yes                                                     | 161       | 14.9    |
| Maybe                                                   | 27        | 2.5     |
| Parent COVID Vaccine                                    |           |         |
| No                                                      | 210       | 19.5    |
| Yes                                                     | 858       | 79.6    |
| Maybe                                                   | 10        | 0.9     |
vaccine acceptance. It revealed that male or unmarried respondents vaccination for their children are just a way to make money for vac study reported that many parents believe that widespread COVID-19 acceptable for vaccination against COVID-19 than high income or pe another study that used multiple regression to determine predictors for diation vaccination. The study also revealed that the income and edu effectiveness of the vaccine. Our study also evaluated the impact of socio-demographic factors on the barriers and promoters of vaccination. This study was able to explore the barriers and promoters of safety of the vaccines to refer to the children until now. Second, the concern about new vaccines during the pandemic differed from those routinely used. Due to the uncertainties, the emergence of a new in infectious disease and concerns could be perceived as political. Our study reported that many parents believe that widespread COVID-19 vaccination for their children are just a way to make money for vaccine manufacturers. In comparison, a quantitative study in Dutch reported a similar finding. After introducing a safe vaccine comparable to those already available in the market, the factor in deciding to receive the vaccine becomes less important than other factors such as the cost or effectiveness of the vaccine.

Our study also evaluated the impact of socio-demographic factors on vaccine acceptance. It revealed that male or unmarried respondents from the Chinese population had higher vaccine acceptance of immediate vaccination. The study also revealed that the income and education of the respondents did not have any influence on the intentions. In another study that used multiple regression to determine predictors for attitude toward vaccination for adult were found that female, having children in home, independent, not worry about having COVID-19 more acceptable for vaccination against COVID-19 than high income or people with higher degrees.

This study was able to explore the barriers and promoters of vaccination that are important in determining priority groups that require special attention during vaccination campaigns. They are also important in designing an effective immunization strategy that focuses on increasing vaccine uptake to control and prevent the spread of the COVID-19 virus.

4.1. Limitations

There are many limitations for this study such as using self-reported instruments. However, the authors used a large size to decrease the bias. Another limitation, using cross-sectional design which limits the cause-effect relationship. Also, the authors used social media to distribute since the COVID-19 virus limited distribution by using paper-pencil, however, this was the best way to collect the data from the participants.

4.2. Implication of the study

The findings will be useful in implementing effective vaccination programs and initiatives for families and children who are already hesitant. First, Jordan needs to make the vaccine affordable for the public and promised to make it globally available when ready for use. Second, measures to enhance the accessibility and convenience of the

Table 2

| Description of Attitude of parents toward vaccination against COVID-19 for own children (N = 1078) | Strongly Disagree | Slightly Disagree | Neutral | Agree | Strongly Agree |
|---------------------------------------------------------------|------------------|------------------|--------|-------|----------------|
| Strongly Disagree | Slightly Disagree | Neutral | Agree | Strongly Agree |
| **Count** | **Row N %** | **Count** | **Row N %** | **Count** | **Row N %** | **Count** | **Row N %** | **Count** | **Row N %** |
| 1. A COVID-19 vaccination for the children should be mandatory | 501 | 46.1% | 344 | 31.6% | 126 | 11.6% | 107 | 9.8% | 9 | 0.8% |
| 2. Without COVID-19 vaccination for the children, children will catch coronavirus | 267 | 24.6% | 301 | 27.7% | 282 | 25.9% | 217 | 20.0% | 20 | 1.8% |
| 3. If a child gets a COVID-19 vaccination, the child will be protected against coronavirus | 306 | 28.2% | 352 | 32.4% | 262 | 24.1% | 156 | 14.4% | 11 | 1.0% |
| 4. If child do not get a coronavirus vaccination and end up getting coronavirus, child would regret not getting the vaccination* | 340 | 31.3% | 382 | 35.1% | 205 | 18.9% | 145 | 13.3% | 15 | 1.4% |
| 5. It would be extremely easy for a child to have a COVID-19 vaccination | 276 | 25.4% | 261 | 24.0% | 259 | 23.8% | 265 | 24.4% | 26 | 2.4% |
| 6. A coronavirus vaccination for children could give them coronavirus | 28 | 2.6% | 203 | 18.7% | 339 | 31.2% | 280 | 25.8% | 237 | 21.8% |
| 7. I would be worried about my child experiencing side effects from COVID-19 vaccination. | 150 | 13.8% | 454 | 41.8% | 157 | 14.4% | 126 | 11.6% | 200 | 18.4% |
| 8. I might regret getting a COVID-19 vaccination for the child if the child later experienced side effects from the vaccination | 203 | 18.7% | 140 | 12.9% | 160 | 14.7% | 431 | 39.7% | 153 | 14.1% |
| 9. A COVID-19 vaccination for the child will be too new for parents to be confident about it | 184 | 16.9% | 172 | 15.8% | 204 | 18.8% | 391 | 36.0% | 136 | 12.5% |
| 10. Most people will allow their children to receive coronavirus vaccination. | 335 | 30.8% | 330 | 30.4% | 265 | 24.4% | 139 | 12.8% | 18 | 1.7% |
| 11. Other people like me will not allow their children to give a coronavirus vaccination* | 110 | 10.1% | 385 | 35.4% | 244 | 22.4% | 174 | 16.0% | 174 | 16.0% |
| 12. In general, vaccination is a good thing* | 221 | 20.3% | 223 | 20.5% | 293 | 27.0% | 205 | 19.0% | 55 | 5.1% |
| 13. My child afraid of needles* | 124 | 11.4% | 449 | 41.3% | 207 | 19.0% | 150 | 13.8% | 157 | 14.4% |
| 14. If children were vaccinated, children would not need to follow social distancing and other restrictions for coronavirus | 340 | 31.3% | 323 | 29.7% | 235 | 21.6% | 161 | 14.8% | 28 | 2.6% |
| 15. I know enough about the coronavirus illness to make an informed decision about whether to give vaccine for my child | 153 | 14.1% | 202 | 18.6% | 319 | 29.3% | 335 | 30.8% | 78 | 7.2% |
| 16. I know enough about the coronavirus vaccine to make an informed decision about whether to give the vaccine to my child. | 159 | 14.6% | 226 | 20.8% | 293 | 27.0% | 331 | 30.5% | 78 | 7.2% |
| 17. Only children who are at risk of serious illness from coronavirus need to be vaccinated | 255 | 23.5% | 290 | 26.7% | 273 | 25.1% | 233 | 21.4% | 36 | 3.3% |
| 18. My family would approve of my child getting a coronavirus vaccination. | 393 | 36.2% | 294 | 27.0% | 217 | 20.0% | 153 | 14.1% | 30 | 2.8% |
| 19. My friends would approve of giving coronavirus vaccination for my child | 358 | 32.9% | 310 | 28.5% | 284 | 26.1% | 119 | 10.9% | 16 | 1.5% |
| 20. If a COVID-19 vaccination for the children was recommended by the Government, children would get vaccinated* | 336 | 30.9% | 264 | 24.3% | 243 | 22.4% | 217 | 20.0% | 27 | 2.5% |
| 21. If a COVID-19 vaccination for my child was recommended by a healthcare professional, my child would get vaccinated* | 325 | 29.9% | 255 | 23.5% | 237 | 21.8% | 237 | 21.8% | 33 | 3.0% |
| 22. Widespread COVID-19 vaccination for the children is just a way to make money for vaccine manufacturers* | 111 | 10.2% | 300 | 27.6% | 306 | 28.2% | 220 | 20.2% | 150 | 13.8% |
| 23. A coronavirus vaccine for children will allow us to give back to ‘normal’ | 275 | 25.3% | 287 | 26.4% | 304 | 28.0% | 192 | 17.7% | 29 | 2.7% |
| 24. There would be no point in having the COVID-19 vaccination for the child unless child could go back to my normal life | 171 | 15.7% | 178 | 16.4% | 264 | 24.3% | 367 | 33.8% | 107 | 9.8% |
Attitude of Parents toward COVID-19 and other Characteristics of the participants

|                        | Mean | 95% Confidence Interval | p-value |
|------------------------|------|-------------------------|---------|
| Age                    |      |                         |         |
| 18 to 25               | 72.7 | 64.9 80.4               | 0.117   |
| 26 to 35               | 70.4 | 63.8 76.9               |         |
| 36 to 45               | 69.3 | 62.6 75.9               | 0.158   |
| 46 to 55               | 70.5 | 63.7 77.3               |         |
| more than 55           | 74.9 | 67.0 82.9               |         |
| Gender                 |      |                         | 0.012   |
| male                   | 72.9 | 66.3 79.5               |         |
| female                 | 70.2 | 63.4 76.9               |         |
| Nationality            |      |                         | 0.013   |
| Jordanian              | 68.7 | 62.5 75.0               |         |
| others                 | 74.3 | 66.8 81.9               |         |
| Health Insurance       |      |                         | 0.158   |
| NO                     | 70.8 | 64.2 77.4               |         |
| YES                    | 72.3 | 65.6 79.0               |         |
| Children number        |      |                         | 0.153   |
| <3                     | 70.7 | 64.9 77.3               |         |
| 3                      | 71.5 | 64.7 78.2               |         |
| >3                     | 72.5 | 65.9 79.1               |         |
| What the status of your job |      |                         | 0.028   |
| No working             | 73.0 | 68.3 77.6               |         |
| Full work              | 69.9 | 65.3 74.4               |         |
| Partial work           | 69.1 | 64.0 74.2               |         |
| Retired                | 69.4 | 63.6 75.2               |         |
| What is the level of your income? |      |                         | 0.000   |
| less than 400          | 67.8 | 61.3 74.3               |         |
| 400 to 600             | 70.9 | 64.4 77.5               |         |
| 600 to 800             | 73.6 | 66.7 80.6               |         |
| more than 800          | 73.8 | 66.7 80.9               |         |
| Level of Study         |      |                         | 0.576   |
| illiterate             | 78.3 | 66.9 89.7               |         |
| Primary or Secondary   | 69.8 | 63.3 76.3               |         |
| Associate              | 69.9 | 63.3 76.5               |         |
| Bachelor               | 69.9 | 63.4 76.3               |         |
| Higher degree          | 69.9 | 63.3 76.5               |         |
| What is your social status? |      |                         | 0.322   |
| Married                | 70.7 | 64.3 77.1               |         |
| Separated              | 72.4 | 65.3 79.5               |         |
| Where do you live?     |      |                         | 0.864   |
| city                   | 71.6 | 65.1 78.1               |         |
| village                | 71.5 | 64.7 78.2               |         |
| Do you smoke?          |      |                         | 0.959   |
| NO                     | 71.6 | 65.0 78.2               |         |
| YES                    | 71.5 | 64.8 78.2               |         |
| Did your child infected with viral disease? |      |                         | 0.269   |
| NO                     | 71.0 | 64.4 77.5               |         |
| YES                    | 72.1 | 65.4 78.8               | 0.421   |
| How many times do you hear the news? |      |                         |         |
| Never                  | 70.6 | 63.8 77.3               |         |
| Rarely                 | 71.2 | 64.6 77.9               |         |
| Sometimes              | 72.0 | 65.3 78.8               |         |
| Always                 | 72.3 | 65.7 79.0               |         |
| Was your child infected with viral disease? |      |                         | 0.436   |
| No                     | 70.8 | 64.3 77.4               |         |
| Yes                    | 71.9 | 65.2 78.5               |         |
| Maybe                  | 71.9 | 65.2 78.7               |         |
| Did your child receive the influenza vaccine? |      |                         | 0.001   |
| No                     | 68.9 | 62.4 75.4               |         |
| Yes                    | 72.6 | 66.0 79.3               |         |
| Maybe                  | 73.1 | 65.4 80.8               |         |
| Did you receive COVID-19 vaccination? |      |                         | 0.004   |
| No                     | 71.8 | 65.5 78.1               |         |
| Yes                    | 74.7 | 68.6 80.8               |         |
| Maybe                  | 68.1 | 58.5 77.7               |         |
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