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Research Article

Assessment of awareness of mother about proper management of vaccine related problem

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Abstract:

Introduction:

Vaccination is an effective method to prevent a number of infectious diseases. Vaccines have largely reduced morbidity, mortality and health care costs and have enhanced the quality of life of patients worldwide. Unfortunately, there's adverse effect associated with vaccine, Most of the adverse events (AE) are fever and local pain, inflammations, vomiting, nausea. To reduce pain and fever associated with vaccination utilized paracetamol as prophylactically and also for treatment.

Objective:

Know the percentage of mothers who have an awareness about the effect of paracetamol on the vaccine. And find out what tools they use to remove fever and discomfort for their children.

Method:

This was a cross-sectional study conducted among the community of Jeddah, Saudi Arabia. It included a representative sample of 224 participants aged 18 years and older .The data was collected through a questionnaire that was distributed Online. The questionnaire consisted of 14 questions about participant's demographics, vaccine related question, antipyretic related question. The Data were entered by Microsoft Excel 2017.

Result:

Two hundred twenty four participants were included in this study. Majority of them 44.6% were 36-49 years old. The most educational level of mothers was university with 72.4% while the lowest is primary school with 1.8%. Symptom related vaccine included fever 96.3%, redness and swelling at injection site 56.4%, pain in joint and muscle 11.7%, jerk 2.5%, while the lowest was headache with 1.2%. Method that be used to relief symptom after vaccination; cold compresses 46.3% , Vicks 16% and Davies compresses 37.8% . 25.3% of participants were used prophylaxis to

their children before vaccine and 74.7% were not used. 96.9% of participants used paracatamol as prophylaxis and 3.06% used ibuprofen. 15.6% of them believe that pre-vaccine is effective than after-vaccine and 56% they don't know.

Conclusion :

This population-based study found a lack of awareness about pre-vaccination among Jeddah-Saudi public, few mothers have a background about pre-vaccination.

Introduction :

Vaccination is an effective method to prevent a number of infectious diseases varying from Polio, Pertussis, Hepatitis B, to HPV associated cancers.[1]

The widespread availability and use of vaccines have largely reduced morbidity, mortality and health care costs associated with infectious diseases and have enhanced the quality of life of patients worldwide [2,3] According to evaluations made by the World Health Organization (WHO), approximately two million deaths among children under 5 years of age can be prevented annually over the use of existing vaccines [4].

However, the situation in the Gulf countries of the Middle East, including Saudi Arabia, appears to be considerably different. In Saudi Arabia, the range of routine immunization coverage is similar to developed countries [5]. The requirement of evidence of childhood vaccination as a prerequisite for school admission appears to be a strong contributing factor to the high immunization rates in Saudi Arabia. However, this may make parental vaccine aversion and non-compliance [6] .

Hence, continuous engagement with parents to identify probable misperceptions and concerns remains warranted. A limited number of published studies have focused on parental perceptions about childhood vaccination in Saudi Arabia. [7]

Combination vaccines for pediatric immunization schedules have provided to a reduction in the number of clinic visits, logistical challenges, operational costs and injections and an increase in parental approval[8,9]

Moreover, these vaccines improve individual adaptation to the virus and schedule vaccination coverage. Therefore, the increase of antigens to existing vaccines with high coverage is considered an effective and appropriate strategy for protecting society from new diseases [10,11]

Public trust in newly introduced vaccines can be strengthened by monitoring vaccine safety. Reconnaissance of adverse events following immunization will enable us to monitor the safety of immunization programs and thereby contribute to confirming the immunization program. In this way, the defective adverse events of the immunization program can be completely controlled, and any inappropriate measures based on reports of the adverse effect that may cause concern in society can be prevented [12–14]

Most of the adverse events (AE) are minor reactions such as local pain and inflammations, vomiting, nausea, and fever. Rarely parotitis, febrile convulsions, and very rarely anaphylactic reactions and encephalitis are reported [15]

In many European, To reduce pain and fever associated with vaccination utilized paracetamol as prophylactically (preventative treatment)[16]. paracetamol (acetaminophen) is an analgesic and antipyretic drug widely used in children and adults [17] . Despite this advice to restrict paracetamol to those children with previous reactions, many parents give paracetamol to their children prior to or just after the vaccine administrations. Estimates of paracetamol use committed by the Dutch National Immunization Program (NIP) range from 19–27% prophylactically, and up to 49% prophylactically and therapeutically [18] .

Paracetamol is generally regarded as safe, besides the hepatotoxic effects at higher doses, and is abundantly used as an over the counter drug [19]

Recently published results suggest a negative influence on vaccination response, i.e. a decrease in antibody levels, in infants who received paracetamol prior to vaccination (ten-valent pneumococcal vaccine) in order to prevent fever [20] . The decreased antibody levels were only observed after paracetamol treatment prior to the first vaccination, the priming of the immune response, and not when paracetamol was given prior to booster immunizations.

Therefore, the objective of the current study was to assess awareness of proper management of vaccine. Method : The study design is cross-sectional was conducted on January 2019 to measuring mother's awareness of how to deal with vaccination problems among the community of Jeddah, Saudi Arabia. The research protocol was reviewed and ethical approval was granted by the Institutional Review Board (IRB) of Ibn Sina National College (ISNC). In this mothers-based study, we included a representative Sample of 224 participants randomly selected mothers from age of 18 years old and above, who deal with vaccination problems and lives in Jeddah. While participant younger than 18 and don't live in Jeddah were excluded. The 14-item structured questionnaire consists about participant's demographics, vaccine related question, antipyretic related question. table I. were also allowed especially in where standardized options did not adequately describe their views like their question about why not to give their children an Antipyretic before vaccination?. The questionnaire was developed after an extensive review of relevant literature and includes three main domains. The first section consist of mothers' ages, education. The second section consists of just one question that asks whether the mother has given the vaccination to her child or not. The third section consist of six questions that we asked mothers about the type of vaccine and the side effects they observed, what the antipyretic they used for those side effects and whether that mothers used before or after the vaccine to their child also we asked them about what they think of the effectiveness of antipyretic before or after vaccination. The questionnaire required an average of 2 minute to complete. Prior to publishing the survey, the survey instrument was pre-tested with 10 mothers to minimize ambiguity and to enhance clarity and simplicity, which resulted in minor modifications. The data collected through one self-conducted questionnaire that was validated by expert opinion and distributed to mothers online in Jeddah, questionnaire was prepared in Arabic and conducted by trained pharmacists

Table I: questionnaire components

Respondent's demographic:	Name Age City Education
vaccine related questions:	What vaccinations have been given to your child? Does your child have any side effects after vaccination? If yes, name it. If you are not using any analgesic, what are the alternatives to reducing your child's temperature?
Antipyretic related questions:	Do you give your child a "pre-vaccination" fever? If yes, name it. Do you treat the "after" side effects by giving your child a fever? Do you think that pre-vaccination fever is more effective than after vaccination?

Prior to data collection, all participants were informed about the nature of the study and their participation is voluntary.
The Data were entered by Microsoft Excel 2017

Result:

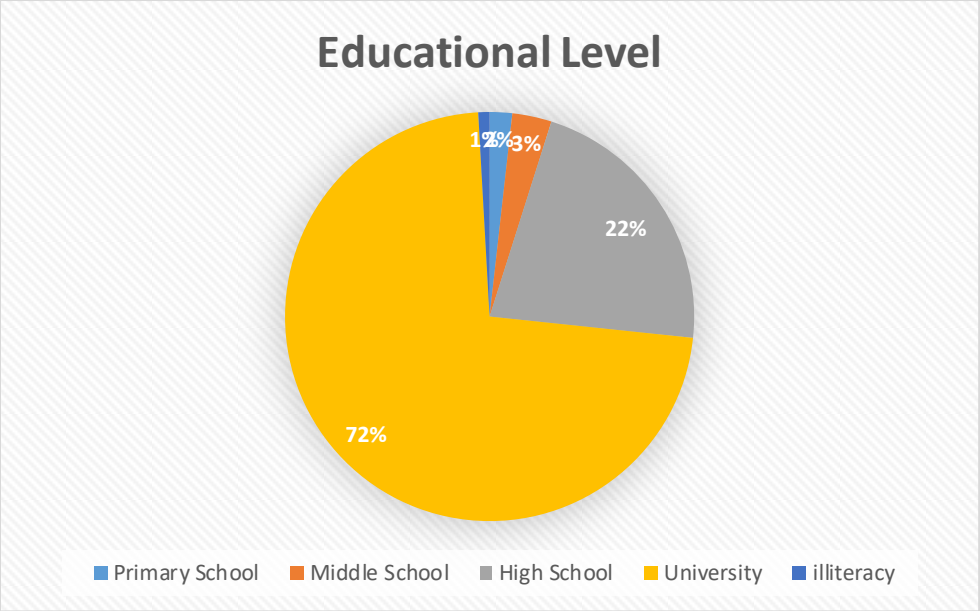
Two hundred twenty four participants were included in this study, with different mean age; 12.5% (n=28) participants were 18-25 years, 13.8% (n=13.8) participants more than 50 years, 29% (n=65) of them were 26-35 years and 44.6% (n=100) were 36-49 years (table 1).

Table1: Baseline Characteristics

Age	Count	% of total
18-25	28	12.5%
26- 35	65	29%
36-49	100	44.6%
>50	31	13.8%

Figure1, represented the educational level of participants; the most educational level was university with 72.4% (n=163) while the lowest is primary school with 1.8% (n=4).

Figure 1 : Educational Level



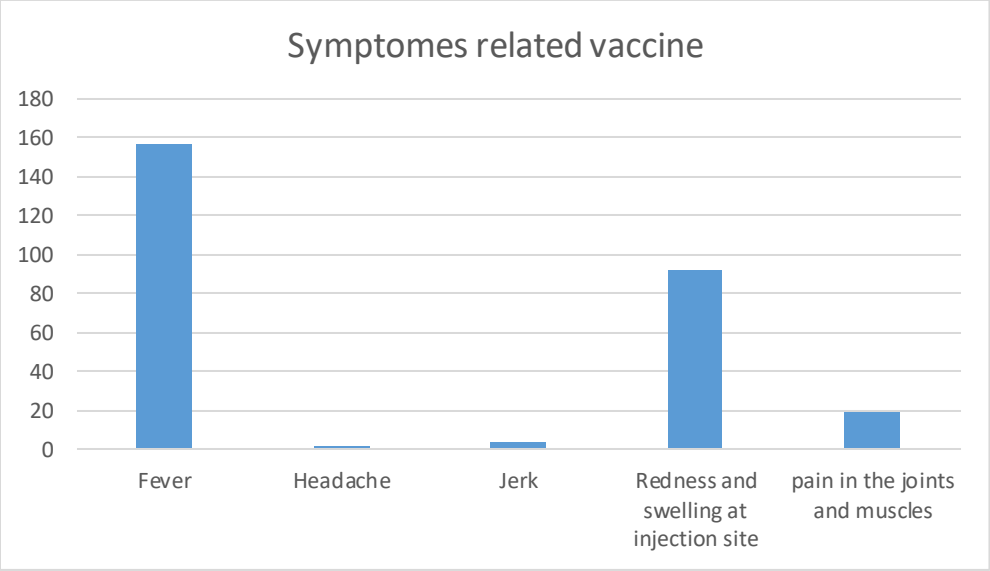
The common vaccination time is various between at birth with 94.6% (n=209), 2 months with 91% (n=201), 4 and 6 months with 86.40% (n=191) and 9 months with 81.40% (n=180) while 63.80% (n=141) of them at first grade (figure 2).

Figure 2 : Vaccination schedule.

95.9% (n=212) of them were treat their child from fever after vaccine.

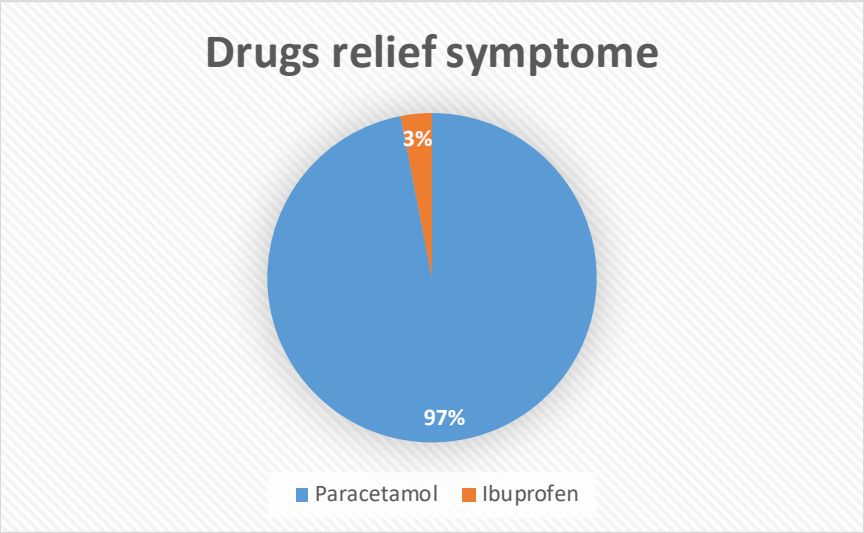
Moreover, the symptoms that showed after vaccine included fever with 96.3% (n=157), redness and swelling at injection site with 56.4% (n=92), pain in joint and muscle 11.7% (n=19) , jerk 2.5% (n=4) , while the lowest indicated symptom was headache with 1.2% (n=2) (figure 3).

Figure 3 : Symptoms affect after vaccine



There's 25.3% (n=57) of participants were used prophylaxis to their children before vaccine and 74.7% (n=168) were not used.
The figure 4, showed the drugs that be used prophylaxis vaccination; Paracetamol used by 96.9% of participants while ibuprofen by 3.06%.

Figure 4 : Drug that used prophylaxis od vaccination :



The non-pharmacologic method that were used to reduce the temperature vary from cold compresses with 46.3% (n=104) , Vicks 16% (n=36) and Davies compresses 37.8% (n=85).

Finally when we asked them about do you believe that pre-vaccine more effective than after-vaccine, majority of them they don't know 56% (n=126) , and 28.4% (n=64) they answered No , 15.6% (n=35) answered Yes.

Discussion:

Fever is part of the normal inflammatory process after immunization, prophylactic antipyretic drugs are sometimes recommended to allay concerns of high fever and febrile convulsion, we assess mothers' awareness of the proper management of the vaccine problem.

The results indicate a lack of awareness about pre-vaccination among Saudi Arabia's public, and few mothers have a background about previous immunization. Mothers know exactly what symptoms their children may be exposed to after taking the vaccine. As shown in the results, 68% of mothers noticed The presence of side effects for their children after taking the vaccine, and so they are keen to protect their children. paracetamol is administered as a remedy for complaints that occur after vaccination. Recently published results indicate that paracetamol inhibits the vaccination response in infants when given prior to vaccination. The results showed that 57% of the participants gave their children prophylaxis prior to the vaccine. Unfortunately, the majority used paracetamol, which has been shown to have negative impacts on the vaccine response. **As shown in Figure 3**, the most common side effects observed were fever(96%). While another study[21] showed that the percentage of fever was in its results was 40–50% . This is one of the most common symptoms after the vaccine. We found that 95% treated their children after fever. Redness and swelling were observed at the injection site at 56% .

We think that this is what prompts mothers to give their children treatment before and after the vaccine. Paracetamol was therefore given to calm the fears of parents to have children with high fever after vaccination.

Giving children paracetamol as prophylaxis against fever can affect the

effect of the vaccine and the formation of antibodies to protect them from infection.

Fever is a natural reaction of the body after the vaccine. However, the majority (96.9%), as **noted in table 2**. gave their children paracetamol as prophylaxis before the vaccination.

The main objective of this study is to assess mothers' awareness of the proper management of the vaccine problem. To see their awareness of the use of alternatives to reduce their children's temperature the results showed that 46.2% use cold compresses, 37% use Davies compresses And 16% use Vicks " at site of injection - and we think we should encourage them more to use these alternatives when the fever occurs.

In the last question, we asked whether they believed that giving children paracetamol or ibuprofen before giving the vaccine as a prophylaxis is better than giving them after the vaccine, to reduce their children's temperature . 56% don't know , 28,4% said No , they don't think and 15,6 % said Yes it is better .

This question had to be asked in order to obtain a general indication of their awareness of how they do the proper management of the vaccine problem.

So, although febrile reactions significantly decreased, prophylactic administration of antipyretic drugs at the time of vaccination should not be routinely recommended since antibody responses to several vaccine antigens were reduced.

Limitation of this study :

This study has a number of methodological limitations, including the cross sectional study, Questionnaire nature of the survey. In addition, study data were collected online.

Recommendation

we recommended to educational program and public awareness campaigns warranted to rise the public awareness about safe and effective use of pre-vaccinated.

Conclusion:

In this study we aimed to assess the awareness of mother about proper management of vaccine related problem.

This population-based study found a lack of awareness about pre-vaccination among Jeddah-Saudi public, few mothers have a background about pre-vaccination. However. Recently published results suggest a negative impact on vaccination response, i.e. a decrease in antibody levels, in infants who received paracetamol prior to vaccination in order to prevent fever and most of them using Paracetamol rather than Ibuprofen. A number of participant found to take other than medications such as Vicks, Cold compresses and Davies compresses. Based on our outcomes, the vision of any healthcare professional aware practitioner of their responsibility is to Clarify and give all the necessary instructions for all Mothers after childbirth. We recommend health ministry to continuous engagement with mothers to identify probable misperceptions and concerns mother's perceptions about childhood vaccination. Therefore, spreading awareness about proper management of the vaccine-related problem. Mother's contribution is a sign cant factor since the current standards recommend vaccinating children from birth until when they entering the first grade. Hence, providing education to mothers on the purpose of vaccines is crucial to bringing together public health and safety with the cultural norms in the community.

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