



ORIGINAL ARTICLE

## Demands and expectations of parents who refuse vaccinations and perspective of health professional on the refusal to vaccinate<sup>☆</sup>

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### Abstract

**Objectives:** To examine the opinions, beliefs and attitudes about vaccination, of parents who decide not to vaccinate their children. To determine the opinions and attitudes of the health professionals on the behaviour towards childhood vaccination.

**Method:** Qualitative research based on semi-structured interviews and focal groups in Granada, Spain, including parents who chose to not vaccinate their children, and healthcare professionals who can provide a technical point of view. An analysis was made of the semantic content, and answers were categorised in thematic units.

**Results:** The parents argued on the benefit of suffering vaccine-preventable diseases in a natural way, without non-natural, aggressive or toxic products. Vaccination was considered unnecessary, if given adequate hygienic-sanitary conditions, effectiveness unproven and more dangerous than the diseases they prevent, especially the polyvalent vaccines. They believed that vaccination programs are moved by biased studies and interests other than prevention. Health care professionals believe that they had fears without scientific basis, which requires improving information systems.

**Conclusions:** Non-vaccinators are unaware of the benefit/risk ratio between the vaccination and the individual risk for preventable diseases, and ask for informed consent. Health care

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**PALABRAS CLAVE**

Vacunas;  
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professionals believe that non-vaccinators' arguments are not correctly contrasted and expose the existence of failures in actual vaccination coverage and information registration systems. It was suggested to centralise registers and compare them in schools, working with local leaders and reporting regularly on the status of vaccine-preventable diseases.

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### **Demandas y expectativas de padres y madres que rechazan la vacunación y perspectiva de los profesionales sanitarios sobre la negativa a vacunar**

**Resumen**

**Objetivos:** Explorar las opiniones, creencias y actitudes sobre la vacunación, de padres y madres que deciden no vacunar a sus hijos/as. Conocer las opiniones y las actitudes de profesionales sanitarios sobre el comportamiento de estas personas hacia la vacunación.

**Método:** Investigación cualitativa basada en entrevistas semiestructuradas y grupo focal a padres/madres de Granada que deciden no vacunar a sus hijos/as y a profesionales sanitarios implicados en la vacunación infantil. Análisis de contenido de tipo semántico con categorización de respuestas en unidades temáticas.

**Resultados:** Los padres argumentan el beneficio de presentar enfermedades inmunoprevenibles de un modo natural, sin productos antinaturales, tóxicos o agresivos. Consideran la vacunación innecesaria si se dan adecuadas condiciones higiénico-sanitarias, de eficacia no demostrada, y más peligrosa que las enfermedades que evitan, especialmente las vacunas polivalentes. Piensan que los programas de vacunación están movidos por estudios sesgados e intereses distintos de la prevención de perfil comercial. Los profesionales opinan que los que rechazan la vacunación tienen temores de base pseudocientífica, que es necesario mejorar los sistemas de información/comunicación, tener una postura conciliadora y una sólida formación sobre seguridad vacunal.

**Conclusiones:** Los no vacunadores han perdido la percepción del balance beneficio de la vacunación frente al riesgo individual de presentar enfermedades inmunoprevenibles y plantean la necesidad del consentimiento informado. Los profesionales consideran poco contrastadas las argumentaciones de los no vacunadores y exponen la existencia de fallos en las coberturas reales de vacunación y en los sistemas de registro de la información. Como mejoras se plantea centralizar los registros, compararlos con los listados de educación, trabajar con líderes locales e informar periódicamente sobre la situación de las enfermedades inmunoprevenibles.

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**Introduction**

Treatment refusal is part of the general theory of informed consent, which is the decision-making model currently applied in modern bioethics.<sup>1</sup>

In Spain, this decision-making model is governed by Law 41/2002, of 14 November, which establishes the basic regulatory law for the patient's autonomy and the rights and duties regarding clinical information and documentation. This law stipulates that patients can always exert their moral autonomy and make whatever decisions they deem appropriate in relation to their body or health, save for those cases that are determined by the law.<sup>2</sup> In the case of vaccination, there is the particularity that an individual's choice can have an effect on the health of the community.

With the advance in the capabilities of the healthcare system, increasing wellness and quality of life has become more important, and it has become a widespread belief that just as a patient can choose a medical option, another can choose to refuse it.<sup>3</sup>

In recent decades there have been considerable changes in vaccination programme (VP) coverage and in vaccine effectiveness due to a gradual increase of the number of people who choose not to have vaccinations.<sup>4-6</sup> Among them there are individuals who reject all vaccinations<sup>7</sup>, while others only refuse certain vaccines claiming that the immune system is altered or the disease has been eradicated. They defend personal freedom and question vaccine safety and efficacy.<sup>8</sup>

In Spain, vaccines are not mandatory but recommended. Ideally they should be administered routinely in childhood<sup>9</sup>, eliminating ethnic, social, and economic disparities to achieve individual protection and avoid clusters of individuals within the population who are susceptible to vaccine-preventable diseases. VPs are a public health and primary care prevention strategy that have universal benefits, resulting from using available vaccines and applying appropriate public health policies<sup>10</sup>, but they require ongoing adjustments in every country, region, and health district according to epidemiological surveillance data.

In October 2010 in Albaycín, a neighbourhood in Granada, Spain, marked by great ethnic and cultural diversity, there was an outbreak of measles that started in a cluster of people who refused vaccination. A court decision dictated mandatory vaccination as a public health measure.<sup>11,12</sup> At present, disease outbreaks continue to originate in clusters of people who are susceptible due to their decision to refuse vaccination.

A communicable epidemic such as this one must be tackled with all available scientific knowledge, keeping in mind that there is no single way to understand and interpret disease or epidemiological data.<sup>13</sup> The aim of this study was to explore the opinions of parents who do not vaccinate their children for ideological reasons and of healthcare professionals involved in childhood vaccination, with the purpose of further understanding this phenomenon and identifying potential areas for improvement.

## Methods

Qualitative study based on grounded theory<sup>14</sup> with focus groups and semi-structured interviews with healthcare professionals and parents of children with incomplete immunisation due to personal choice. It was carried out in Granada between April and September 2011.

Parent's children with complete immunisation status and those with incomplete immunisation due to reasons other than personal choice (forgetfulness, neglect, etc) were excluded. The subjects of the study were selected by convenience sampling, as we sought to understand this social phenomenon. The sample size was determined according to the criterion of saturation. We identified children eligible for MMR vaccination according to the immunisation schedule, and any child whose vaccination status was unknown, forgotten, or unsupported by vaccination records was considered unvaccinated. Through key informants, we selected those who came from families who were opposed to vaccination, applying the following segmentation

criteria: fathers/mothers, incomplete vaccination/incorrect vaccination and unvaccinated. We performed 16 semi-structured interviews (4 per segment) according to the established profiles (Table 1) and we did a focus group that represented all the profiles because we thought this would encourage collaborative communication.<sup>15</sup>

Regarding healthcare professionals, the inclusion criterion was that they should be knowledgeable about the subject of the study. We specifically selected 4 profiles (paediatricians, nurses, preventive medicine and public health specialists, and epidemiology experts).

The interviews were held in a suitable, neutral and easily accessible place. We drew up the script based on the research objectives and a literature review, and carried out pilot interviews to check that the questions were well designed in terms of vocabulary, order and wording (Table 2).

Each activity had an observation guideline and a quality fact sheet was completed. We used field notes, recorded our observations and documented how the research was carried out. Using the verbatim transcription of interviews, we performed a semantical analysis to classify the content into categories, examining the data and assigning the answers to thematic units in order to draw conclusions.<sup>15</sup> We read and interpreted the results based on the informed consent theory, exploring the beliefs, expectations, and attitudes that uphold the conflicting values. To facilitate interpretation, the results of the parents' interviews were grouped by the most common reasons reported in the literature for refusing vaccination.<sup>16</sup>

## Results

Information is presented in categories based on the interview script, the generated hypotheses and the explanatory context. Table 3 shows the analysis themes for parents and healthcare professionals. Tables 4 and 5 show the verbatim quotes from parents and professionals, respectively, and Table 6 gives suggestions for improvement.

Generally, vaccine-preventable diseases were considered a natural, beneficial and benign process, with easy and accessible treatment, which help the body get stronger (1-2). Health was an individual's responsibility, not enforced, which meant respecting nature and helping the body to manage its own functioning and avoid disease (3-5). It was suggested that vaccines have not had a direct effect on the decline of diseases, and thus are not really necessary. The greater impact on disease has been due to the improvement of socio-economic conditions (development, nutrition, sanitation systems) (6-8). This implies a lower individual risk of falling ill (9).

Concerns regarding the safety of vaccines and their unknown long-term effects were the most frequently mentioned reason. Vaccines were seen as products with unproven effectiveness that are highly toxic, damaging, aggressive on the body, and with unknown long-term effects that are more severe than the diseases that they are supposed to prevent (10-11). Polyvalent vaccines were viewed more negatively, as they were considered unnatural and harmful to a child's immune system, especially in the case of infants. There were differences between the

**Table 1** Profile of interviewees.

MUV1	Mother with unvaccinated children
MIV2	Mother with children with incomplete vaccination
FUV4	Father with unvaccinated children
MIV5	Mother with children with incomplete vaccination
FIV6	Father with children with incomplete vaccination
FUV7	Father with unvaccinated children
MIV8	Mother with incomplete vaccination
I1	Interview with healthcare centre paediatrician
I2	Interview with healthcare centre paediatrician
I3	Interview with healthcare centre nurse
I4	Interview with an epidemiology expert
I5	Interview with preventive medicine and public health specialist
I6	Interview with epidemiology expert
I7	Interview with healthcare centre nurse
I8	Interview with preventive medicine and public health specialist

**Table 2** Script for semi-structured interview with parents and healthcare professionals.*For parents*

## Relationship with the child

Could you talk about what you know about vaccines: what they are, what their purpose is?

Where did you learn what you know about vaccines?

In your opinion as a child's parent or caregiver, why do you think children should (or should not) be vaccinated?

Tell me why you take (or do not take) your children to the healthcare centre to get vaccinated

Why do you think there are families who do (or do not) vaccinate their children?

Let's talk about diseases that are prevented with vaccines.

Do you know anyone who got sick because they had not been vaccinated?

Do you know anyone who has got a reaction from a vaccine? Why do you think these reactions happen?

Could you tell me about the vaccines that children the age of yours should have been given?

Tell me about the healthcare centre vaccination programme.

What do you need to do if you want to have your children vaccinated at the healthcare centre?

Is there anything you think the healthcare centre could do to make it easier for you to vaccinate your children?

Would you like to add something that, in your opinion, makes vaccinating your children easier or harder?

*For healthcare professionals*

In your opinion, what works well in the vaccination programme of the centre in relation to the groups that are not correctly vaccinated?

In your opinion, what is not working in the vaccination programme of the centre in relation to the groups that are not correctly vaccinated?

How do you think the non-vaccinator population perceives childhood vaccinations? What do you think is happening? Do you know what reasons these people give for being against vaccination?

In your opinion, what elements would improve acceptance of vaccinations in the population that is currently choosing not to vaccinate?

Which intervention strategies do you believe could be implemented in the healthcare centre in your role as a professional in order to increase vaccination coverage? Do you believe that other measures need to be implemented apart from the work performed by healthcare professionals?

**Table 3** Analysis themes.*For parents*

Opinions about vaccines and the immunisation programme: information matches or does not match scientific knowledge.

Opinion on the measles vaccine and other vaccines, on preventable diseases and their effects, on the immunisation programme of the healthcare centre and its accessibility

Beliefs of the identified profiles with regard to vaccinating their children. We define beliefs as those characteristics that make them think something is true.

Attitudes of the identified profiles (unvaccinated or with incomplete vaccination) with regard to vaccinating their children, defined as the feelings displayed about vaccination. Personal opinion regarding vaccines and reason why they do not vaccinate their children

Programme accessibility: opinion of the families regarding the physical accessibility of the healthcare centre, adequate opening hours, and relations with healthcare staff

*For professionals*

Opinions of professionals regarding how important the issue of immunisation is to the individuals who choose not to vaccinate their children

Attitudes of professionals toward the behaviour of non-vaccinators

Ways in which the organisation of the healthcare centre encourages and discourages the choice of not vaccinating

**Table 4** Verbatim quotes of parents, grouped by categories.*I. It is beneficial to undergo the natural course of the disease, as part of a way of life*

1. "I would rather my children and I have measles or other diseases in a natural way, without putting their lives at risk with the MMR." MIV 5
2. "Health is our responsibility, not to be imposed on us by anyone else, least of all when it comes to vaccinations." FUV7
3. "We should reconsider childhood diseases and not fear them, stand by our children as they develop their immune system." FUV7
4. "Staying in excellent health requires that children should be happy and have fun, have positive thoughts and be emotionally healthy, get a natural diet, fresh air, natural light, exercise... it is the state of the body that allows or prevents disease." FUV7
5. "Healthiness is respecting what is natural... without aggressions, without toxicity... without harming humankind... ". MIV5

*II. Diseases had started to disappear prior to the introduction of vaccines due to improved hygiene and sanitation*

6. "If we have a proper diet, hygiene, and sanitation, and we really care for our children... with love... they are not necessary." MIV5
7. "Vaccinated populations are no more protected than unvaccinated populations." FUV7
8. "...There are more effective ways to prevent or treat disease." MUV1

*III. Vaccines cause damaging side effects, idiopathic diseases, and even death, long-term effects yet unknown due to their composition, which includes toxins, heavy metals, and traces of DNA*

9. "We do not vaccinate because the effects of vaccines are worse than the disease." FMUV7
10. "They are toxic components that attack the immune system." MIV2
11. "Vaccines that cover lots of diseases at once... It is unnatural... and least of all in babies who are starting their lives and whose immune systems are not working yet." MIV5

*IV. Giving a child several vaccines for different diseases at once increases the risk of adverse side effects and can overwhelm the immune system*

12. "Babies should not be vaccinated. Starting at a certain age, we'd have to see which vaccines are the least dangerous." FUV3
13. "Excessive over-vaccination of our children." Group
14. "It is unnatural, no one has ever contracted seven diseases at once." MIV5

*V. Immunisation policy is motivated by interests*

15. "They tell you half truths, they should investigate and bring out studies that are out there... but there is a lot of money involved, people who are against vaccines are not motivated by economic interests." MIV2
16. "I wish there were more transparency." FUV4
17. "Studies on the harmful effects of vaccines are not mentioned in medical schools and are kept hidden from many doctors." MIV2

*VI. Immunisation policy and civil rights*

18. "No one has the whole truth, it would not hurt healthcare professionals to have some respect, tolerance, and humbleness." Group
19. "Why are pro-vaccine people so worried? From what I understand, if they are vaccinated they should be immune against the disease, and according to them only unvaccinated people would get sick." Group
20. "We are not hurting anyone." MIV 5
21. "Let's keep in mind that the one running the risk is the one who does not get vaccinated." Group
22. "I know that we are benefitting from the bubble" FUV 4
23. "... If I went to a country where vaccination is mandatory, I would get vaccinated." MIV8

*VII. Alternatives to vaccination*

24. "... There are more effective methods of preventing or treating disease. I would get vaccinated with (homeopathic) vaccines that were absolutely safe ..." MUV1

*VIII. Access, perception of information*

25. "In my environment, such as friends, relatives, television." MIV 8. "Reading books, magazines, searching for scientific studies online." MIV5
26. "When families do not vaccinate it is because they have informed themselves a bit more." FUV3
27. "The information has been manipulated." Group

*IX. Facilitators and barriers*

28. "I think it is easy to get vaccinations if you want to." MIV8
29. "The fact that vaccines are not mandatory made us wonder." FUV4
30. "The professionals that administer them usually have very little information on vaccines and their correct administration and storage. They usually lack the skills to do the informed consent." MUV1

**Table 5** Verbatim quotes from professionals.*X. Opinions of professionals regarding how important vaccination is for anti-vaccine groups*

31. "They do not vaccinate because they lack information, out of ignorance, and there are those who do not vaccinate for ideological reasons ...." I4
32. "Their main argument is the fear that they cause or induce diseases even more severe than those they prevent..." I1
33. "There is more and more information each day, some of it backed by little evidence ..." I7
34. "Their beliefs originate in the media, especially the Internet..." I2
35. "They believe that we have been duped by pharmaceutical companies that want to profit even if it is by selling harmful vaccines" I2
36. "The current low prevalence of certain diseases, measles, rubella, mumps, etc., has led parents and even some authorities to lower their guard on something as important as vaccination ... We have stagnated in coverage rates between 85 and 95 percent... This has allowed the formation of clusters of unvaccinated children." I7

*XI. Attitudes of professionals regarding the behaviour toward vaccination of individuals who choose not to vaccinate*

37. "In each visit, just as I check on allergies, I check on vaccinations... I try to explore their beliefs, if they allow it, I offer to counsel them." I2
38. "I live this in a very particular manner because... my view on the subject has been changing. At first I was in disbelief... I tried to convince them... immunisation is not mandatory... we have to keep reaching out." I1

*XII. Facilitators and barriers in the organisation of healthcare centres when it comes to vaccination in the anti-vaccine groups*

39. "Electronic records may have decreased our identification of unvaccinated individuals. We do not compare geographical populations with the populations of the basic healthcare areas." I4
40. "Flexibility and opening hours, no appointment needed... reducing missed opportunities to the minimum ..." I6
41. "We do active recruitment... we review the census of the children registered at the centre (both the lists of children registered through by the user database and newborn database who have never come to the healthcare centre." I5
42. "For parents who request it, we also provide vaccinations adapted to their needs... vaccination a la carte". I1
43. "... We need time and support staff and economic and social resources." I1
44. "...There is no professional of reference to address vaccinations. There are differences among the staff in the level of awareness regarding anti-vaccine movements ... we miss opportunities to vaccinate." I1

**Table 6** Verbatim quotes of parents and healthcare professionals regarding suggestions for improvement.

- "Organising meetings between healthcare professionals and representatives of the anti-vaccine groups, so we could train healthcare agents on this subject." I1
- "There should be talks, but given by experts, with people who have conducted research, not talks given by pharma reps." FUV3
- "... Ask for the vaccination records when they go to enrol in school ..." I4
- "... we may be able to change something if we work with local leaders." I2
- "... Reinforce or improve professionals' awareness on the importance of vaccines and the impact of outbreaks." I6
- "... To have a well-trained reference professional." Group
- "Providing all the information on morbidity, mortality, etc. for outbreaks of childhood disease is essential in order to make non-vaccinating or doubtful parents reflect on what may happen." I7
- "To centralise all the eVAC information on vaccines, regularly submit the listing of incorrectly vaccinated children..." I6

discourses of parents of children who were not vaccinated at all and those with incomplete vaccination (12-14).

All interviewed parents shared a common mistrust towards VP and believed that there are non-health related economic interests, a lack of transparency, and biased studies (15-17).

The focus group suggested that the notion of mandatory vaccination is a violation of their rights. Parents stated that they have made a responsible decision and that their

freedom must be respected (18). They did not understand the collective repercussion of their decisions (19-21). They knew about herd immunity, although they thought that it is achieved by vaccinating the entire population (22). Some of the interviewed parents of children with incomplete vaccination would vaccinate if it were mandatory or if there were an outbreak, and stated that not vaccinating their children is their way to contribute to a better world (23),

evincing the complexity of this phenomenon and the need to delve deeper into this aspect. They stated that there are more effective and less harmful alternatives to vaccination, such as natural medicine or homeopathy, which conform to their conception of health, without toxic elements (24).

They stated that they have informed themselves mainly in websites, through the media, and books, although they also lent weight to experience and their social support networks (their environment, friends and family) (25); others said that they needed to get their information up to date. They considered that non-vaccination stems from having sought information that was more objective (26) and that the information offered by the healthcare system is biased and manipulated, so they put more stock on other sources of information (27).

Regarding barriers to vaccination, some views showed a complete lack of interest, and there were doubts because vaccines are not mandatory and differences exist between immunisation schedules (29). They believed that professionals are ill prepared to inform about vaccines and suggested the need for informed consent (30).

The healthcare professionals identified 2 profiles for people who choose not to vaccinate: those for whom non-vaccination is part of a way of life with values dominated by a respect for what is natural, who consider exposure to vaccine-preventable diseases beneficial and vaccination as an attack on the body, and those who do not see vaccination as a health priority due to laxity or ignorance, or who fear vaccines and their harmful effects (32). They agreed with what parents said when asked about the reasons that they chose not to vaccinate. The healthcare professionals shared the idea that non-vaccinators are afraid of the negative side-effects of the vaccine (weakening of the immune system, autoimmune diseases, allergies, toxic effects) (33).

They perceived non-vaccination as part of a way of life, which could be related to finding geographical non-vaccination-focused areas, with unvaccinated children attending the same schools, which in turn leads to population clusters of individuals susceptible to infection, and to the spread of outbreaks. Healthcare professionals disagreed most with the parents regarding non-vaccinators' claims, saying they are pseudo-scientific and not well contrasted (34).

They identified a loss of credibility regarding VPs and healthcare professional actions, as they are associated with non-healthcare related economic interests that are connected to the pharmaceutical industry (36). They underscored that professionals are examining themselves in an attempt to understand why the importance of vaccination is being downplayed (37, 39) and are willing to exchange opinions in order to reduce these differences (38-42).

Healthcare professionals brought up the existence of flaws in the current VP coverage and in data registration systems: decentralisation, non-matching health districts and geographical areas (39). They believed that increased administrative and political-legislative support is required to address this situation. Some of them proposed making vaccination mandatory and that schools should demand vaccination records in order to reach the coverage rates needed to achieve herd immunity (43). They thought that professionals have varying levels of awareness and that solid training on vaccination is needed (44).

## Discussion

The reviewed literature evinced a lack of studies analysing epidemic outbreaks from the perspective of ideological non-vaccinators.<sup>17</sup> Such studies focus on describing data on frequency and causality<sup>18,19</sup>, but do not delve into learning about specific behaviours and beliefs that lead to non-vaccination of children and its repercussions at an individual and collective level.<sup>20</sup> The main contribution of our study is that it identifies the roots of the dilemma between the principles of beneficence and of autonomy involved in vaccination refusal, taking into account reasons adduced by healthcare professionals and parents who choose not to vaccinate. The goal of our analysis was to serve as a starting point to establish areas for improvement.

This study tried to investigate the reasons for the growing number of parents who do not vaccinate their children due to vaccine safety concerns. This is causing a decline in vaccination coverage and the re-emergence of vaccine-preventable diseases such as measles that were close to being declared eradicated in Europe.<sup>21</sup> The healthcare professionals identified one group of parents who oppose all vaccines, considering them unnecessary, ineffective, the result of biased studies, and introduced by interests unrelated to prevention. They identified another group of parents who seek to offer their children a health model that is consistent with their way of life.

The root of the most extreme views of parents may be associated to the perception that professionals are poorly trained and VP ill-conceived. They believe that it is not possible to accept vaccination, which is increasingly complex and complicated, without considering individuality.<sup>22</sup> They are concerned that combined vaccines may affect the immune system of infants and about the effects of adjuvants that are related with various diseases, and this is backed by published studies.<sup>23-25</sup> They perceive vaccines as aggressive, toxic, and dangerous, as capable of altering the natural body functioning, while they consider vaccine-preventable diseases to be beneficial, milder than post-vaccine side effects, and easy to treat.<sup>26</sup>

It is hard to understand refusal of preventive treatment such as vaccines, which are usually administered to healthy children, least of all in an environment where vaccination coverage is high. The adverse effects of vaccines are overestimated, and they are seen as more severe than the disease symptoms and potential complications. Despite being infrequent, they are perceived negatively by those who reject vaccination.<sup>27</sup>

The decline in the success of VP is due to the limited understanding of the involved parties, low acceptance of this behaviour and its stigmatisation.<sup>28</sup> The effectiveness of a vaccine is not the only important factor, and other circumstances have to be taken into consideration, such as whether the patient is willing to receive it. Understanding vaccination requires scientific-medical knowledge and experience to balance general and individual needs. This may be sufficient for a healthcare professional, but other elements also come into play, as is the case in all quality decision-making processes.<sup>29</sup> At present, in addition to studying clinical data and the most effective preventive treatments, all these factors must be identified. After

analysing the views of non-vaccinators and healthcare professionals alike, it appears that a model of shared decision-making would lead to better results.<sup>30</sup>

It has been demonstrated that the refusal to vaccinate poses complex challenges that cannot be addressed with rigid, univocal, and definitive solutions. A wide range of values needs to be managed, encompassing institutional, scientific and professional values, as well as the personal values of the patient, according to the latter's context and preferences. Professionals must have the skill to carry out this process every time, allowing parents a degree of autonomy, while trying to preserve the complex balance between the parents' right to act according to their beliefs, the child's right to health protection, and society's right to preserve its health and wellness.<sup>1</sup> This study shows that in the context of vaccination, parents are very demanding with regard to information, because they want to partake actively in health-related decision-making, and therefore demand honest, objective, and reliable information about the risks. When their demands are not met in the traditional settings, they go elsewhere, usually to websites, homeopaths, or natural medicine practitioners, and they receive information that may not be evidence-based and they may be unable to interpret it adequately. This may generate doubts regarding the effectiveness and safety of vaccines and cause them to mistrust the healthcare system.<sup>31</sup>

Parents feel there is a low individual risk of getting the disease, and an inversely-weighted balance of vaccination cost/benefit, while some professionals believe that it should not be the patient who weighs up this risk because this requires specialised knowledge. Risks and benefits must be explained in an individualised manner, in view of a user's right to information, and in turn to giving their informed consent prior to vaccination. This means that professionals have to understand parents' conscious and unconscious motivations, identify fears, and examine the individual's role in making responsible decisions that affect individual and public health.<sup>32</sup>

The refusal of some parents to participate in this study, possibly due to the legal issues and media coverage associated with the subject of the research, means that part of the population that is likely to be most against vaccination was excluded.<sup>12</sup> The initial idea was to study a local phenomenon (a measles outbreak in Granada), but we observed that the phenomenon is extremely complicated and that it involves aspects that were not considered in this study (socio-economic aspects, free vaccinations). Therefore, we do not aim to extrapolate our findings to all ideological non-vaccinators. We did not consider the academic level of parents who do not vaccinate their children as a segmentation criterion. The motivations of one set of parents who do not vaccinate their children in the context of social inequalities in healthcare differ from another set of parents with a higher level of education and who usually have their own sources of information, commonly gathered on the Internet. These limitations could constitute an interesting object of study for future research. To avoid social desirability response bias we asked indirect questions and explained that our research was unconnected to VP. We used neutral observers in interviews to control bias in the analysis of results.

Parents felt there was no longer a balance between the benefits of vaccination and the individual risk of contracting vaccine-preventable diseases, which they said were a natural and beneficial process. They suggested that informed consent is needed. The professionals believed that the reasoning of non-vaccinators was based on weak evidence, and said there were flaws in the current coverage of VP and in the data registration systems.

Healthcare professionals should address concerns regarding vaccines with honesty, and have strong training in vaccine safety so they can discuss these issues with non-vaccinators, providing them with objective information.<sup>33</sup> Efforts should be made to centralise all vaccination records, cross-check them with school enrolment lists, involve local leaders and periodically inform on the state of vaccine-preventable diseases. We must try to reach a general consensus in decisions that affect both individuals and society as a whole. We should use the disagreements as a starting point for well-planned debate and design strategies that will promote vaccine effectiveness.

## Authorship

All authors contributed to the conception and design of the study. Margarita Martínez Romero and Silvia Martínez-Diz performed the data collection, analysis, and interpretation. All authors have contributed to the writing of the article and its critical revision, making significant intellectual contributions.

All authors worked together to design and conduct the study, and subsequently analysed the data by generating hypotheses and using triangulation. The final version of the paper was approved by all the authors.

## Conflicts of interest

The authors have no conflicts of interest to declare.

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## References

1. Simón P, Júdez J. Consentimiento informado. *Med Clin (Barc)*. 2001;117:99-106.
2. Ley sobre medidas especiales en materia de Salud Pública. LO. N°. 3/1986, de 24 de abril. Boletín oficial del Estado n. 102, (29-4-1986).
3. Deyo RA. A key medical decision maker: The patient. *BMJ*. 2001;323:466-7.
4. Wolfe M, Sharp L, Lipsky M. Content and design attributes of antivaccination web sites. *JAMA*. 2002;287:3245-8.

5. Poland G. Understanding those who do not understand: A brief review of the anti-vaccine movement. *Vaccine*. 2001;19:2440-5.
6. Berhmann J. The anti-vaccination movement and resistance to allergen-immunotherapy: A guide for clinical allergists. *Allergy Asthma Clin Immunol*. 2010;6:26.
7. Kata A. A postmodern Pandora's box: Anti-vaccination misinformation on the Internet. *Vaccine*. 2010;28:1709-16.
8. Dórea JG. Integrating experimental (in vitro and in vivo) neurotoxicity studies of low-dose thimerosal relevant to vaccines. *Neurochem Res*. 2011;36:927-38.
9. Marès J, Arbolave D, Moreno-Pérez D. Calendario de vacunaciones de la Asociación Española de Pediatría: recomendaciones 2011. *An Pediatr (Barc)*. 2011;74:132-59.
10. Redondo E, editor. Evidencia científica en valor de las vacunas. Madrid: IMC; 2011.
11. López B, Laguna J, Marín I, Gallardo V, Pérez E, Mayoral JM. Spotlight on measles 2010: An ongoing outbreak of measles in an unvaccinated population in Granada, Spain, October to November 2010. *Euro Surveill*. 2010;15:19746.
12. Martínez M, Martínez S, García F. ¿Por qué los padres no vacunan a sus hijos? Reflexiones tras un brote de sarampión en un barrio de Granada. *An Pediatr (Barc)*. 2011;75:209-10.
13. Pose C. ¿Cómo decidiré el tratamiento de mis pacientes? Reflexiones de Bioética Clínica. *Jano* [online series] 2011 [accessed 9 Sep 2011]. Available at: [http://www.jano.es/jano/humanidades/medicas/humanidades/medicas/carlos/pose/como/decidire/tratamiento/mis/pacientes/\\_f-303+iditem-4412+idtabla-4+tipo-10](http://www.jano.es/jano/humanidades/medicas/humanidades/medicas/carlos/pose/como/decidire/tratamiento/mis/pacientes/_f-303+iditem-4412+idtabla-4+tipo-10)
14. Conde F, editor. Análisis sociológico del sistema de discursos. Madrid: Centro de Investigaciones Sociológicas; 2010.
15. García MM, Mateo I. El grupo focal como técnica de investigación cualitativa en salud: diseño y puesta en práctica. *Aten Primaria*. 2000;25:115-22.
16. Kennedy A, LaVail K, Nowak G, Basket M, Landry S. Confidence about vaccines in the United States: Understanding parents' perceptions. *Health Aff*. 2011;30:61151-9.
17. Ashcroft RE. Individual freedom versus collective responsibility: An ethicist's perspective. *Emerg Themes Epidemiol*. 2006;3:11.
18. Wichmann O. Further efforts needed to achieve measles elimination in Germany: Results of an outbreak investigation. *Bull World Health Organ*. 2009;87:108-15.
19. Gagneur A, Pinquier D. Spotlight on measles 2010: Timely administration of the first dose of measles vaccine in the context of an ongoing measles outbreak in France. *Euro Surveill*. 2010;15:19689.
20. Mark M. Who gets measles in Europe? *J Infect Dis*. 2011;204:353-65.
21. Jakab Z, Salisbury DM. Back to basics: The miracle and tragedy of measles vaccine. *Lancet*. 2013;381:1433-4.
22. Kassianos G. Vacunación para mañana: la necesidad de mejorar las tasas de inmunización. *J Salud Fam*. 2010;20:13-6.
23. Spreafico R, Ricciardi-Castagnoli P, Mortellaro A. The controversial relationship between NLRP3, alum, danger signals and the next-generation adjuvants. *Eur J Immunol*. 2010;40:638-42.
24. Lavine J, Broutin H, Harvill ET, Bjørnstad ON. Imperfect vaccine-induced immunity and whooping cough transmission to infants. *Vaccine*. 2010;29:11-6.
25. Shoenfeld Y, Agmon-Levin N. ASIA: Autoimmune/inflammatory syndrome induced by adjuvants. *J Autoimmun*. 2011;36:4-8.
26. Tomljenovic L, Shaw CA. Aluminum vaccine adjuvants: Are they safe? *Curr Med Chem*. 2011;18:2630-7.
27. Betsch C, Sachse K. Debunking vaccination myths: Strong risk negations can increase perceived vaccination risks. *Health Psychol*. 2013;32:146-55.
28. Jacobson RM, Targonski PV, Poland GA. A taxonomy of reasoning flaws in the anti-vaccine movement. *Vaccine*. 2007;25.
29. Riaño I, Martínez C, Sánchez M. Recommendations for making decisions when parents refuse to vaccinate their children: Ethical analysis. *An Pediatr (Barc)*. 2013;79:51-5.
30. García-Ruiz Y. ¿Vacunaciones obligatorias de menores contra la voluntad de los padres? *Humanitas* [online series] 2009 [accessed March 5, 2013]. Available at: [http://www.fundacionmh.org/www\\_humanitas\\_es\\_numero35/articulo.pdf](http://www.fundacionmh.org/www_humanitas_es_numero35/articulo.pdf)
31. Kata A. Anti-vaccine activists, Web 2. 0, and the postmodern paradigm-an overview of tactics and tropes used online by the anti-vaccination movement. *Vaccine*. 2012;30:3778-89.
32. Mereckiene J, Cotter S, O'Flanagan D, Valentiner-Branth P, Muscat M, D'Ancona F. Review of outbreaks and barriers to MMR vaccination coverage among hard-to-reach populations in Europe. Stockholm: ECDC; 2013.
33. Tañón V, Borrero C, Pedrogo Y. Knowledge and misconceptions about immunizations among medical students, pediatric, and family medicine resident. *Bol Asoc Med P R*. 2010;102:5-8.