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Factors Influencing the Reluctance to HPV Vaccine in The Oujda Angads Area; Case of The El fath and DEM Lazaret Health Centre

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Abstract:

The aim of this exploratory study was to identify the factors influencing readiness to receive the human papillomavirus (HPV) vaccine in two health centres in the Oujda-Angads region: El Fath and DEM Lazaret. The survey covered both users, who were predominantly female (89%) and had a higher level of education (89%), and six health professionals involved in the National Immunisation Programme. Although the majority of participants said they knew about the vaccine (100%), a significant proportion (66.7%) refused to allow their daughters to be vaccinated, mainly citing a lack of information (77%), fear of side effects and the influence of social networks (60%). As for professionals, all say they recommend the vaccine, but only 16.7% have received specific training. The reluctance of parents is perceived to be linked to a loss of confidence following COVID-19, irrational fears and misinformation. Recommendations include stepping up information campaigns, providing ongoing training for professionals and using the mass media to restore confidence.

Keywords: Human papillomavirus (HPV) vaccine, Vaccine hesitancy, Health centres (El Fath, DEM Lazaret, Health professionals, Influencing factors, Disinformation.

I. Introduction

Vaccination is one of the most effective and cost-effective public health interventions, having significantly reduced the morbidity and mortality of many infectious diseases worldwide. The World Health Organization (2023) points out that vaccination prevents between 2 and 3 million deaths every year. However, despite solid scientific evidence demonstrating its efficacy and safety, vaccination is still met with reluctance and even rejection in many communities around the world. This phenomenon, commonly referred to as vaccine hesitancy, is defined as 'delayed acceptance or refusal of vaccines despite the availability of vaccination services' (Dubé et al., 2013). It is a complex, multifactorial issue, influenced by social, cultural, psychological and political considerations.

In recent years, a major factor in vaccine hesitancy has emerged: the spread of misinformation on social networks. Digital platforms such as Facebook, Twitter (X), Instagram, YouTube and TikTok are now widely consulted information channels by the public. They provide rapid, interactive and participatory access to information, but they also encourage the mass dissemination of unverified, biased or even misleading content. As a result, disinformation (false information shared deliberately to mislead) and misinformation (false information shared with no intention to harm) proliferate on these networks (WHO Results Report 2020-2021, n.d.). This 'infodemic' (Larson et al., 2018) compromises risk perception and adherence to preventive measures, particularly vaccination.

Several studies have shown that anti-vaccine messages circulating online are more viral than scientific and factual messages (The spread of true and false news online | Science, n.d.) (Vosoughi et al., 2018).

Their success can be explained by their emotional, alarmist and polemical nature, which attracts greater attention and commitment. This content, which is often relayed by anti-vaccine activist groups or influencers, exploits distrust of institutions, fears about side effects and sometimes conspiracy theories. Exposure to misinformation about vaccines against COVID-19 has significantly reduced people's intention to vaccinate in several countries, illustrating the concrete impact of this false information (Loomba et al., 2021)

The consequences of this phenomenon are worrying: falling vaccination coverage, re-emergence of infectious diseases (such as measles and diphtheria), widening health inequalities, overloading of healthcare systems. In addition, the circulation of anti-vaccine rhetoric fosters a widespread climate of mistrust towards the health authorities, complicating the implementation of vaccination programmes and undermining public health efforts (Wilson & Wiysonge, 2020).

The situation in Morocco is no exception. Despite national vaccination programmes that are among the most advanced in the region, the country is not immune to the phenomenon of vaccine hesitancy, amplified by the circulation of erroneous information on social networks. Studies carried out at national level have revealed a significant level of reluctance to vaccinate, particularly at the time of the COVID-19 campaign, when unfounded rumours and conspiracy theories circulated massively on Facebook, WhatsApp and TikTok (Tahiri et al., 2022). This climate of mistrust has sometimes held back vaccination coverage, compromising the achievement of the public health objectives set by the Ministry of Health and Social Protection. In addition, official Moroccan data reveals that the young population, which is highly connected to social networks, is particularly exposed to misinformation, which

could increase their reluctance to adhere to vaccination recommendations. Against this backdrop, from 21 to 25 April 2025, Morocco took part in World Immunisation Week under the theme: 'We love our children, we protect them with vaccination'. This initiative, coordinated by the Ministry of Health and Social Protection, is aimed at raising public awareness, eliminating barriers to access to vaccines and combating false beliefs that fuel reluctance to vaccinate.

The challenge is all the more critical given the country's recent outbreak of measles. Since September 2023, around 25,000 cases have been recorded, resulting in more than 120 deaths, according to the health authorities. This upsurge highlights the direct consequences of inadequate vaccination coverage, and serves as a reminder of the importance of maintaining a high level of collective immunity. In this context, it is crucial to analyse, at local level, the factors influencing vaccination coverage, particularly in the Oriental region (Oujda-Angads), where some resistance persists. Particular attention needs to be paid to obstacles linked to misinformation and social representations that influence vaccine uptake. In this respect, the human papillomavirus (HPV) vaccine, recently introduced for 11-year-old girls, is a particularly revealing example of the socio-cultural, cognitive and communication barriers that can compromise acceptance of a vaccine, despite its proven effectiveness in preventing serious cancers. This research will be carried out at two sites in the Oujda-Angads prefecture, namely the El Fath health centre and the Oued Eddahab health centre. These two facilities were chosen because of their accessibility, their population coverage representative of various socio-economic profiles, and their involvement in the implementation of the national vaccination programme, in particular the introduction of the human papillomavirus (HPV) vaccine for 11-year-old girls. The study of these two areas will provide a comparative understanding of the local dynamics of vaccine uptake, while identifying the contextual specificities likely to influence acceptance or rejection of the vaccine.

II. Materials and methods

This study is based on a descriptive quantitative approach conducted in the field, with the aim of identifying and analysing the determinants that hinder acceptance of the human papillomavirus (HPV) vaccine, recently introduced into the national vaccination programme and intended for young girls aged 11. The research was carried out in two health centres in the Oujda-Angads prefecture: the El Fath health centre and the Dhar Lamhalla Lazaret health centre, selected for their representativeness in terms of socio-economic diversity and their direct involvement in the HPV vaccination campaign.

The study took place between June and July 2025. Data collection was based on two complementary techniques: a questionnaire aimed at the Parents population of young girls targeted for vaccination, and a semi-directive interview conducted with healthcare professionals involved in the vaccination programme (doctors, nurses, midwives),

The interviews were used to explore the representations, beliefs, concerns and sources of information mobilised regarding the HPV vaccine. An interview grid was developed based on the theoretical frameworks of vaccine hesitancy (WHO, SAGE 2014), taking into account cognitive, emotional, social and cultural dimensions.

The data was analysed using a thematic method, identifying recurrences and discrepancies in the discourses. The confidentiality of the participants was strictly respected, and their informed consent was obtained beforehand.

III. Results

1. Results of the questionnaire:

women, with 89% women compared with 11% men. This over-representation of women may be explained by the nature of the HPV vaccine, which is primarily designed to prevent cervical cancer, making it a subject perceived as more relevant to women's health.

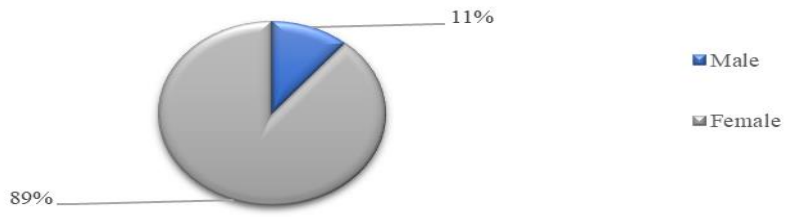

Fig 1: Gender of participants the gender breakdown of respondents shows a marked predominance of

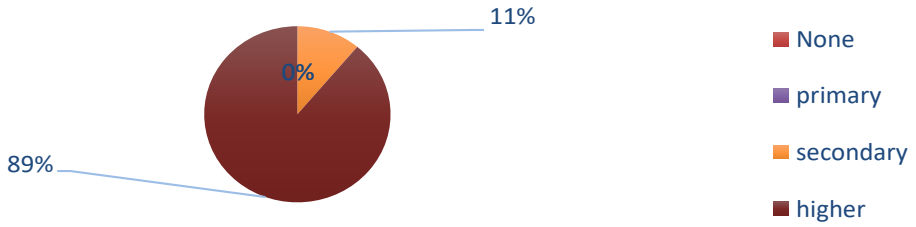

Fig 2: Level of education 89% of participants have a higher level of education, while only 11% have secondary education. This high proportion of educated people is a positive factor, as it is generally associated with a better understanding of health issues and a greater ability to discriminate between reliable sources of information.

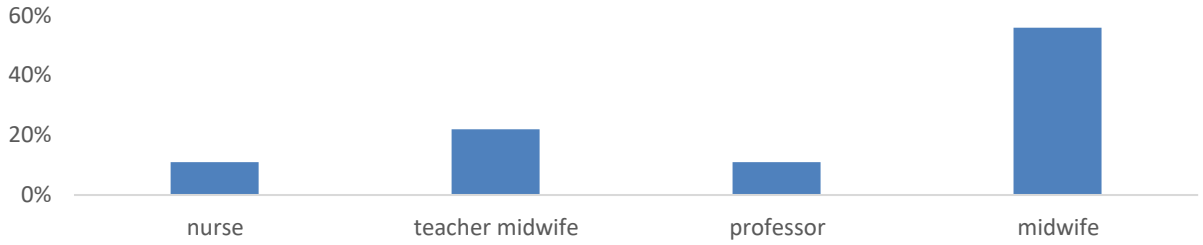

Fig 3: Participants' professions Analysis of the participants' professions reveals a diversity of profiles, mainly from the education and health sectors. Of the 9 women interviewed, 3 were midwives, 3 were teachers, 1 was a university lecturer and 2 held administrative positions.

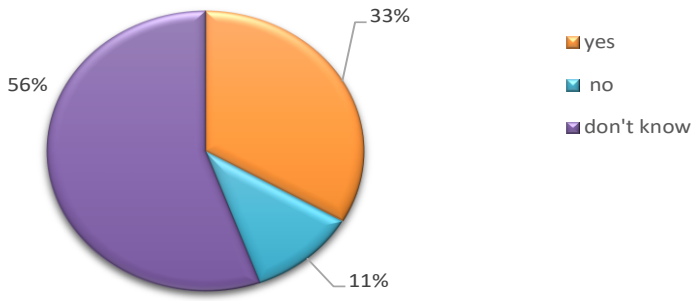

Fig 4: Usefulness of the vaccine in terms of the perceived usefulness of the HPV vaccine, 33% of parents surveyed thought it was useful, 11% thought the opposite, while 56% said they were undecided. These figures reflect a significant lack of awareness of the vaccine among the target population and underline the need to step up information and awareness campaigns.

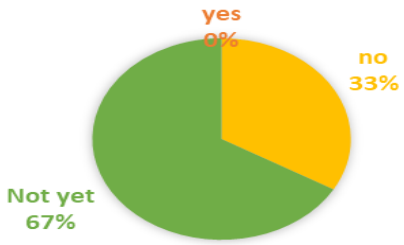

Fig 5: HPV vaccination with regard to HPV vaccination, none of the parents questioned said they had vaccinated their daughters; 33% were clearly opposed, while 67% said they had not yet done so. These data show that the current vaccination rate is low, and suggest that many girls could still be vaccinated in the future if information and support for parents were improved.

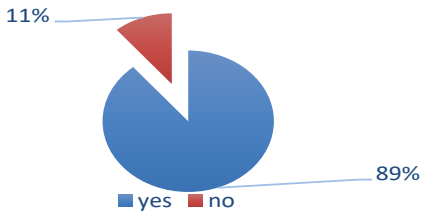

Fig 6: Knowledge of the HPV vaccine 89% of parents said they had heard of the HPV vaccine, while 11% said they had not. This result indicates that information is only partially disseminated among the target population.

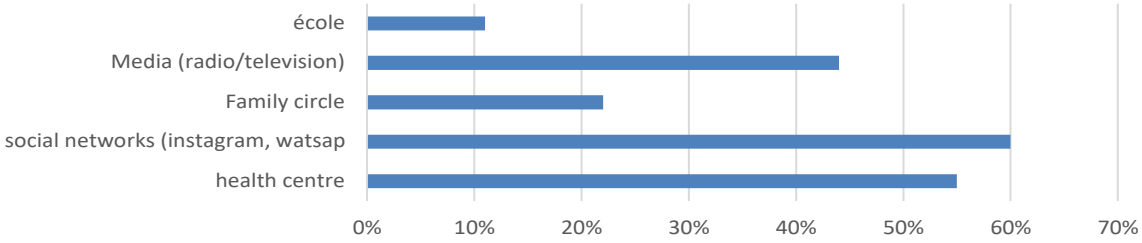

Fig 7: Source of information the main sources of information on the HPV vaccine reported by parents are social networks (60%), health centres (55%), traditional media such as television and radio (44%), family and friends (22%), and school (11%). These results show that informal and digital channels predominate, to the detriment of institutional channels such as schools.

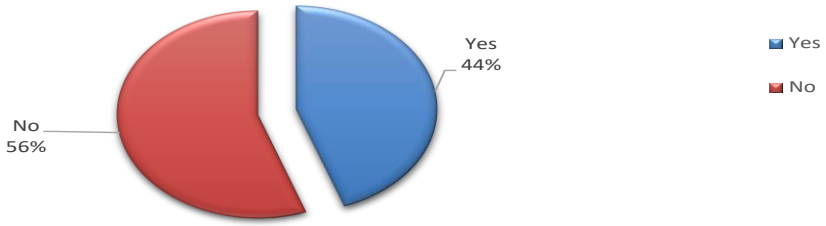

Fig 8: Obstacle to vaccination concerns with regard to obstacles to vaccination, 44% of parents said they had encountered difficulties, while 56% reported none. These figures indicate that a significant proportion of the population still perceive obstacles to accessing or accepting the vaccine.

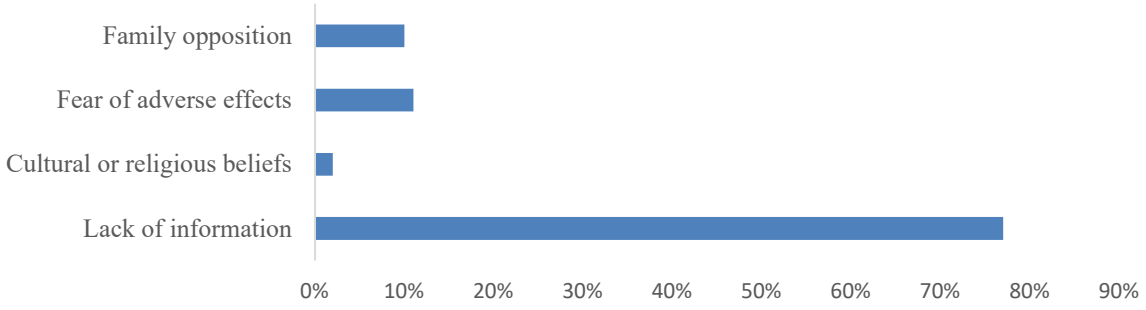

Fig 9: Barriers to vaccination Among the barriers to HPV vaccination, lack of information is the most frequently cited (77%), followed by fear of side effects (11%), family opposition (10%) and, to a lesser extent, cultural or religious beliefs (2%). These results highlight the crucial importance of health education in improving vaccine acceptance.

2. Results of the interview grid

Of the six healthcare professionals interviewed, two were general practitioners working in the health center's studied, and four were nurses and midwives in charge of the National imminalisation programme (NIP) unit. Their length of service ranged from 7 to 24 years. All the participants (100%) said they were familiar with

the human papillomavirus (HPV) vaccine, and that it was 90% effective in preventing cervical cancer. However, only one professional (16.7%) reported having received specific training on this vaccine. All respondents (6/6) systematically recommend vaccination and specify that they inform parents from the age of 5, informing them of the scheduled appointment for administration of the vaccine at age 11.

With regard to the causes of vaccine reluctance observed among parents, three professionals (50%) believe that this mistrust is largely linked to the loss of confidence following the COVID-19 vaccination campaign. Two participants (33.3%) reported that some parents expressed fears that the vaccine might encourage the development of cervical cancer. Finally, one respondent (16.7%) cited the circulation of rumours and false information as the main reason for refusal.

In addition, several courses of action were suggested by the professionals interviewed in order to increase adherence to the HPV vaccine. Among the recommendations most frequently mentioned were: using the mass media to conduct large-scale awareness campaigns, stepping up Information, Education and Communication (IEC) activities aimed directly at the population concerned, and pre- and in-service training for healthcare professionals in charge of vaccination.

IV. Discussion

The study conducted in the El Fath and DEM Lazaret health centres in the Oujda-Angads region revealed persistent reluctance to take up the human papillomavirus (HPV) vaccine, despite a high level of education and good knowledge of the vaccine among the target population. Indeed, although 89% of the participants were female and had a higher level of education, a significant proportion (66.7%) refused to allow their daughters to receive the vaccine, which raises questions about the underlying determinants of this attitude of rejection.With regard to participation, the literature often highlights the importance of the diversity of participants in enriching scientific debates. Comparatively, the scientific days studied seem to have reached a good level of diversity, both regional and national. Studies such as those by Freeman and Huang (2014) highlight that geographic and disciplinary diversity are linked to increased innovation and scientific productivity (Freeman & Huang, 2014).

Several factors can be put forward to explain this reluctance. Firstly, the paradox between level of education and vaccination attitude is well documented in the literature. As (Dubé et al., 2013) point out, a high level of education does not necessarily guarantee adherence to vaccination programmes, especially when the information available is biased or comes from unreliable sources. This finding is consistent with our results, since 60% of respondents say that they obtain their information mainly via social networks, platforms known for their role in disseminating erroneous and even anxiety-provoking content about vaccines (Larson et al., 2018).

Furthermore, although 100% of respondents stated that they were aware of the HPV vaccine, only 33.3% considered it to be useful, revealing a level of knowledge that is probably superficial or erroneous. This dissociation between declared knowledge and perceived usefulness of the vaccine relates to the notion of

“health literacy”: understanding a health concept does not always mean being able to assess it or make an informed decision about it (Nutbeam, 2008). In this context, the lack of information (cited by 77% of participants as the main obstacle) appears to be a central factor in vaccine hesitancy. This is in line with the observations of (Gilkey & McRee, 2016), who stress the importance of clear and appropriate communication by healthcare professionals to improve HPV vaccination coverage.

The role of healthcare professionals themselves is also worth examining. In this study, 33% of participants were midwives, i.e. key players in reproductive health prevention. Their perception, whether positive or negative, can have a decisive influence on patient compliance. However, the reluctance to vaccinate may reflect a degree of unease or a lack of specific training in this vaccine in their curricula, as noted in several studies (Kester et al., 2013). Furthermore, the cultural and social dimension, although apparently marginal in this study (only 2% mentioned beliefs as an obstacle), remains an implicit determinant, often under-reported, but omnipresent in decisions relating to children's health.

Finally, a major barrier to the cervical cancer prevention strategy is the intolerance of vaccination among their own daughters expressed by 66.7% of respondents. This attitude could be linked to fears about side effects (reported by 11%) but also to a misperception that this vaccine is associated with early sexuality, as has been observed in other contexts (Holman et al., 2014).

Data from interviews with six healthcare professionals working at the El Fath and DEM Lazaret health centres reveal a high level of awareness of the human papillomavirus (HPV) vaccine, and a high level of support for its recommendation. Indeed, 100% of the participants claimed to be familiar with the vaccine, and 90% believed that it is effective in preventing cervical cancer, which is in line with epidemiological data showing that the latest generation HPV vaccines are more than 90% effective against oncogenic HPV infections (Harper & DeMars, 2017).

However, despite this high level of knowledge, only one professional (16.7%) has received specific training on this vaccine. This finding highlights a lack of in-service training, often reported in the literature as an obstacle to the transmission of clear, structured and appropriate information to users (Karafillakis et al., 2019). According to Paterson et al. (2016), professionals' lack of in-depth training on certain vaccines can limit their ability to respond convincingly to parents' doubts.

The proactive attitude of the professionals interviewed - systematic recommendation of the vaccine and early communication from the age of 5 - testifies to an institutional commitment to prevention, consistent with the WHO guidelines on HPV vaccination (WHO, 2022). However, this commitment is coming up against a growing reluctance on the part of parents, interpreted by carers as being linked to a number of factors.

On the one hand, 50% of the professionals questioned attributed this reluctance to a loss of confidence following the COVID-19 vaccination campaign. This mistrust, which has been documented internationally (Solís Arce et al., 2021), seems to have spread to other vaccines, including those used to prevent cancer. On the other hand, the fear that the HPV vaccine may itself induce cancer, expressed by 33.3% of parents

according to professionals, reveals confusion about the role of the vaccine, probably fuelled by rumours and distorted accounts, as shown by other studies conducted in the Maghreb and sub-Saharan Africa (Yahya, 2007).

Rumours and misinformation were explicitly identified as the main cause by 16.7% of the professionals surveyed. This phenomenon, described as infodemia by the WHO, refers to an overabundance of information, often contradictory or erroneous, which compromises health decision-making (WHO, 2020). Social networks play a key role in the spread of this false information, particularly in contexts where health education campaigns are insufficiently visible.

To deal with this situation, the courses of action proposed by the professionals interviewed - media campaigns, strengthening IEC, continuing education - are relevant and supported by the literature. In particular, several studies (Gottvall et al., 2010; Wilson & Wiysonge, 2020) show that multisectoral community interventions, combining education, targeted communication and the involvement of trained professionals, are the most effective in increasing HPV vaccination coverage, particularly in middle-income countries.

It would therefore seem necessary to step up training for healthcare professionals so that they can fully play their role as reliable mediators with the public, while mobilising communication tools adapted to the cultural context and dominant information channels in the region.

Conclusion

The results of this study highlight a worrying paradox: a population that is generally well-educated and well-informed nevertheless declares a high level of reluctance with regard to the HPV vaccine. This contradiction highlights the importance of the quality of information rather than its mere availability. Social networks, identified as the main source of information, appear to play a central role in the dissemination of anxiety-provoking and erroneous messages. Furthermore, healthcare professionals, although committed and convinced of the vaccine's effectiveness, lack specific training, which limits their impact as reference and reassurance providers.

To improve uptake of the HPV vaccine, communication strategies need to be strengthened, particularly through targeted, culturally appropriate campaigns run by competent professionals. Ongoing training for healthcare professionals, and their involvement in Information, Education and Communication (IEC) programmes, appear to be essential levers for overcoming perceptual barriers and restoring parents' confidence. Ultimately, a proactive, multi-sectoral approach is essential to ensure the success of the HPV vaccination programme in the Oujda-Angads region.

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