Research Article

The American Journal of Public Health (ISSN 3064-6677)

Recent Trends In Vaccines Confidence, A-Review.

Abdulhameed G. Albeshr[1]*, Ahmad M. Albanyan[1], Ashwaq S. Albasheer[2], Duaa Obaidallah[1], Ibtesam A. Hazzazi[1], May M Aleraij[1], Munifa A. Alenazi[2], Nourah A Majrashi[2], Setah T. Alanazi[1], Shatha Faisal Aldhawi[1], Yazeed A. Alhabdan[1], Yazeed Alturki[1].

1. King Abdulaziz Medical City for National Guard, Riyadh, Saudi Arabia.
2. King Abdulaziz university hospital, King Saud University, Riyadh, Saudi Arabia.

Corresponding author
Dr. Abdulhameed G. Albeshr ,
King Abdulaziz Medical City for National Guard, Riyadh, Saudi Arabia.
Email: agaab2005@hotmail.com

Received Date : December 26, 2024
Accepted Date : December 27, 2024
Published Date : January 28, 2025

Copyright *© 2024 Dr. Abdulhameed G. Albeshr. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.*

ABSTRACT

Background: Vaccines are one of the most effective public health interventions, contributing to the eradication of certain diseases and significantly improving life expectancy while saving millions annually. Regardless of the consensus among scientists about the benefits of vaccination, an increasing number of individuals exhibit disbelief or unwillingness toward vaccines, a phenomenon known as vaccine hesitancy. This trend poses a significant challenge for public health agencies globally, which are striving to narrow the immunization gap. The World Health Organization (WHO) identified vaccine hesitancy as one of the top threats to global health in 2019. While misconceptions and misinformation surrounding vaccines are notable contributors to hesitancy, it is crucial to recognize the multifaceted nature of this issue, which varies widely by context, culture, and socio-economic factors.

Method: A search was conducted by reviewing scientific literature published between January 1980 and September 2024 through electronic search engines. The criteria for retaining articles were the following: reports written in the English language and concerning trust and vaccine hesitancy. The majority of studies included in this review are cross-sectional studies, qualitative studies, and cohort studies.

Results: Vaccine hesitancy is a complex topic. Trust in science is higher in wealthier countries and in countries where income inequality is lower. Concern over vaccines' links to autism caused the interruption of the Hepatitis B vaccine in France and a drop in coverage for the measles, mumps, and rubella vaccine in the United Kingdom and the United States. Fear of sterilization accompanied a drop in tetanus vaccination coverage in the Philippines, Nicaragua, and Mexico and encouraged the boycott of the oral polio vaccine in northern Nigeria. Seventy percent of participants in a study on the Human Papillomavirus vaccine in Saudi Arabia expressed concern about its side effects.

Conclusion: This review provides crucial insights into vaccine hesitancy that can guide policymakers and public health professionals in designing effective campaign strategies. Public confidence in vaccination can wane due to both actual and perceived risks related to immunization, which may result in decreased vaccination rates and jeopardize herd immunity. Individuals' willingness to receive vaccines is closely linked to their beliefs, as well as the information they receive about vaccine safety, efficacy, and importance. Therefore, effective communication is essential for addressing concerns and enhancing vaccine acceptance. It is vital to assess and monitor trust levels in vaccines and to implement targeted strategies to foster and rebuild that trust, particularly in times of uncertainty. Addressing these issues will be instrumental in bridging gaps in vaccine confidence and ensuring broader public health outcomes.

Keywords: *Vaccine hesitancy, public health, immunization, trust, misinformation, COVID-19, historical context, communication strategies..*

BACKGROUND

Vaccines are one of the most successful public health interventions. They have contributed to the eradication of some diseases, increased population lifespan, and saved millions of lives annually. While there is scientific agreement on the benefits of vaccination, a growing proportion of the population is becoming disbelieving about it. The awareness that vaccination programs are losing momentum is concerning for public health agencies around the world. People who delay or refuse vaccines for themselves or their children present a growing challenge for countries seeking to close the immunization gap. Vaccine hesitancy is not only relevant in high-income countries, but it is a complex, rapidly changing global problem that varies widely in context. Many studies assessing determinants of vaccine acceptance have been published in the last decade. The World Health

The American Journal of Public Health (ISSN 3064-6677)

Organization (WHO) listed vaccine hesitancy as one of the top ten threats to global health in 2019[1]. Vaccine hesitancy is defined as "the reluctance or refusal to vaccinate despite the availability of vaccines"[2]. The emergence of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), also known as COVID-19, in late 2019 precipitated a global health emergency, contributing to more than 7 million reported deaths globally as of January 19, 2024[3]. COVID-19 has been deprioritized as a substantial public health threat since 2023; however, virus strains continue to circulate and, in some settings, lead to new increases in hospitalization and intensive care unit admissions[3]. The potential impact of vaccine hesitancy on confidence in booster doses remains substantial[4]. Documented spillover effects on routine immunization pose a threat for the reemergence of some childhood and adult vaccine-preventable diseases[5]. Factors influencing vaccine hesitancy are complex, but the mass amounts of false and misleading information play an important role. Misinformation strengthens vaccine hesitancy and contributes to the loss of life and reduced quality of life for millions of people, both vaccinated and unvaccinated[6]. Concerns about vaccine safety can be linked to vaccine hesitancy; however, safety concerns are only one of many factors that may drive hesitancy[7]. Vaccine hesitancy can also be caused by other factors, such as negative beliefs based on myths—for example, that vaccination of women leads to infertility—misinformation, mistrust in healthcare professionals or the healthcare system, the influence of prominent leaders, and cost. Healthcare providers play a key role in informing people about vaccines, encouraging them to vaccinate, and maintaining high vaccine coverage in their populations. Healthcare providers' knowledge, attitudes, and beliefs toward vaccination influence their own immunization behaviors and can impact patients' vaccine acceptance and increase vaccine uptake[8]. Although social support may be important in vaccine decision-making, there is a positive relationship between community health campaigns and preventive healthcare use, including influenza vaccination and mammograms. There is also evidence that community cohesion is positively associated with engagement in health behaviors protecting not only individuals but also the larger community. It is critical that we better understand the social, economic, and psychological factors that encourage or inhibit vaccine uptake.

Historical examples of vaccine hesitancy and public concerns about vaccines are not new. During the first authorized smallpox vaccination campaign in the 1800s, anti-vaccination groups raised concerns about vaccine safety, dosing schedules, and policies. Many of the same basic concerns about the risk of adverse events, weak public health institutions, and the business motives of the vaccine industry remain today. What has changed is the growing diversity of vaccines and the rapid speed at which information spreads globally through the internet and social media[9].

METHODS

A search was conducted by reviewing scientific literature published between January 1980 and September 2024 through electronic search engines like Google Scholar and PubMed. The criteria for retaining articles for further processing were as follows: reports written in English and addressing trust and vaccine hesitancy. During the selection process, reports for which neither the abstract nor the full text could be obtained were eliminated, and duplicated reports were excluded. The majority of studies included in this review were cross-sectional studies, along with qualitative and cohort studies.

RESULTS

Vaccine hesitancy has emerged as a key concept in the literature in the last decade. Furthermore, there is limited quantitative research examining vaccine hesitancy[10]. Trust in science is higher in wealthier countries and in countries where income inequality is lower; people with more education and higher incomes also report more trust in science[11]. In one study regarding the vaccine against COVID-19 by Kantar, 19% of people in the United States stated that they would probably or not get vaccinated, with corresponding figures of 14%, 23%, and 24% in the United Kingdom, Germany, and France, respectively[12]. Concern over vaccines' links with autism caused the suspension of the Hepatitis B vaccine in France in 1998, leading to a drop in coverage for the measles, mumps, and rubella (MMR) vaccine notably in France, the United Kingdom, and the United States[11], despite the absence of scientific evidence supporting this link[13]..Fear of sterilization led to a drop in tetanus vaccination coverage in the Philippines, Nicaragua, and Mexico in 1994[14], as well as to a boycott of the oral polio vaccine in northern Nigeria in 2003[15] and stalled polio eradication efforts in India[16]. Beyond concerns for vaccine safety, vaccine programs also face threats due to political issues. In Pakistan, polio vaccination workers were assassinated in 2012 and 2013, even though the use of vaccination schemes to achieve political objectives has been condemned by the public health community[17]. In Vietnam, a study involving 425 individuals with chronic diseases showed that while they had positive beliefs about vaccination, they were concerned about its adverse effects, necessity, and cost[18]. A study conducted during the Hajj season (2009) in Saudi Arabia found that almost 47% of participants were willing to be vaccinated against the Influenza A virus subtype (H1N1). Vaccination acceptance was greater among non-healthcare workers (71%) than among healthcare workers (35%). The most common reason for H1N1 vaccine

The American Journal of Public Health (ISSN 3064-6677)

refusal was the belief that the disease was not fatal[19]. A study conducted in 2020 in Riyadh, Saudi Arabia, found that 31% of participants were aware of the Human Papillomavirus (HPV) vaccines, and the reason for vaccine hesitancy was concern about its side effects (70%) and fear of injections (55%). Almost 85% of participants had poor knowledge about the vaccine, which was statistically significantly associated with years of education, specialization, and age. Students whose parents were healthcare professionals had a higher level of knowledge ($P < 0.01$)[20]. A study conducted in the United Arab Emirates found that 12% of parents were hesitant to get their children vaccinated, and the most common concern reported was vaccine side effects[21].

CONCLUSION AND RECOMMENDATIONS

Over the last two centuries, the world has seen a significant increase in the availability of vaccines for the prevention of infectious diseases. The smallpox vaccine remains the most celebrated vaccine-related achievement in human history, but worldwide reductions in many other diseases, like measles, mumps, polio, and diphtheria, also illustrate the power of vaccination in controlling outbreaks of contagious diseases. Public confidence in vaccination may reduce due to real or perceived risks associated with immunization, which may lead to lower vaccination coverage and loss of herd immunity. Effective communication is crucial in addressing fears, concerns, and promoting acceptance of vaccination. Additionally, the willingness of individuals to be vaccinated is associated with their beliefs and the information received regarding vaccine safety, effectiveness, and importance. Measuring and monitoring trust levels and focusing on deliberate efforts to build trust in vaccines are essential steps in reducing vaccine confidence gaps when they occur.

Abbreviations

World Health Organization (WHO), Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), also known as COVID-19, Measles, Mumps, and Rubella (MMR), Influenza A Virus Subtype (H1N1), Health Care Worker (HCW), Human Papillomavirus Vaccine (HPV).

Funding of the Study

This study is self-funded by the authors.

REFERENCES

1. Guide for health workers on strengthening confidence in vaccines.pdf.pdf (unicef.org)

2. CDC. (2021). How to Address COVID-19 Vaccine Misinformation. https://www.cdc.gov/vaccines/covid-19/health departments/addressing-vaccine-misinformation. html

3. COVID-19 epidemiological update—19 January 2024. World Health Organization https://www.who.int/publications/m/item/covid-19-epidemiological-update–19-january-2024 (2024).

4. Limbu, Y. B. & Gautam, R. K. Vaccines 11, 816 (2023).

5. The State of the World's Children 2023. UNICEF https://www.unicef.org/reports/state-worlds-children-2023 (2023).

6. Scheres J, Kuszewski K. The ten threats to Global Health in 2018 and 2019. A welcome and informative communication of WHO to everybody. Zdrow Publ Zarządz. (2019) 17:2–8. doi: 10.4467/20842627OZ.19.001.11297 [CrossRef] [Google Scholar]

7. Vaccine hesitancy: A growing challenge for immunization programmes (who.int)

8. UNICEF Sociological research report. Parents' knowledge, attitude and practice on childhood immunization. (2021)

9. Community Cohesion, Social Support, and Mental Health among Black Individuals in Chicago: A Cross-Sectional Examination of the Effects on COVID-19 Vaccination | Journal of Racial and Ethnic Health Disparities (springer.com)

10. Akehurst C. France suspends hepatitis B immunization for adolescents in schools. Euro Surveill 1998; 41:1143

11. Sturgis, P., Brunton-Smith, I. & Jackson, J. Trust in science, social consensus and vaccine confidence. Nat Hum Behav 5, 1528–1534 (2021). https://doi.org/10.1038/s41562-021-01115

12. G7 countries perception of COVID-19, Wave 3. Kantar https://www.kantar.com/inspiration/politics/citizen-impact-covid19-infographic (2020)

13. Gross L. A broken trust: lessons from the vaccine--autism wars. PLoS Biol 2009; 7: e1000114; http://dx.doi.org/10.1371/journal.pbio.1000114; PMID: 19478850

14. Milstien J, Griffin PD, Lee J-W. Damage to immunisation programms from misinformation on contraceptive vaccines. Reprod Health Matters 1995; 6:24 - 8; http://dx.doi.org/10.1016/0968-8080(95)90155-8

15. Jegede AS. What led to the Nigerian boycott of the polio

The American Journal of Public Health (ISSN 3064-6677)

vaccination campaign? PLoS Med 2007; 4: e73; http://dx.doi.org/10.1371/journal.pmed.0040073; PMID: 17388657

16. Larson HJ, Ghinai I. Lessons from polio eradication. Nature 2011; 473:446 - 7; http://dx.doi.org/10.1038/473446a; PMID: 21614056

17. McGuinness W. CIA polio vaccine hoax condemned by public health deans. Huffington Post New York 2013

18. Frontiers | The effect of vaccination beliefs regarding vaccination benefits and COVID-19 fear on the number of vaccination injections (frontiersin.org)

19. WHO EMRO | Vaccine hesitancy in the Gulf Cooperation Council countries | Volume 29 issue 5 | EMHJ volume 29 2023

20. Altamimi T. Human papillomavirus and its vaccination: Knowledge and attitudes among female university students in Saudi Arabia. Family Med Prim Care. 2020 Apr 30;9(4):1849–55. doi: 10.4103/jfmpc.jfmpc_1205_19

21. Alsuwaidi AR, Elbarazi I, Al-Hamad S, Aldhaheri R, Sheek-Hussein M, Narchi H. Vaccine hesitancy and its determinants among Arab parents: a cross-sectional survey in the United Arab Emirates. Hum Vaccin Immunother. 2020 Dec 1;16(12):3163–9. doi:10.1080/21645515.2020.1753439