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Global Perspectives on Vaccination Uptake and Vaccine Hesitancy: Review

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Abstract

Background: Vaccination has significantly contributed to public health by reducing the incidence of infectious diseases. However, vaccine hesitancy remains a critical challenge, hindering optimal vaccination uptake globally. This phenomenon has been recognized by the World Health Organization as a major health threat. Understanding the factors influencing vaccine acceptance is essential for improving public health strategies.

Methods: This review synthesizes existing literature on vaccination uptake and hesitancy, focusing on the multifaceted determinants affecting individual and community decisions regarding vaccinations. The analysis incorporates various models such as the 3Cs and 5Cs frameworks, which categorize factors into complacency, convenience, confidence, constraints, calculation, and collective responsibility.

Results: The findings reveal that vaccine hesitancy is influenced by a complex interplay of socio-demographic factors, cognitive biases, misinformation, and trust in healthcare systems. Key determinants include perceived vaccine safety, political ideology, and the role of social media in shaping public perception. Additionally, the review highlights the historical context of vaccine skepticism and its implications on current vaccination policies.

Conclusion: Addressing vaccine hesitancy requires targeted communication strategies that foster trust and provide clear, evidence-based information. Engaging healthcare professionals and community leaders is vital to counteract misinformation and enhance vaccine acceptance. Future research should focus on

understanding the socio-cultural dynamics that affect vaccination decisions to develop effective interventions.

Keywords: Vaccination, Vaccine Hesitancy, Public Health, Trust, Misinformation.

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1. Introduction

Vaccination represents a paramount public health accomplishment, enabling the elimination of smallpox and the management of several infectious illnesses, including rubella, diphtheria, and polio worldwide. The efficacy of this technique for several illnesses relies on public acceptance of vaccination. Despite the demonstrated efficacy of vaccination in alleviating the worldwide burden of infectious diseases and fatalities linked to vaccine-preventable illnesses, apprehensions that erode public faith and vaccine acceptability persist. Continued trust poses a danger of the reappearance of vaccine-preventable illnesses due to delays, rejections, and interruptions in vaccine development, distribution, availability, and future research [1-3].

Vaccine hesitancy has been recognized as one of the top 10 global health hazards by the World Health Organization (WHO) in 2019 due to its prevalence over many decades. In 2014, the WHO's Strategic Advisory Group of Experts on Immunization (SAGE) characterized vaccine hesitancy as the postponement of acceptance or outright rejection of vaccinations, notwithstanding the availability of vaccination services [5]. Vaccine reluctance is intricate and context-dependent, differing by time, location, and particular immunizations. It is affected by elements like complacency, convenience, and confidence. Over the last decade, significant study has been undertaken on vaccine hesitancy and the many variables that affect an individual's choice to accept or decline a vaccination. The WHO Strategic Advisory Group of Experts on Immunization (SAGE) identified three categories for examining these factors: complacency (perceiving diseases as low-risk and vaccination as unimportant), convenience (practical obstacles), and confidence (distrust in vaccine safety and efficacy), collectively known as the 3Cs model [6].

The notion of vaccine hesitancy is inapplicable in circumstances when low vaccination uptake results from vaccine unavailability, limited access, excessive travel distances to immunization clinics, and inadequate communication. In 2016, a comprehensive nomenclature including the aspects of access, affordability, awareness, acceptance, and activation was proposed for the determinants of vaccination uptake, referred to as the 5As [7]. Informed by empirical and theoretical research, the 3Cs model was revised in 2018 to underscore the significance of factors beyond mere confidence, resulting in the 5Cs model: confidence, complacency, constraints (redefining convenience to encompass both structural and ychological barriers), calculation (favoring deliberation), and collective responsibility (communal orientation) [8]. Figure 1 illustrates the modification of the vaccination hesitancy model from 3Cs to 5Cs.

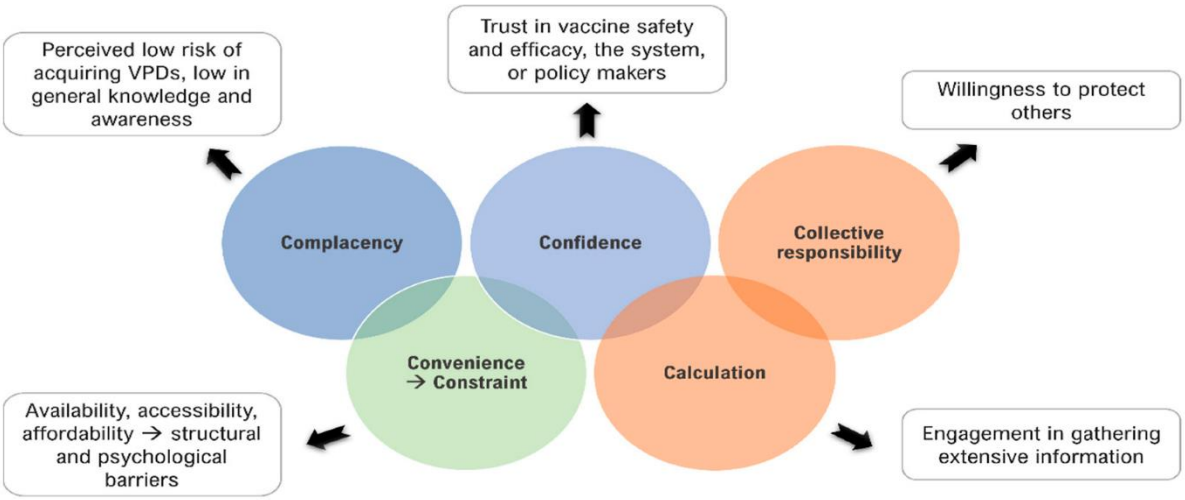

Figure 1. Vaccine hesitancy framework: the transition from 3Cs to 5Cs.

The SAGE idea was acknowledged; nonetheless, the factors contributing to vaccination hesitancy were intricate and diverse, with some centered-on community concerns and others on systemic and healthcare provider challenges. Another significant result was the absence of validated surveys evaluating reluctance in low- and middle-income nations. Consequently, the WHO, UNICEF, and collaborators established a working group dedicated to the behavioral and socioeconomic determinants of vaccination. They designed and verified survey methodologies to evaluate vaccination hesitancy across high-, middle-, and low-income nations. This working group developed a framework for behavioral and social drivers comprising four elements: cognition and emotion (perceived disease risk and vaccine confidence), social dynamics (social norms and provider recommendations), motivation (intention to receive recommended vaccines), and logistical considerations (availability, affordability, accessibility, service quality, and respect from providers). The Royal Society of Canada (RSC) Task Force on COVID-19 sub-group on vaccine acceptability developed a more intricate model that highlighted the intricacy, interrelatedness, and variety of component categories. This modified paradigm focused on four key areas that influenced vaccine uptake: faith in vaccinations (individuals and communities), healthcare workers (HCWs), reliable and credible vaccination information, and the healthcare system alongside public health initiatives [9].

The WHO has acknowledged that vaccination hesitancy is a significant danger to global health. Vaccine reluctance may impede the establishment or maintenance of herd immunity, necessitating the immunization of a substantial segment of the population. The primary issue with vaccination hesitancy and inadequate herd immunity is that unvaccinated people may serve as reservoirs for the pathogen. They may precipitate other outbreaks, hindering attempts to contain the virus's dissemination across the population [10]. Once herd immunity is attained with safe and effective vaccinations, the prevalence of illnesses diminishes. Moreover, attaining herd immunity seeks to safeguard vulnerable persons who are ineligible for vaccination against illnesses. Individuals may remain susceptible to illnesses, such as tetanus or shingles, for which herd immunity is absent [11]. The proportion of persons requiring immunization to attain herd immunity varies by illness; around 95% of a community must be vaccinated for measles, but the threshold for polio is around 80% [12].

2. Initial Vaccine Reluctance

Opposition to vaccination is not a novel phenomenon. Since Edward Jenner produced the first smallpox vaccine in 1796, skepticism and doubts about vaccinations and the intentions underlying their use have persisted. Although Jenner is acknowledged for his role in vaccination and the ultimate elimination of smallpox, variolation was used before his discovery. Nonetheless, variolization in earlier periods was neither secure nor reliable; inadequately trained practitioners might misidentify a donor's chickenpox lesions as smallpox lesions, raising concerns that recipients could acquire disseminated smallpox, transmit it to others, or contract diseases such as syphilis. Inoculation began in America during the smallpox pandemic that affected Boston and other regions of Massachusetts in 1721 [13,14]. Reported fatality rates were 2% for variolated individuals compared to 14.9% for those infected normally [15,16]. Nonetheless, English physicians scrutinized the magnitude and duration of this impact [14].

In 1796, Edward Jenner proposed the use of the less virulent cowpox virus in a kid to elicit an immune response, having seen that milkmaids seldom had smallpox. Jenner tested his idea on his gardener's kid and later on 23 other subjects [17]. In 1797, he submitted his experiment to the Royal Society, which rejected it due to inadequate proof and the radical implications of his findings. Jenner's subsequent release of the findings elicited swift public censure and considerable dissent [18]. The local church contended that the amalgamation of animal materials with human flesh constituted a direct transgression of divine intent. Some individuals voiced apprehensions that the vaccine might induce "Cow-Mania," using depictions of an ox-faced youngster and an elderly woman who purportedly developed horns post-vaccination [19].

In 1853, the British Compulsory Vaccination Act mandated the smallpox vaccine for children within their first three months of life, establishing the world's first compulsory vaccination program and inciting significant opposition, resulting in riots in several UK cities [20]. In 1867, the statute mandated immunization for individuals up to 14 years of age, with penalties for non-compliance. Critics of the 1867

legislation expressed apprehensions over individual liberty and autonomy, prompting the establishment of the Anti-Compulsory Vaccination League in London that same year [21,22].

A plethora of anti-vaccination literature surfaced in the 1870s and 1880s, accompanied by the emergence of anti-vaccination groups across Europe. By 1872, vaccination rates in Stockholm had declined to around 40%, in contrast to almost 90% in the rest of Sweden. Nonetheless, a significant smallpox epidemic transpired in 1874, and an increased use of vaccination prevented a further outbreak. Anti-vaccination views also proliferated in the United States around the conclusion of the 19th century. Anti-vaccination groups emerged when governments sought to implement or enact new vaccination legislation. Anti-vaccination organizations emerged throughout the United States, and campaigners successfully abolished obligatory vaccination statutes in some states [23].

In 1902, when smallpox afflicted Cambridge, Massachusetts, the city's health board recommended vaccination for all adults. In 1905, in Jacobson v Massachusetts, a citizen contested the state's authority to limit personal freedoms for public health purposes. The US Supreme Court determined that the state may be warranted in curtailing individual liberty in the face of significant threats to safeguard public safety [23].

3. Factors Contributing to Vaccine Hesitancy

Decision-making about vaccinations and vaccination programs, whether at an individual or community level, is intricate, influenced by many socio-demographic, attitudinal, and knowledge-based variables [24]. Attitudinal influences, including cultural and religious beliefs, risk perception, and individual and collective actions, significantly and interdependently influence decision-making. Previous vaccination behavior and the effects of vaccine requirements are other determinants of vaccine uptake. The COVID-19 vaccine has been explicitly linked to political affiliation, ideological and partisan influences, information (including misinformation and disinformation), and satisfaction with governmental decision-making about other COVID-19 preventative methods and management [25,26].

Cognitive biases significantly influence human decision-making and need careful examination. Individuals use heuristics to streamline certain difficulties in decision-making. A heuristic is a cognitive shortcut that enables individuals to swiftly resolve problems and make intuitive conclusions. When the appropriate conditions activate these heuristics, they may prove to be quite beneficial. The use of a heuristic technique under inappropriate conditions results in systemic mistakes or cognitive biases in decision-making [27].

Cognitive biases influencing vaccination reluctance may be classified into three categories based on shared characteristics. Group one include cognitive biases arising from the processing of vaccine-related information, which are significantly influenced by the message, its substance, and relevant factors, including the framing effect, availability bias, and authority bias. Group two encompasses cognitive biases that arise during the vaccination decision-making process, including uncertainty, omission bias, risk perception of the decision maker, and a preference for known risks over unknown ones, irrespective of the outcome, all of which significantly impact individual decisions. The three cognitive biases have a commonality: a pre-existing view about vaccination significantly influences behaviors more than the facts presented. These instances include shared knowledge bias, belief bias, and the false consensus effect [27].

The efficacy of vaccination initiatives results in a diminished number of laypersons and healthcare professionals possessing direct experience or understanding of the hazards associated with vaccine-preventable illnesses (VPDs) [28]. As a result, emphasis is often placed on the risks or perceived risks associated with vaccinations or immunization, rather than on the risks posed by infectious illnesses [29]. The erosion of belief in vaccination has been exacerbated by notable instances, including the study by Wakefield, which suggested a correlation between autism and the MMR vaccine. Despite the retraction of the report and the subsequent discrediting of Wakefield's results, it had enduring effects on vaccination adherence [29].

Omission bias, the tendency to see the adverse outcomes of an action (commission) as more severe than those resulting from inactivity (omission), even when the latter impacts a greater number of persons

or happens more often, is posited to contribute to vaccination hesitation. Certain people contend that vaccinating a kid, when the immunization poses potential danger, is more harmful than forgoing vaccination, despite the overwhelming consensus that vaccination often mitigates the risk of injury. A potential rationale for this approach is that vaccinations are provided as prophylactic interventions to healthy persons; hence, their advantages can only be adequately assessed at the population level, but their hazards (whether actual or perceived) are observable at the individual level [28].

The internet and social media facilitate communication, education, and the effect of individual and collective choices around vaccinations and immunization. Research examined and identified prevalent health misinformation concerns on social media, revealing that 43% related to vaccinations [30]. Individuals who reference the internet as their main source of vaccine information are more inclined to reject or postpone immunization [31-33]. Social media algorithms are designed to assist users by curating material based on their previous search behaviors. It forecasts and dictates judgments on the most suitable stuff to provide based on an individual's previous behavior. Consequently, if an individual looks for or follows websites or persons associated with vaccination reluctance or refusal, they are more likely to encounter analogous information in subsequent searches [34]. Moreover, the internet often fails to differentiate significantly between the quality and dependability of information offered by a healthcare professional and that supplied by a layperson [34]. Consequently, the internet and social media platforms have emerged as significant conduits for the dissemination of incorrect information on vaccines and vaccinations, which is extensively utilized [35-38]. Surveys conducted on social media platforms in the US and UK reveal a pervasive spread of misinformation regarding the pandemic, including claims that 5G mobile networks are associated with the virus, that participants in vaccine trials have succumbed following administration of a candidate COVID-19 vaccine, and that the pandemic constitutes a conspiracy or a bioweapon [39-41]. This information might intensify existing fears, instilling questions and skepticism about new vaccinations and jeopardizing public acceptance of vaccination.

Maintaining vaccine-induced herd immunity against an infectious illness requires vaccination coverage above certain threshold levels within a community [42-45]. Vaccination policies differ significantly worldwide; some nations prioritize educating their populace and permitting individual choice, whilst others enforce mandatory vaccines to achieve high vaccine coverage. An illustrative instance of the latter is the need of vaccinations for children against various illnesses as a prerequisite for school enrollment [46,47]. Despite their effectiveness, obligatory vaccination regimes have been contentious, sometimes condemned as authoritarian, and are rejected by certain people and cultures.

Kennedy et al. [48] assert that a parent's opposition to obligatory vaccination correlates with adverse perceptions on the safety and effectiveness of vaccines. Moreover, a vaccine mandate elicits common sentiments, including “my body, my choice,” and prevalent beliefs such as “a child's body can defend itself without vaccination,” implying that natural immunity is superior to vaccine-induced immunity. This is applicable just to certain disorders. The severity of disease varies across people; nevertheless, some illnesses, like rabies, are almost always deadly. In the absence of personal experience, some parents underestimate the direct risk to their child's health posed by vaccine-preventable diseases (VPDs) [49]. Separate research conducted in the United States by McCoy on resistance to vaccine mandates indicated that the societal variables influencing Americans' perceptions of vaccine safety differ from those shaping their perspectives on the need of mandatory immunization. The cause may be attributed to some conservatives who advocate for little governmental intervention and prioritize individual liberty [50].

Vaccine reluctance has garnered considerable attention with the introduction of COVID-19 vaccines. Predictive factors for receptivity to COVID-19 vaccination, in order of significance, including perceived vaccine safety, perceived COVID-19 risk, perceived vaccine efficacy, political ideology, confidence in medical professionals, and trust in scientists. In contrast, the variables predicting vaccination rejection, in order of significance, include the perceived safety of vaccines, political ideology, faith in medical experts, ethnicity, felt moral reproach, perceived efficacy of vaccines, and dependence on social media for information [50]. Consequently, those receptive to vaccination seem to make judgments by evaluating risks and rewards,

while those reluctant about vaccinations are more likely to be swayed by alternative attitudes and beliefs [51].

Commonly referenced factors contributing to vaccination hesitation include doubts over the objectivity of some studies, the expedited creation of vaccines, and the potential short-term and uncertain long-term adverse effects. The absence of faith in research may stem from ambiguity and the ever-changing nature of scientific discoveries. This scenario is not novel nor atypical; yet it is uncommon for such preliminary material to be so easily accessible to the public, sometimes without interpretation by a scientific or medical intermediary. Moreover, for decades, evidence-based medical paradigms and treatment methods have advocated for a gradual and systematic introduction of new pharmaceuticals, emphasizing that randomized controlled trials are more effective in demonstrating effectiveness than in clarifying undesirable effects. During this pandemic, the population was urged to reevaluate the risk–benefit analysis, considering the substantial danger of infection and potential severe consequences from the virus [4,52].

Regulatory regulators originally refuted the connection between the AstraZeneca vaccination and blood clots until it was definitively established. This change in guidance may have diminished trust in the regulatory process. Furthermore, several agencies, prioritizing openness, disclosed all first instances of vaccine-related clotting, perhaps amplifying knowledge of an uncommon adverse event. The occurrence of myocarditis in youngsters after the Pfizer vaccination concerned parents, who were also informed that COVID-19 often presents as a mild illness in this demographic [12].

The politicization of pandemic responses, policy inconsistencies, and the attitudes of prominent political leaders and decision-makers further aggravated the problem. A multitude of conspiracy theories has arisen about the pandemic, vaccines, the virus's origin, the rationale for global lockdowns, and compulsory vaccinations. In this setting, media communication, especially social media, seems to have had a significant impact. Research established a correlation between social media and worries around the COVID-19 pandemic, including vaccination hesitancy and associated conspiracy theories [53]. The novelty of the disease, especially the limited understanding of emerging viral variants; vaccines utilizing innovative platforms such as mRNA and vector-based technologies; skepticism regarding the efficacy of current vaccines against new variants; political and economic motivations linked to the pandemic response, vaccine development, and production; and public mistrust in pharmaceutical companies and governments have all exacerbated uncertainty surrounding COVID-19 vaccination [3,54].

In December 2021, Robert Malone, who claims to be the "inventor of mRNA vaccination," made many assertions about the mRNA COVID-19 vaccines adversely affecting children in a video that garnered hundreds of thousands of views online. This video was subsequently disavowed, and Twitter permanently terminated Malone's account for contravening the platform's policy against COVID-19 misinformation. On December 31, 2021, Joe Rogan, an actor and comedian, had an interview with Roger Malone for The Joe Rogan Experience, a podcast exclusive to Spotify. Malone disseminated many false, deceptive, and unsubstantiated assertions about the safety and efficacy of COVID-19 therapies and vaccinations [55]. Malone's claims in Rogan's interview led 270 scientists, medical professionals, educators, and scientific communicators to jointly sign an open letter requesting Spotify to "reduce the dissemination of disinformation on its platform."

4. Strategies to Mitigate Vaccine Hesitancy

The COVID-19 epidemic has generated vast quantities of information for the public, while also facilitating the dissemination of erroneous and misleading data, exacerbating public uncertainty and fear. Misinformation and disinformation about COVID-19 must be addressed promptly and efficiently by clear, consistent, persistent, and robust counter-messaging strategies, essential for fostering trust in vaccines and vaccination initiatives. Collaboration across several socio-economic sectors, outside healthcare, and with groups at greater risk of impact is essential for fair and objective information distribution activities. Communications regarding vaccine safety and the public health advantages of vaccinations should be conveyed by trusted community figures, such as prominent role models, as well as by professionals capable

of addressing inquiries objectively and without bias, including physicians, nurses, pharmacists, or scientists in pertinent healthcare or scientific fields [56].

Vaccine producers, together with governments and health organizations at both national and worldwide levels, must persist in advocating for the dissemination and endorsement of good public health views and the trust essential for global acceptance of mass vaccination. This encompasses the clear and open dissemination of scientific information, alongside the advocacy of the advantages provided by COVID-19 immunization, as well as any possible adverse effects, their severity, and anticipated frequency [10,56].

Watson et al. used mathematical modeling to assess the direct and indirect global effects of COVID-19 immunization. The authors utilized their model to predict and report excess mortality, estimating that 31.4 million deaths from COVID-19 would have transpired without vaccinations in the first year of the vaccination campaign, resulting in 19.8 million deaths averted, which represents 63% (19.8 million of 31.4 million) of the total fatalities. The research revealed that 96 nations and administrative areas fell short of the WHO's vaccine coverage goal of 40% by the conclusion of 2021. If this aim had been achieved, it was predicted that 599,300 extra fatalities would have been prevented. The bulk of these fatalities transpired in low- and middle-income countries, particularly in the African and Eastern Mediterranean areas; nevertheless, the most significant proportionate increase was seen in LMICs, where the averted deaths constituted a 111% rise in estimated deaths prevented by vaccination [57].

For more than twenty years, behavioral scientists have investigated methods to enhance vaccine acceptance among parents of children and adolescents, specifically for measles, rubella, mumps, and human papillomavirus vaccinations, as well as among adults for influenza, pneumonia, and shingles vaccinations [58-60]. This has produced a significant corpus of research about vaccine decision-making processes, which has delineated effective public health strategies for advocating COVID-19 immunization during this pandemic [58,61,62].

Facilitating behavioral modification to enhance vaccine acceptability and uptake is a multifaceted endeavor that integrates many societal influences on personal decision-making and requires synchronized efforts at numerous levels by people. They include policymakers who make decisions for their jurisdictions (states, provinces, regions, countries), organizational leaders (religious figures, healthcare professionals, corporate executives) who may exert influence over their followers, patients, or employees, and ordinary citizens whose acceptance or refusal of vaccination ultimately impacts the success or failure of global vaccination initiatives. The efficacy of these interventions is primarily influenced by both the origin of the message and the emotions it provokes [58].

The social and behavioral sciences provide valuable insights for managing the epidemic and its consequences. It may aid policymakers, leaders, and the public in enhancing their comprehension of threat management, examining diverse social and cultural dimensions, improving scientific communication, executing successful leadership, and offering social and emotional support [63]. A variety of behavioral strategies termed nudge interventions have shown efficacy in enhancing vaccine uptake, such as text messaging for influenza vaccination at pharmacies and mailed reminder letters [64,65].

Politicians and public personalities are essential in fostering and maintaining public faith in health policies, particularly during a pandemic. The manner in which governments address illness outbreaks profoundly influences public faith in immunization. The effect of politicians on public opinion is perhaps greater than that of celebrities, since they may directly affect health policy and shape attitudes. They have a duty to provide precise and impartial health information; failure to do so may exacerbate apprehensions around immunization.

The MMR vaccine-autism controversy, originating in 2001 due to the discredited Wakefield study, was intensified when then UK Prime Minister Tony Blair declined to reveal his child's vaccination status, instilling fear and anxiety among parents and hindering public health initiatives [66]. President Trump's early 2017 proposal for a vaccine safety committee, led by vaccine skeptics Robert Kennedy Jr. and Robert De Niro, raised concerns among health experts around. In March 2017, Senator Pauline Hanson incited

controversy in Australia by advocating for a fictitious 'vaccination response test', a statement she subsequently retracted [67].

The Vaccine trust Project performed research in 32 countries and concluded in December 2020 that trust in governmental management of the COVID-19 response was the most significant predictor of readiness to receive a COVID-19 vaccine [68]. Individuals who saw their government's pandemic reaction positively shown a greater willingness to take the COVID-19 immunization, while those who viewed it negatively showed less willingness.

An engaged, assured, and informed vaccination workforce is essential for attaining elevated vaccine coverage. The trust of physicians and public health experts may alleviate or mitigate worries over vaccines and immunizations. Health practitioners with a thorough grasp of immunizations and vaccine hesitancy are better positioned to assist parents and patients in their vaccination decisions [69]. Clinician suggestions seem to be among the most effective strategies for enhancing immunization rates. Healthcare workers, being the most informed in their field and among the initial recipients of vaccinations, should possess the authority and confidence to discuss their vaccination decisions with patients and advocate for their patients and families to receive vaccines as well [70].

Clinicians may use many strategies to address vaccine reluctance. This includes understanding the vaccination schedule, offering explicit recommendations, implementing standing orders or nursing procedures for administering immunizations without clinical assessments, and contacting patients via reminders and recalls between appointments. The Corroborate, About Me, Science, and Explain/Advise (C.A.S.E.) approach is a promising method to mitigate vaccine hesitancy. It involves the clinician identifying the specific concerns of the patient, establishing a shared goal, and offering reassurance in a non-judgmental manner. Clinicians must have mastery of both practical experience and empirical evidence. Subsequently, the clinician must delineate pertinent information and elucidate the rationale in accessible language, ensuring the patient comprehends the recommendation while addressing any reservations within the framework of the patient's belief systems [11].

A considerable body of literature supports obligatory vaccination, especially for the prevention of infectious illnesses. A prevalent argument presented by bioethicists is on the prevention of damage to others [71-74]. In 1859, philosopher John Stuart Mill posited that people ought to possess the autonomy to make judgments, provided their acts do not inflict damage on others, a concept referred to as the harm principle. If their actions adversely affect others, state coercion and the limitation of liberty become legitimate [75]. Mandatory vaccination can be ethically justified if the following criteria are satisfied: the public health threat is significant, confidence in safety and efficacy is substantial, the anticipated benefits surpass the alternatives, and coercion is implemented proportionately (e.g., penalties or costs for non-compliance are reasonable) [76].

Mandatory childhood vaccination has emerged as a crucial policy measure for countries aiming to address low immunization rates. Childhood vaccinations include those that safeguard against measles, mumps, rubella, diphtheria, tetanus, pertussis, polio, hepatitis B, rotavirus, Hemophilus influenzae type B, and tuberculosis—many of these are combination vaccines. Mandatory vaccinations are instituted for distinct purposes, mostly for children's school enrollment; thus, it is essential to comprehend the policies of various countries [77].

Certain nations have instituted or are contemplating the implementation of COVID-19 vaccination certification, requiring evidence of at least two doses of an authorized vaccine, a negative viral test, or a recovery certificate to verify a recent natural illness. As previously stated, one such project is the French government's mandate for a health permit or passe sanitaire [78]. Countries that have implemented or intend to implement mandatory COVID-19 immunization for all adults, except those with medical exemptions, include Ecuador, Germany, Indonesia, and Micronesia. Canada, Costa Rica, Denmark, Egypt, Italy, New Zealand, Saudi Arabia, and several more nations mandate immunization for healthcare professionals, government personnel, and other public and private sector jobs [79].

5. Conclusions

Vaccine hesitation and anti-vaccine movements have persisted since the inception and commercialization of vaccines. The increase of disputes around vaccinations and vaccination initiatives, with outbreaks of vaccine-preventable illnesses among unvaccinated or under-vaccinated groups, has intensified public health apprehensions. Despite the availability of scientific data over the last decade outlining the origins, repercussions, and implications of vaccination hesitancy, there is an urgent need to deepen the understanding and alleviate public concern over vaccinations. As we gradually transition from the past two years of COVID-19 and health restrictions, it is imperative to undertake targeted research on vaccine hesitancy to gain a comprehensive understanding of community dynamics, socio-cultural influences, and indigenous knowledge and beliefs. Additionally, it is essential to examine how criticisms regarding vaccines and vaccinations—whether substantiated, unfounded, or perceived as credible—impact vaccination acceptance and to explore strategies for addressing these concerns in a non-judgmental and measured way.

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وجهات نظر عالمية حول تلقي اللقاحات وتردد التطعيم: مراجعة

الملخص

الخلفية :ساهمت اللقاحات بشكل كبير في تعزيز الصحة العامة من خلال تقليل معدلات الإصابة بالأمراض المعدية. ومع ذلك، يظل تردد التطعيم تحديًا رئيسيًا يعيق تحقيق معدلات تطعيم مثلى على مستوى العالم. وقد اعترفت منظمة الصحة العالمية بهذه الظاهرة كتهديد رئيسي للصحة العامة. يُعد فهم العوامل المؤثرة على قبول اللقاحات أمرًا ضروريًا لتحسين استراتيجيات الصحة العامة.

الطرق :تجمع هذه المراجعة بين الأدبيات القائمة حول تلقي اللقاحات وتردد التطعيم، مع التركيز على العوامل المتعددة التي تؤثر على قرارات الأفراد والمجتمعات بشأن التطعيمات. يتضمن التحليل استخدام نماذج مختلفة مثل إطار "3 "Csو"5"Cs، التي تصنف العوامل إلى اللامبالاة، الملاءمة، الثقة، القيود، الحساب، والمسؤولية الجماعية.

النتائج :تكشف النتائج أن تردد التطعيم يتأثر بتداخل معقد بين العوامل الاجتماعية والديموغرافية، والتحيزات المعرفية، والمعلومات المضللة، ومستوى الثقة في أنظمة الرعاية الصحية. تشمل العوامل الرئيسية تصورات سلامة اللقاح، الإيديولوجيا السياسية، ودور وسائل التواصل الاجتماعي في تشكيل الرأي العام. كما تسلط المراجعة الضوء على السياق التاريخي للشكوك المتعلقة باللقاحات وتأثيراتها على سياسات التطعيم الحالية.

الخلاصة :يتطلب معالجة تردد التطعيم استراتيجيات اتصال مستهدفة تعزز الثقة وتوفر معلومات واضحة ومبنية على الأدلة. يُعد إشراك المهنيين الصحيين وقادة المجتمع أمرًا حيويًا لمواجهة المعلومات المضللة وتعزيز قبول اللقاحات. ينبغي أن تركز الأبحاث المستقبلية على فهم الديناميكيات الاجتماعية والثقافية التي تؤثر على قرارات التطعيم لتطوير تدخلات فعالة.

الكلمات المفتاحية :التطعيم، تردد التطعيم، الصحة العامة، الثقة، المعلومات المضللة.