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Understanding Multi-Dimensional Attitudes to Influenza Vaccination a Comparative Study of Parents, Teenagers, and Doctors

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ABSTRACT

Influenza vaccination is the most effective preventive strategy against seasonal flu, but vaccine hesitancy still prevents many people from getting it. This qualitative study explored factors shaping attitudes toward influenza vaccination among parents, teenagers, and doctors. 19 semi-structured interviews were conducted with 7 parents, 5 teenagers, and 7 doctors. Open-ended questions were adapted from the World Health Organization's Vaccine Hesitancy Survey Framework. Transcripts were analyzed using Braun and Clarke's six-phase thematic analysis within a social-constructivist framework. Two themes emerged: (1) vaccination as a personal decision shaped by perceived limited effectiveness, confidence in self-health, and neglect of collective value; and (2) vaccination as socially influenced by misinformation, fear of side effects, and medical advice. Teenagers were influenced by peers and health misinformation; parents balanced perceived risks and protection; and doctors emphasized evidence and collective health. These findings indicate that vaccine hesitancy is socially embedded. Uneven trust, miscommunication, and fear of discomfort hinder vaccine confidence, while doctor recommendations remain influential but context dependent. Uptake can be enhanced by empathic, straightforward communication that frames protection as a personal advantage and mild side effects as normal. To maintain increased vaccination rates across populations, policymakers should reestablish institutional trust and incorporate customized communication tactics.

KEYWORDS

Influenza vaccine; Vaccine hesitancy; Qualitative study; Parents; Teenagers; Doctors

1. INTRODUCTION

Seasonal influenza remains a major global health burden, causing an estimated 290,000–650,000 respiratory deaths annually [1, 2]. The virus mutates rapidly and spreads via respiratory droplets, producing symptoms such as fever, sore throat, and muscle aches. High-risk groups, including children, older adults, and pregnant women, face an elevated risk of severe illness. In addition to the health consequences, influenza imposes significant economic costs: in the United States alone, the annual burden is estimated at US$11.2 billion [3].

The best way to prevent influenza is to get vaccinated, which lowers the risk of serious illness and death. But even with its accessibility, coverage rates are still below ideal levels globally. For instance, half of the countries in the Region are vaccinating fewer than 1 in 3 older people [2]. In the U.S., during the 2024–25 season, flu vaccination coverage for children aged 6 months–17 years ranged from 9.4% to 46.3% across 44 state and city jurisdictions, and from 0.2% to 35.9% across 8 territorial and affiliated island jurisdictions. For adults aged 18 years and older, preliminary national survey estimates as of April 26, 2025, indicate that 46.7% (95% CI: 46.0–47.5) had received a flu vaccine,

a level similar to the same point in the 2023–24 season (47.4%) [4]. One major cause of this shortfall is vaccine hesitancy (VH), defined as reluctant or refusal of vaccination despite availability [5]. VH is a complex and context-specific issue, varying across time, place, and vaccine type, and is influenced by three main factors: complacency, convenience, and confidence [6].

Although the existence of literature documenting general patterns of influenza vaccine hesitancy, gaps remain in understanding intergenerational dynamics of vaccination decision-making. For instance, in a survey of 1,175 parents in China, approximately 37.1% expressed reluctance to vaccinate their children against seasonal influenza, despite being aware of the availability of the vaccine. This hesitancy was attributed to concerns regarding potential side effects and the perceived efficacy of the vaccine [9]. This difference highlights the need to examine how parental identity shapes attitudes differently compared to personal health decisions. For example, a study in the U.S. found that vaccinated parents who perceived higher long-term risks from vaccinating their children were significantly less likely to vaccinate them, even when they themselves were willing to be vaccinated [10].

Methodologically, much research has relied heavily on quantitative surveys to measure the prevalence of vaccine hesitancy. While such approaches provide width, they often fail to capture subtle motivations and contextual influences that shape parental and adolescent attitudes [11]. In contrast, semi-structured interviews have been shown to provide deeper insights into participants' experiences and beliefs by creating space for open dialogue beyond the limits of fixed survey responses. This method is especially effective for exploring sensitive issues such as fear of long-term side effects, uncertainty about vaccine safety, or mistrust in official government recommendations. Interviews also capture the influence of social and cultural dynamics, including family traditions, peer pressure, and the authority of healthcare providers, all of which shape vaccine decision-making in ways that are often invisible in quantitative data [7]. By allowing participants to elaborate in their own words, semi-structured interviews reveal layered motivations and contradictions, such as parents being willing to vaccinate themselves but hesitating to vaccinate their children, or teenagers influenced simultaneously by both peers and parents. This qualitative depth makes interviews a valuable complement to large-scale surveys in studying vaccine hesitancy. The incorporation of qualitative methods thus addresses an important gap by offering deeper insights into how trust, identity, and social norms interact in shaping vaccine decisions.

This study therefore adopts a qualitative semi-structured interviews with parents, teenagers, and doctors trying to answer the research question "What factors and mechanisms shape the multi-dimensional attitudes of parents, teenagers, and doctors toward influenza vaccination?". By analyzing narratives from these three groups, the research aims to uncover how vaccine attitudes emerge from social interactions, trust network, and cultural expectations rather than individual reasoning alone. These findings aim to contribute to a deeper understanding of social foundations of vaccine hesitancy and inform more empathetic, targeted public health communication strategies.

2. FRAMEWORK AND HYPOTHESIS

This research adopts social constructivism as its primary theoretical framework. Social constructivism emphasizes that many aspects of knowledge, beliefs, and social relations are not fixed but are produced through social actions and interactions, meaning they are open to reinterpretation and transformation. In this view, knowledge is socially created and maintained, making constructivism especially useful for analyzing how attitudes toward vaccination emerge cultural and institutional settings [12]. Constructivist approaches focus on social entities, identity, perception, norms, ideas, as central units of analysis. These approaches assert that how people see themselves (identity), how they believe others perceive them, and the shared norms within their social group profoundly affect attitudes and behaviors. For example, research on social norms of vaccination shows that vaccine-hesitant individuals consistently underestimate how many people accept

vaccination, misperceiving both empirical expectations (what others do) and normative expectations (what others think should be done). These misperceptions create a "false consensus bias," where hesitant individuals assume their views are more widely shared than they are, ultimately reinforcing reluctance to vaccinate. Correcting such misperceptions through accurate norm-based information has been tested as a way to reduce hesitancy, though the effect may depend on contextual factors such as concurrent policy interventions [13]. Based on recent findings, diminished institutional trust has been identified as a crucial driver of vaccine hesitancy. When trust in governments and health authorities weakens, individuals may rely on interpersonal networks or alternative belief systems that are often misaligned with mainstream scientific evidence, thereby reinforcing hesitant attitudes. These dynamics suggest that strategies to improve vaccine uptake must not only provide accurate medical information but also reconstruct institutional credibility and strengthen the channels through which trustworthy messages are delivered [14].

My research focus differences in how factors and mechanisms shape attitudes toward influenza vaccination among parents, teenagers, and doctors fits within a constructivist framework because these attitudes are not formed in isolation but are socially constructed entities. The perceptions of each group are formed through interactions with other actors. Parents negotiate their protective role and children's vulnerability, teenagers balance peer influence with parental authority and emerging autonomy, while doctors act as trusted yet contested sources of medical authority. These attitudes are further shaped by broader social environments, including community networks, media discourses, and public health campaigns, which transmit norms, narratives, and sometimes misinformation. Examining these dynamics through a constructivist lens highlights the manner in which identity, perception, and trust are engendered within a given context. This can facilitate a comparative analysis of the manner in which social construction processes vary across the three groups. Recent studies show that parental vaccine decisions are deeply embedded in social relations Recent studies show that parental vaccine decisions are deeply embedded in social relations. For example, in Shanghai, a study of preschool children found that concerns about potential side effects consistently emerged as the strongest predictor of parental hesitancy, regardless of whether it was the first or second dose of the COVID-19 vaccine. While health literacy and social support also influenced decision-making, parents' risk perceptions about safety outweighed other factors [15]. From a constructivist perspective, these safety concerns are not purely biomedical facts but socially constructed perceptions. Parents' attitudes are shaped by the narratives that pass around within their respective communities, which are then broaden by media coverage and reinforced through interpersonal communication. The concept of risk, therefore, is produced through the interplay of identity, trust, and social norms, with concerns regarding side effects serving as a prime example of how vaccine hesitancy is constructed within a broader socio-cultural environment, rather than arising solely from individual reasoning. Similarly, a multi-country survey among parents found that vaccine hesitancy was primarily structured around two validated factors, lack of confidence and perceived risk. Psychometric analyses confirmed the reliability and discriminant validity of these dimensions across countries, and invariance testing indicated that the factor structure was comparable across cultural contexts. Moreover, predictive validity results showed that hesitancy varied significantly by gender, social media activity, and financial well-being [16]. Thus, analyzing parental perceptions of children's vaccination through social constructivism enables this research to seize how identities, norms, and perceptions are co-produced in the interaction between parents, their children, healthcare professionals, and the socio-cultural environment in which they are situated.

3. RESEARCH DESIGN

3.1. Research Design

The research is grounded in a qualitative methodological approach, prioritizing depth of understanding over breadth. Qualitative inquiry has been shown to be effective in uncovering the

underlying drivers of vaccine hesitancy that surveys often miss. For example, a qualitative study in Nepal revealed that while vaccines were generally recognized as essential to fighting the pandemic, their rationale and benefits were frequently undermined by misinformation, rumors, and narratives about safety and effectiveness. Participants expressed concerns about health risks, reflecting how misinformation shaped their perceptions and contributed to hesitancy. The study concluded that strengthening legitimate information sources, particularly through government efforts and trusted figures, was essential to rebuilding trust and promoting vaccine uptake. To capture similarly nuanced perspectives, this study employed semi-structured interviews as the primary data collection method. The interview guide consisted of open-ended questions adapted from the World Health Organization's validated Vaccine Hesitancy Survey framework [17]. This framework provided a reliable structure for exploring key determinants of vaccine behavior, such as confidence, complacency, and convenience, while allowing flexibility for participants to elaborate on personal experiences and contextual factors. The use of WHO-based questions ensured conceptual validity and consistency with global research on vaccine hesitancy. The semi-structured format encouraged participants to express ideas beyond predefined categories. By focusing on context-specific experiences, qualitative methodology aligns closely with the constructivist framework underpinning this study.

3.2. Data

This study employed semi-structured interviews as the primary method of data collection. Semi-structured interviews combine a guiding set of open-ended questions with enough flexibility to follow up on unanticipated responses, enabling the researcher to probe into emergent issues and nuances as participants reveal them, facilitating in-depth and nuanced exploration of complex social service phenomena and nuanced human experiences [18]. This method is particularly effective for exploring sensitive topics such as trust, perceived risk, and vaccine side effects. The interview transcripts were analyzed using a thematic approach based on the six-phase model proposed by Braun and Clarke (2006). First, the data were read repeatedly to achieve familiarity, with initial notes being taken. Secondly, codes were systematically generated across the dataset to capture meaningful features relevant to the research questions. Thirdly, potential themes were identified by grouping related codes, which were then reviewed and refined to ensure internal coherence and distinctiveness. Fourth, the themes were clearly defined and named to capture their essence. Reflexive memos were kept throughout the process to ensure transparency, and coding decisions were regularly discussed among the research team to enhance reliability. A total of 19 participants were recruited for this study, including seven medical doctors, seven parents, and five teenagers. Participants were identified through purposive sampling, either personally known to the researcher or referred by close contacts, to ensure accessibility and willingness to share candid perspectives. This composition was deliberately chosen to capture diverse viewpoints from key stakeholders involved in influenza vaccination decision-making: healthcare professionals with clinical expertise, parents as primary caregivers, and adolescents as direct recipients of the vaccine. The credibility of participants stems from their direct relevance to the research topic—doctors provided informed professional perspectives, while parents and adolescents offered experiential insights into everyday decision-making processes. This multi-perspective dataset enhances the reliability and richness of the research findings. The data were analyzed using thematic analysis, which is a widely used method in qualitative research for identifying, organizing, and interpreting patterns of meaning within textual data. This approach goes beyond simply summarizing content; it enables the researcher to examine both explicit statements and underlying assumptions, thus offering insights into how participants make sense of their experiences. Because this study seeks to compare attitudes and perceptions of parents, teenagers, and doctors toward influenza vaccination, thematic analysis provides a flexible yet rigorous framework for capturing both commonalities and differences across groups. As Braun and Clarke (2006) note, thematic analysis is particularly valuable for exploring social and

psychological meanings in depth, making it well suited to studies grounded in a constructivist perspective.

3.3. Ethics

All participants were informed of the purpose of the study, the voluntary nature of participation, and their right to withdraw at any point without penalty. Informed verbal consent was obtained prior to each interview. To maintain confidentiality, no identifying information was recorded, and all data were stored securely on a password-protected device accessible only to the researcher. Given that participants were acquaintances or contacts of the researcher, care was taken to minimize any perceived pressure to participate and to ensure responses remained voluntary and honest.

4. RESULTS

4.1. Theme 1: Vaccination Decisions Based on Personal Needs, Science, and Feelings

4.1.1. Sub-theme 1.1: Perceived Limited Effectiveness

A recurring concern across groups was that the flu vaccine does not fully prevent infection. Many participants recognized that vaccination might only reduce symptoms or severity rather than guarantee immunity. Teenagers often drew from personal experiences, with one noting: "I think it only offers a bit of protection. Because once there was a year when I got the vaccine, it only alleviated the symptoms after I got the flu, rather than completely protecting me from the flu". Parents echoed this skepticism, emphasizing variability across years: "It cannot prevent the flu 100%. I've heard of people around me who still caught the flu even after being vaccinated". Doctors provided a more technical framing, stressing that effectiveness should be understood in terms of reduced complications: "The flu vaccine cannot completely block infection, but it can reduce symptoms, shorten the course of illness, and lower the risk of severe pneumonia, myocarditis, and other complications". These perspectives collectively illustrate that perceived limitations of effectiveness remain central to how vaccination decisions are rationalized.

4.1.2. Subtheme 1.2: Good Perception of Self-Health

Another important factor was participants' belief in their own strong health, which reduced the perceived necessity of vaccination. Teenagers frequently viewed their age and lifestyle as protective, with one saying: "I think there's a good chance I would stay healthy without the vaccine. I don't go to many crowded places, and I try to keep clean. So, I feel like my own habits might be enough to protect me". Parents similarly highlighted natural recovery and personal resilience: "It's still possible to stay healthy without getting vaccinated, since not everyone who skips the shot will get sick. After all, the flu is self-limiting, and most young people can recover on their own". Doctors acknowledged this perception but reframed it as probabilistic rather than absolute: "Not being vaccinated and not getting infected is just a matter of probability. This cannot be used as the basis for deciding whether to vaccinate or not". This sub-theme shows how individual health confidence may reduce perceived urgency of vaccination, even when medical advice stresses unpredictability.

4.1.3. Subtheme 1.3: Indifference to the Public Value of Vaccination

Finally, many respondents framed vaccination as a personal rather than collective responsibility. Teenagers tended to emphasize individual choice: "I don't really think about protecting other people when it comes to vaccines. In my mind, getting vaccinated feels like a personal choice, not something I do for others". Parents, too, prioritized family protection over broader community benefit: "Most people get vaccinated to protect themselves and their families. Not many are thinking entirely about the community". Doctors, however, attempted to shift the focus toward social responsibility, with one

arguing: “Getting vaccinated is not only being responsible for oneself but also for others… if it gains broader recognition and support, it becomes a contribution to public health protection”. This divergence highlights how individualistic framing among laypeople contrasts with the collective framing promoted by medical professionals.

4.2. Theme 2: Vaccination Decisions Shaped by External Influences

4.2.1. Sub-theme 2.1: Diverse Information Causes Confusion

Participants across groups pointed out that the abundance of often inconsistent information about influenza vaccination led to uncertainty. Teenagers highlighted their difficulty in making sense of competing messages: “Sometimes I feel the information is confusing or not very clear. Doctors usually just say you should get the vaccine but don’t explain why in detail”. Parents also described encountering conflicting advice from social media, peers, and medical professionals: “Sometimes I hear friends saying the vaccine is not necessary and then doctors insist on it. This mixed information leaves me unsure whom to trust”. Doctors acknowledged this challenge from their perspective, with one noting: “The public is exposed to fragmented knowledge, sometimes even misinformation, which makes it hard for people to form a clear judgment about the vaccine”. This sub-theme emphasizes how the information environment shapes vaccine decisions by producing confusion rather than clarity.

4.2.2. Sub-theme 2.2: Concerns About Side Effects

Fear of adverse effects emerged as a strong external influence on vaccine attitudes. Teenagers reported hearing anecdotal stories from peers: “Yes, I worry about side effects like fever or allergic reactions. I heard some stories from friends who felt sick after the shot”. Parents similarly connected hesitancy to perceived risks for their children: “I’m not afraid for myself, but when it comes to my child, I hesitate. What if there’s a bad reaction? Even a small chance makes me nervous”. Doctors confirmed that such concerns are widespread: “The side effects of the flu vaccine are usually mild and short-term, but they are often exaggerated in people’s perceptions, making them hesitant to get vaccinated”. This shows how anticipated risks, often amplified by anecdotal accounts, can weigh heavily on decision-making. Many individuals also acknowledged that short-term discomfort, such as soreness or mild fever, was an expected trade-off for avoiding more severe illness if exposed to the virus.

4.2.3. Sub-theme 2.3: Doctors’ Advice as a Decisive Factor

Despite confusion and fear, the role of doctors as trusted advisors remained pivotal. Teenagers admitted that medical authority could sway their decisions: “If my doctor strongly recommended the flu vaccine, I would take their advice seriously”. Parents described doctors’ opinions as a crucial determinant: “When the doctor recommends it, I’m more inclined to get my child vaccinated, because I believe they know what’s best for children’s health”. Doctors themselves recognized their influence but also acknowledged the responsibility: “Our advice is often decisive. That is why we need to be careful in how we communicate—clear, empathetic, and evidence-based”. This sub-theme illustrates that, while external factors like misinformation and fear may create hesitation, professional medical advice often acts as the most reliable counterweight, shaping final decisions.

5. DISCUSSION

5.1. Discussion of the Findings

This study investigated how parents, teenagers, and doctors perceive influenza vaccination and the factors shaping their attitudes. The findings demonstrate that influenza vaccine hesitancy is not only determined by individual health beliefs but also by the interplay of personal needs, external environments, and trusted social actors.

Theme 1 revealed that many participants viewed vaccination as a personal health decision grounded in science, feelings, and perceived self-resilience. Teenagers often emphasized their good health, while parents stressed natural recovery for children, and doctors reframed these arguments in probabilistic terms, emphasizing risk reduction. Importantly, both parents and teenagers tended to undervalue the collective benefits of vaccination, in contrast to doctors who consistently framed vaccination as a matter of social responsibility.

Theme 2 emphasized the role of external influences. Confusion caused by fragmented or conflicting information was frequently mentioned, particularly by teenagers struggling to interpret inconsistent advice. Fear of side effects also strongly shaped parental attitudes, especially toward children, reflecting the heightened sensitivity to risk in pediatric vaccination. Despite these challenges, medical professionals remained the most decisive factor influencing final decisions, with both teenagers and parents stating that a strong recommendation from doctors could override hesitation.

Together, these findings align with recent international research showing that clarity of information, trust in healthcare providers, and perceived safety are key predictors of vaccine hesitancy, while also highlighting important group-specific dynamics: teenagers often depend on peer networks and struggle with medical literacy; parents navigate their role as caregivers and weigh risks differently for themselves vs. their children; and doctors occupy dual positions as medical authorities and intermediaries between public concerns and scientific evidence [19].

5.2. Reflection on Theory

The results align with a social constructivist framework, which emphasizes that knowledge and perceptions are socially produced rather than individually derived. The attitudes towards vaccines across all three groups were mutually constructed through ongoing interactions with peers, family, healthcare professionals, and the broader media environment. For instance, parents' misconceptions about vaccine safety reflect not only individual risk assessments but also the internalization of social narratives circulating within their communities. Similarly, teenagers' hesitancy in the face of confusing information reflects how social norms and identity formation interact in shaping decision-making.

By applying constructivism, this study underscores that vaccine hesitancy cannot be reduced to a lack of knowledge; rather, it must be understood as an outcome of socially embedded processes, including the negotiation of identity, trust, and perceived norms. This theoretical lens provides explanatory depth that more positivist, survey-based approaches may overlook.

5.3. Limitations and Future Research

Despite its contributions, this study has several limitations.

(1) Sample composition: All participants were either acquaintances or recruited through personal networks. While this facilitated access and trust, it may have introduced selection bias, limiting the diversity of perspectives.

(2) Small sample size: With only 19 participants, the findings cannot claim generalizability across larger populations. The study is exploratory in nature and seeks depth rather than breadth.

(3) Reliance on self-reported data: Participants may have provided socially desirable responses, particularly when discussing sensitive issues like distrust in doctors or fears about vaccine safety.

(4) Geographical and cultural constraints: The study context is limited to a single cultural setting, which means that cross-country or cross-regional dynamics were not captured.

(5) Absence of longitudinal perspective: Attitudes toward vaccination are dynamic and may shift with events such as pandemics, policy changes, or new vaccine developments. The cross-sectional design of this study did not capture such changes over time.

(6) Socioeconomic and urban bias: All participants were from middle-class or higher backgrounds in urban settings, which limits the applicability of the findings to rural or socioeconomically disadvantaged populations. As vaccine hesitancy often differs across socioeconomic strata, future research should include participants from rural areas and lower-income communities to capture a fuller range of perspectives.

Future research should address these limitations by incorporating larger and more diverse samples across multiple regions, using longitudinal designs to track evolving attitudes, and integrating mixed methods (e.g., combining qualitative interviews with survey data) to enhance both depth and generalizability. Additionally, future work could explore how digital media environments shape vaccine perceptions, particularly among teenagers who are highly engaged with online information sources.

6. CONCLUSIONS

This study showed that influenza vaccination attitudes among parents, teenagers, and doctors are socially constructed rather than individually formed. There are two key themes emerged: vaccination was often seen as a personal health decision shaped by perceptions of limited effectiveness, self-confidence in health, and indifference to collective value, while external influences, such as confusing information, concerns about side effects, and medical advice, played a decisive role in final decisions. Differences were presented across groups, with teenagers influenced by peers, parents balancing protection with risk concerns, and doctors emphasizing evidence and collective responsibility. These findings highlight the importance of clear and empathetic communication from healthcare providers, targeted public health strategies against misinformation, and tailored messaging for different groups. In particular, health authorities and professional societies should set clear expectations that influenza vaccines primarily reduce severe disease rather than prevent infection entirely, while also explaining that mild side effects such as soreness or fatigue are normal immune responses. In a fragmented social medial environment, appealing to altruism may be less effective; focusing on personal benefits and immediate protection may resonate more strongly with each individual. Although limited by sample size and the recruitment way, the study underscores that vaccination decisions are embedded in social relations and identities, making them critical sites for intervention to strengthen uptake and protect public health.

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