O MUNDO DA SAÚDE

ARTICLE ORIGINAL

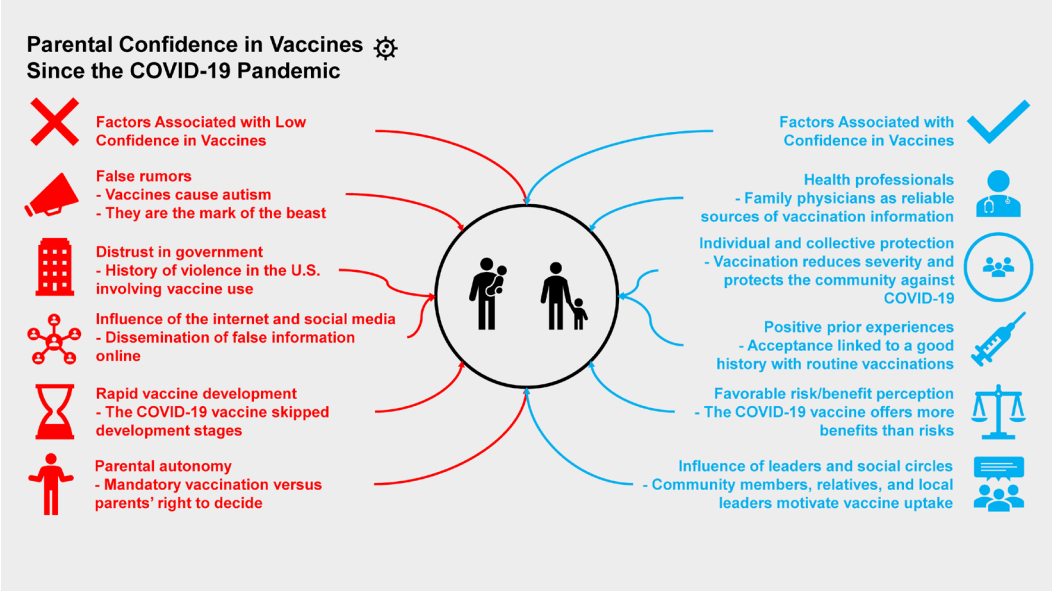
DOI: 10.15343/0104-7809.202549e17512025I
ISSN: 1980-3990

Parental confidence in vaccines since the COVID-19 pandemic: a qualitative meta-synthesis

Bruna Rykelly Ramos dos Santos[1] **Pedro Henrique Ferreira dos Santos**[1] **Eduardo Micael Gomes dos Santos**[1] **Erika Salgueiro da Cruz**[1] **Gisely Lavínia Lourenço de Paula**[1] **Hylka Karoline Cavalcante Santos Melo**[1] **Karol Fireman de Farias**[1]

[1]Universidade Federal de Alagoas – UFAL. Arapiraca/AL, Brasil.
E-mail: bruna.rykelly@arapiraca.ufal.br

Graphical Abstract



Highlights

- *Rumors about the effectiveness and risks of vaccines are linked to a lack of trust after COVID-19.*
- *Routine vaccines are perceived as safer than the COVID-19 vaccine.*
- *Transparency in scientific information is a key strategy for building trust.*
- *Health education brings the population closer to scientific evidence.*

Abstract

Parental hesitancy toward vaccines is associated with multiple factors—historical, cultural, and socioeconomic—along with new perspectives related to vaccine confidence since the COVID-19 pandemic. This study aimed to understand parents' perceptions of the vaccination phenomenon and the influence of the COVID-19 pandemic period. A qualitative systematic review and meta-synthesis of the results were conducted. Searches were carried out in the Medline, Scopus, PubMed, Scielo, and Lilacs databases. The methodological quality of the studies was assessed using the Critical Appraisal Skills Programme (CASP). After applying inclusion criteria, nine studies comprised the meta-synthesis. Thematic synthesis followed the approach proposed by Thomas and Harden. Rumors and concerns about vaccine efficacy, distrust in government, and lack of perceived disease severity were associated with low confidence. Confidence and acceptance were related to protection, return to normal routines, disease severity, risk of infection, concern with comorbidities, and previous experiences. The media, government, community leaders, social networks, health organizations, and healthcare professionals were identified as influential actors in vaccination decisions. Strategies are needed to bring the population closer to scientific reality and to foster citizens' confidence in vaccines.

Keywords: Immunization. Vaccine Hesitancy. Child. SARS-CoV-2 Infection.

Associate Editor: Edison Barbieri
Reviewer: Fernando Hellmann
Mundo Saúde. 2025,49:e17512025
O Mundo da Saúde, São Paulo, SP, Brasil.
https://revistamundodasaude.emnuvens.com.br

Received: 19 april 2025.
Accepted: 10 october 2025.
Published: 05 november 2025.

INTRODUCTION

The novel coronavirus SARS-CoV-2 is a virus that causes a respiratory infection and has had a significant global impact, with the first cases reported in the city of Wuhan, China, in December 2019. The disease spread rapidly, becoming a global public health emergency and affecting more than six hundred million people within five years[1].

In the face of the pandemic scenario, the vaccine was regarded as an effective and safe means of protection against COVID-19, preventing hospitalizations and deaths[2]. Nevertheless, vaccine hesitancy emerged as a persistent and recurrent phenomenon, influenced by factors related to the historical, socioeconomic, political, and cultural context, as well as the educational level of individuals[3]. Exposure to negative stories or misinformation about vaccines may also have acted as a barrier to vaccination adherence[3].

During the COVID-19 pandemic, the anti-vaccine phenomenon gained prominence, with skepticism, conspiracy theories, and lack of trust in the healthcare system identified as contributing factors to the absence of vaccine confidence[4]. In this context, parents found themselves responsible for ensuring the safety of their children, and fears regarding potential long-term side effects of the vaccine, combined with limited understanding of the risks posed by the disease to their children, became the main factors leading to vaccine refusal[5].

The epidemiological characteristics of COVID-19 infection in children and adults are distinct; however, vaccination among children and adolescents has proven to be highly relevant, as it constitutes the primary collective strategy to reduce COVID-19 transmission, considering the role of children in intrafamilial disease spread[6]. Despite this, feelings of uncertainty among parents of children and adolescents persist worldwide, influencing pediatric vaccination coverage and contributing to a general decline in vaccination rates[4].

The present study constitutes the first meta-synthesis on this topic and aims to provide new interpretations regarding parental adherence to vaccination, contributing to the development of future public policies that promote immunization. Therefore, this qualitative systematic review seeks to understand parents' perceptions of the vaccination phenomenon and the influence of the COVID-19 pandemic period.

METHOD

Study Design

This study is a qualitative systematic review associated with a meta-synthesis of findings from studies addressing parental confidence in vaccination within the context of the COVID-19 pandemic. Meta-synthesis aims to provide a rigorous synthesis of qualitative data with the purpose of generating new interpretations of existing findings[7]. This meta-synthesis followed the Enhancing Transparency in Reporting the Synthesis of Qualitative Research (ENTREQ) recommendations to ensure transparency in reporting qualitative evidence[8]. The thematic synthesis followed the approach proposed by Thomas and Harden[9], which aims to integrate knowledge derived from participants' beliefs and perspectives in qualitative studies. A preliminary search was conducted in the International Register of Ongoing Systematic Reviews (PROSPERO), Cochrane, and the Joanna Briggs Institute (JBI) to verify the existence of other meta-syntheses with the same objective. As none were identified, the review protocol was registered in PROSPERO under registration number CRD42024548790.

Search Strategy

Searches were conducted on May 19, 2024, in the Medline, Scopus, PubMed, Scielo, and Lilacs databases for articles published between 2020 and 2024, aiming to identify studies addressing the context of the COVID-19 pandemic, including both COVID-19 and routine vaccines. The research question was defined using the PICo framework (P = Population; I = Phenomenon of Interest; Co = Context): P: Parents of children and adolescentes; I: Confidence in vacines; Co: COVID-19 pandemic. The research question was thus formulated as: "What relationships of confidence and distrust were established between parents and vaccines in the context of the COVID-19 pandemic?" The search terms used were "Vaccine," "Confidence," "Parents," and "COVID-19," combined with the Boolean operator AND. The search strategy was

Mundo Saúde. 2025,49:e17512025
DOI: 10.15343/0104-7809.202549e17512025I

developed based on the research question terms and the Health Sciences Descriptors (DeCS) and their corresponding Medical Subject Headings (MeSH).

Selection Criteria

Inclusion criteria comprised articles addressing parental confidence in vaccines for children and adolescents in the context of the COVID-19 pandemic, available in Portuguese, English, or Spanish. Exclusion criteria included reviews, secondary studies, quantitative research, case reports, short communications, and editorials. Duplicates were removed using Zotero software. After duplicate removal, search results were stored in a Microsoft Office Excel 2011 spreadsheet. Articles were screened based on their titles and abstracts. For potentially eligible studies, full-text reading was conducted. The title/abstract screening stage was independently performed by two reviewers (EC, ES), with conflicts resolved by a third reviewer (BS) who was not involved in the initial assessment. The full-text review followed the same process, conducted by two reviewers (HM, GP), with discrepancies resolved by another reviewer (PS).

Eligibility Assessment

The methodological quality and risk of bias of qualitative studies and the qualitative components of mixed-methods studies were assessed using the Critical Appraisal Skills Programme (CASP) checklist for qualitative research[10]. Two reviewers (BS, PS) independently appraised study quality. Inclusion decisions were reached by consensus, as the use of scoring systems is not recommended[10].

Data Extraction, Analysis, and Synthesis

Data extraction from the selected articles was performed independently by two reviewers (EC, GP). The extracted information included the key elements of each study for subsequent analysis[11,12]: author, year, country, objective, methods, population, data collection instruments, inclusion and exclusion criteria, data analysis methods, results, and conclusions.

In the second stage, the studies were re-read, and data synthesis was conducted following a detailed review using the Thomas and Harden[9] method, comprising three stages, carried out by two reviewers (BS, PS): (1) Line-by-line open coding: Each result section was carefully read, and meanings were analyzed through line-by-line coding of the findings. Codes were stored in the EPPI-Reviewer Web software; (2) Development of descriptive themes: Codes were grouped based on their similarities and diferences; (3) Generation of analytical themes: New interpretations of the findings were produced, extending beyond the descriptive content of the original studies[9].

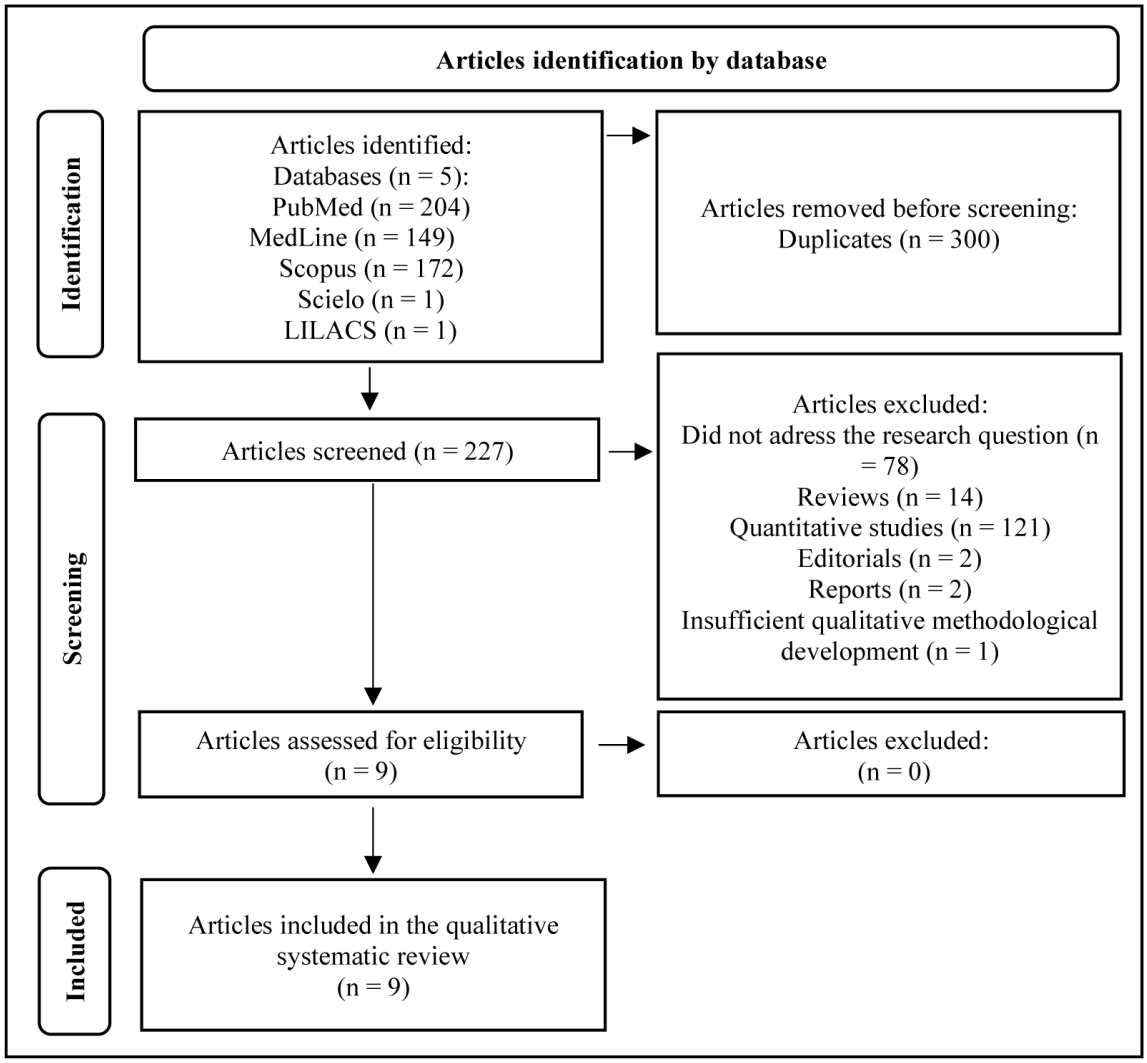
The EPPI-Reviewer Web software was used for coding, allowing customized code creation and assignment to each data segment[12]. In the first stage, one or more free codes were assigned to represent the meaning of specific portions of content. This step was performed independently by both reviewers and later jointly reviewed to achieve consensus, resulting in new free codes. A total of 323 codes were initially generated.

The codes were exported from EPPI-Reviewer Web and organized in a Microsoft Office Excel 2011 spreadsheet for the subsequent stage. One duplicated code (due to a typing error) and 17 unrelated codes were excluded, leaving 305 free codes. The second stage, conducted inductively, involved grouping the codes and assigning descriptive themes to the left column of each corresponding line in the Excel sheet. This process was independently carried out by the reviewers and finalized through consensus. In the third stage, analytical themes were identified and named independently, followed by consensus among reviewers, ensuring that the final themes directly addressed the study objective.

RESULTADOS

Findings from the Literature Review

From the database search, a total of 527 studies were retrieved, and 300 duplicates were removed. Subsequently, the titles and abstracts of 227 studies were screened, resulting in the exclusion of 114 quantitative studies, 76 that did not address the research question, 14 reviews, 2 reports, and 2 editorials (Figure 1).



Source: Authors (2025), adapted from PRISMA 2020[13].

Figure 1 - Flowchart of the selection process for studies included in the qualitative systematic review.

A total of 19 articles were selected for full-text assessment, and 10 were excluded at this stage. Among these, 7 were quantitative studies, 2 did not address the research question, and 1 mixed-methods article lacked sufficient qualitative data development, presenting a predominant focus on quantitative results that would have compromised the thematic analysis of the present study. Finally, 9 articles underwent methodological quality assessment using the Critical Appraisal Skills Programme (CASP)[10], and all 9 were deemed eligible to compose the meta-synthesis (Figure 1).

Characteristics of the Primary Studies

The characteristics of the selected studies are presented in Table 1. The articles were published between 2022 and 2024. This meta-synthesis included 431 participants from four countries: the United States (n = 6), Canada (n = 1), Saudi Arabia (n = 1), and Turkey (n = 1). The total sample comprised approximately 327 mothers and 104 fathers, although one study did not report participants' sex. One study included only female participants. The review sample consisted of qualitative studies (n = 7) and mixed-methods studies (n = 2). The methodologies employed included focus group discussions (n = 4) and individual semi-structured interviews (n = 5).

Table 1 - Characteristics of studies included in the qualitative systematic review (articles published between 2020 and 2024 in the Medline, Scopus, PubMed, Scielo, and Lilacs databases).

Author/year	Country	Participants	Study design	Data collection instrument	Qualitative data analysis
RAJEH, M. T. *et al.* (2023)[14]	Saudi Arabia	50 participants, 47 female.	Qualitative descriptive study.	Semi-structured interview guide.	Thematic analysis.
KOHLER, R. E. *et al.* (2023)[15]	USA	22 participants, all female.	Qualitative study.	Semi-structured interview guide.	Thematic analysis.
ÇELIK, T.; DOGAN, D. (2023)[16]	Turkey	102 participants, 76 female.	Mixed-methods study.	Online semi-structured questionnaire.	Thematic analysis.
SHEN, A. K. *et al.* (2022)[17]	USA	41 participants, 39 female.	Qualitative study using focus groups.	Semi-structured interview guide.	Thematic analysis.
MOORE, R. *et al.* (2024)[18]	USA	20 participants, 13 female.	Qualitative exploratory descriptive study.	Semi-structured interview guide.	Thematic analysis.
HONCOOP, A. *et al.* (2023)[19]	USA	36 participants.	Qualitative study using focus groups.	Interview guide based on the WHO Strategic Advisory Group of Experts (SAGE).	Thematic analysis.
GOULDING, M. *et al.* (2022)[20]	USA	67 participants, 60 female.	Qualitative study using focus groups.	Semi-structured focus group guide.	Rapid qualitative analysis.
SCHIFF, J. *et al.* (2022)[21]	USA	58 participants, 51 female.	Mixed-methods study.	Semi-structured interview guide.	Directed content analysis.
PELLETIER, C.; GAGNON, D.; DUBÉ, E. (2024)[11]	Canada	35 participants, 19 female.	Qualitative study using focus groups.	Semi-structured interview guide.	Thematic analysis.

Quality of the Primary Studies

The quality of the included studies was assessed using the Critical Appraisal Skills Programme (CASP)[10]. All studies demonstrated appropriate methodological approaches for achieving their respective research objectives, adhering to the established qualitative methods and data collection procedures (Figure 3).

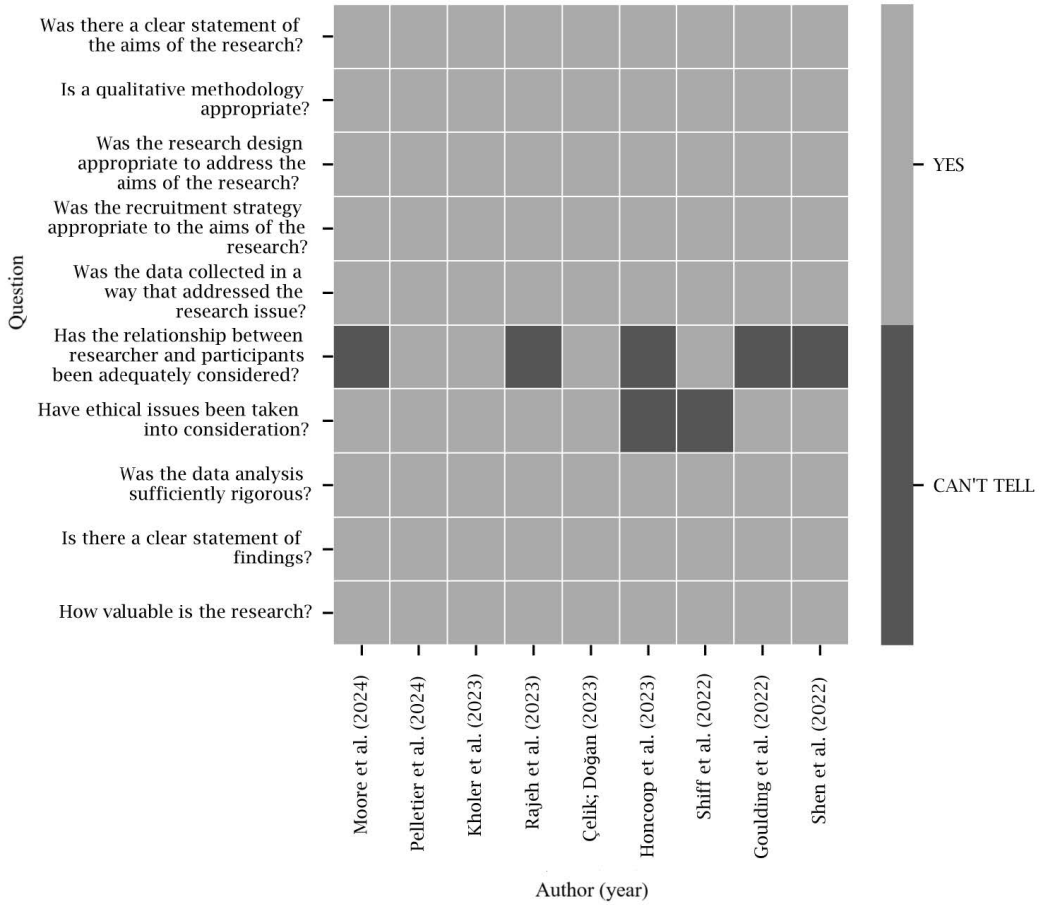


Figure 3 - Methodological quality assessment of the articles included in the review.

However, five studies did not clearly indicate whether the relationship between the researcher and the participants had been considered, and two studies raised doubts regarding adherence to ethical principles. Nevertheless, both were marked as "can't tell" to denote uncertainty, without any clear indication that ethical standards had not been applied. Therefore, all nine studies were included in the final sample, as they were positively assessed in the remaining criteria (Figure 3).

Qualitative Synthesis

The grouping of free codes into similar thematic areas resulted in 30 descriptive themes, which were subsequently organized into six analytical themes for the thematic synthesis (Box 1). The analyzed studies presented a variety of perceived risks associated with COVID-19 vaccination from the participants' perspectives, including concerns about potential adverse effects and long-term consequences of vaccination[11,14-21]. Parents reported that the vaccine could impair children's development[15,19,20] and cause health problems, such as heart-related issues[14,18], or, in the case of girls, lead to infertility[15,17-19]. A recurring belief was that the COVID-19 vaccine could harm the immune system[14,20]. In addition, some participants mentioned that vaccinated children would receive "the mark of the beast," and that contracting COVID-19 would represent "God's will"[19].

Box 1 - Analytical and descriptive themes (articles published between 2020 and 2024 in the Medline, Scopus, PubMed, Scielo, and Lilacs databases).

Analytical themes	Descriptive themes
Access and Attitudes Toward Vaccination	Access to vaccination and healthcare services
	Actions related to vaccination
	Alternatives to COVID-19 vaccination
	Changes throughout the pandemic
Knowledge and Information Regarding Vaccination	Knowledge and transparency about vaccination
	Information on the pandemic and COVID-19 vaccination
	Need for information and evidence for COVID-19 vaccination
	Opinions about vaccination and the pandemic
	Discussion on COVID-19 vaccination
	Effectiveness of COVID-19 vaccination
	Lack or decrease of confidence in the COVID-19 vaccine
	Factors associated with vaccine confidence
	Factors influencing adherence and acceptance of COVID-19 vaccination
	COVID-19 vaccine hesitancy
	Influences associated with vaccination
	Intentions toward COVID-19 vaccination
	Mandatory vaccination
	Perceptions of routine vaccines
	Severity and impact of COVID-19
Factors of Confidence, Adherence, and Intention Toward Vaccination	Benefits of COVID-19 vaccination
	Beliefs about vaccination and COVID-19
	Risks associated with COVID-19 infection
	Risks associated with COVID-19 vaccination
	Risks of COVID-19 infection due to vulnerability
	Risks and benefits of COVID-19 vaccination
	Perceived harms of COVID-19 vaccination
Feelings and Autonomy Related to Vaccination	Personal choice regarding vaccination and the pandemic
	Feelings toward the pandemic and vaccination.
Perception of Vaccine Development	The role of science in COVID-19 vaccine development
	Novelty related to vaccination

Some parents expressed concern about the interaction between vaccination and adolescents' health conditions, such as heart problems and autism[15]. The latter was also mentioned by parents as a possible outcome of routine childhood vaccinations[11,17,19]. One parent associated their child's autism and intellectual disability with the large number of routine vaccines administered simultaneously[17]. The influenza vaccine was cited as causing fear of interactions with certain health conditions and was even described as being equivalent to injecting an "entity" into the body. The MMR vaccine was associated with autism in children, and the varicella vaccine was also a source of concern among parents due to its more recent introduction[11].

The consequences of non-vaccination and the risk of COVID-19 infection were recognized by some participants[15,18]. Hesitant parents who eventually accepted vaccination cited negative experiences with their children's COVID-19 infection, which increased their perception of vaccination benefits compared with perceived risks[18]. The risks of COVID-19 were viewed as higher among children with chronic health conditions[14]. However, some parents perceived the reduced risk of COVID-19 infection as a factor making vaccination unnecessary[22].

Regarding vaccination benefits, participants highlighted the control of COVID-19 spread[20] and reduced disease severity[14,20]. The return to normal routines, such as attending school, was also mentioned as a benefit[14,19], as well as the perception that parental vaccination was important to protect their children from COVID-19[21].

Parents expressed concern about possible risks due to their children's young age, leading to a lack of confidence in the COVID-19 vaccine[20,22,24]. A lack of confidence in the COVID-19 vaccine was reported across several studies[25]. Some parents stated that their trust decreased throughout the pandemic due to "lies" told by the government[25] and perceptions of vaccine inefficacy[11,16,19-21]. It was also reported that COVID-19 vaccines were experimental and developed in an insufficient timeframe[14,17,19-21], with parents expressing the need for further research before deciding whether to vaccinate[15-18].

Concerning COVID-19 booster doses, some parents indicated that they would reassess risks and benefits before deciding on vaccination, and that recommendations from trusted sources could encourage adherence[18]. The media, social networks, government, healthcare professionals, and health organizations were all cited as sources of information on COVID-19 vaccination[11,14,15]. Distrust in the government was linked to the politicization of health[4-6] and perceptions that authorities were "forcing vaccination" against COVID-19[15]. Some Black and Hispanic parents viewed the government as untrustworthy due to a history of mistreatment and unethical research practices involving these minorities[15]. The pharmaceutical industry was also viewed with skepticism, as some parents claimed it had financial interests in COVID-19 vaccination[15]. Social media was generally regarded as unreliable, except for content published by official health institutions[19].

The internet was identified as a contributing factor to the lack of confidence in the COVID-19 vaccine, due to the spread of rumors and publication of misleading news and articles about vaccination[14]. Vaccine safety concerns led some parents to consider vaccination for themselves but remain doubtful about vaccinating their children[17]. The perception of the pandemic's reduced severity was also used to justify non-adherence to vaccination or booster doses[11,18]. Participants believed that children were not severely affected[20] and that they would naturally develop immunity[11,14]. The intention not to vaccinate was also justified by the belief that only individuals who were severely affected, hospitalized, or intubated due to COVID-19 should be vaccinated[21].

Some parents chose to adhere to COVID-19 vaccination[20,22] as part of compliance with rules and obligations during the pandemic state of emergency[11]. Negative perceptions of mandatory vaccination requirements were cited as reasons for distrust and refusal[11,15,17]; some parents even reported that they would relocate to another state if vaccination became mandatory[15,20]. Confidence and adherence to COVID-19 vaccination were also linked to the perceived risk of infection[15,17,18,21], the severity of the disease among children[20], and the association between disease severity and comorbidities[21]. Protection of one's child and surrounding individuals, such as family members, was also identified as a motivating factor for vaccination adherence[11,20,21].

Trust in health authorities, healthcare professionals, and family, community, or pediatric physicians was emphasized by participants[14,15]. Parents stated that they were more likely to trust the physician who regularly cared for their family, community, or child when making decisions about COVID-19 vaccination[11,15,17,20]. Some participants also reported confidence in the COVID-19 vaccine due to its similarity with routine vaccines, with which the population was already familiar[14].

The influence of individuals within parents' social circles and their own prior experiences with vaccination were factors contributing to adherence to COVID-19 vaccination[17,20]. Leaders, such as physicians and government authorities, were perceived as important influencers in the decision to vaccinate against COVID-19[15,17]. Some parents were motivated to vaccinate their children to enable a return to normal rou-

tines[20]. The conditional requirement or mandate for vaccination was also cited as a determining factor for adherence[19,20,25].

Regarding routine vaccines, these were associated with higher levels of trust because they had been available for a long time and were perceived as supported by more robust scientific evidence. In contrast, the COVID-19 vaccine was viewed with less confidence due to the speed of its approval[11,14,18].

Personal choice and autonomy concerning one's own health and that of one's child were also recurring topics[11,17,19]. Parents emphasized their preference for the setting in which their children would be vaccinated and for selecting the professional who would administer the vaccine[17,19]. Participants also mentioned wanting to choose the vaccine brand they would receive, based on perceptions of potential adverse effects[17].

Participants in the studies expressed various emotions regarding COVID-19 vaccination, including fear of adverse effects[19,22], nervousness about being the first to vaccinate their child[20], and anxiety due to the novelty of the situation[17]. Moreover, parents called for transparency in vaccine-related information for children[17-19]. Despite prevailing distrust, some parents valued the rapid progress of science in developing the vaccine, which they justified as the result of a global collaborative effort[14]. Due to mistrust, some cited alternatives to vaccination, such as the use of natural remedies[11] or keeping their children in isolation[22]. Parents also reported difficulties in accessing COVID-19 vaccination services due to lack of transportation[21], while others suggested measures to facilitate access. Conversely, several participants reported having no difficulties accessing the vaccine[17].

DISCUSSION

This study developed a synthesis of the factors related to parental confidence in vaccines since the COVID-19 pandemic, based on nine qualitative primary studies addressing the topic.

When analyzing parents' perceptions of the pandemic and vaccination, beliefs about risks and circulating rumors were identified as factors associated with distrust and negative perceptions toward COVID-19 vaccination[11,14-21], as well as toward routine immunizations[11,17]. A cohort study conducted among parents of children with Autism Spectrum Disorder (ASD) identified that 28.9% of parents exhibited vaccine hesitancy, with vaccination cited as one of the causes attributed to their child's ASD. Moreover, a higher proportion of "patients of color" were vaccine-hesitant (48.1%) compared with White parents (22.8%)[26]. In the present meta-synthesis, the association between vaccination and autism emerged as one of the most recurrent rumors, directly linked to vaccine hesitancy and lack of confidence[11,17,19].

Additionally, racial factors were addressed, revealing fear and mistrust of vaccination among Black individuals[15,17,19]. The historical trauma experienced by communities of color reflects long-standing marginalization, including restricted access to healthcare services and inequitable treatment. These conditions contribute to collective trauma and mistrust toward health institutions, medical testing, and COVID-19 vaccination[25].

Evidence indicates that high trust in health organizations is associated with a 20-fold greater likelihood of willingness to vaccinate compared to low trust levels[27]. Conversely, lower vaccination intent correlates with the influence of conspiracy beliefs, which exert the strongest effect, followed by vaccine distrust and belief in COVID-19 misinformation[27]. The willingness to receive vaccination was reported to be three times lower among individuals expressing general distrust and distrust of government institutions. Furthermore, users of Instagram, Snapchat, and TikTok were more likely to express low vaccination intent[27]. These findings suggest that misinformation and lack of trust in government are key factors underlying vaccine refusal. The present meta-synthesis identified negative beliefs regarding vaccination[11,14-21], as well as distrust toward governmental actions during the COVID-19 pandemic[18], particularly concerning perceived lack of transparency[17,19]. Additionally, the internet was consistently described as a vehicle for the spread of misinformation[11].

Hesitancy to vaccinate children — despite acceptance of vaccination for oneself[17] — may reflect parents' emphasis on self-determination in making decisions regarding their children's well-being. In the context of healthcare, parents may feel they risk losing their central role as guardians, becoming mere observers in decisions imposed by authorities[23]. The present synthesis highlights this specific parental perspective as a key factor in understanding the intention to vaccinate — or not vaccinate — their children.

The reduced perception of infection risk and decreased sense of vaccination importance may also be influenced by religiosity, in which the relin-

quishing of self-protective behaviors is associated with the belief that divine will determines the ultimate course of life[28].

The rapid approval and release of COVID-19 vaccines emerged as one of the most frequently cited factors associated with distrust. Consequently, many parents chose to delay vaccination against COVID-19[11,15,17]. Other studies have emphasized similar parental concerns related to the novelty of the vaccine, leading to postponement of vaccination, often accompanied by a feeling of governmental pressure on personal choices[24]. The novelty of COVID-19 vaccines was also contrasted with routine vaccines, which — due to their long-standing availability — were perceived as more reliable[11,15,17].

Nevertheless, even routine vaccines were cited as a source of concern among some parents[14,17,19]. Data suggest a relationship between educational level and vaccination adherence, indicating that only 20.6% of parents with higher education levels refused vaccination[29].

The association between a higher risk of COVID-19 infection among children with comorbidities was identified as a key factor promoting vaccine adherence[14,21]. The balance between risks and benefits highlights parents' perception that children with chronic conditions face a greater risk of complications and death if infected, compared with the potential risks posed by COVID-19 vaccination[28]. Mandatory vaccination, as a determinant of adherence[11,14,21], aligns with findings from another study that described the "vaccine passport" as a "necessary evil" to enable a return to normal daily life[24].

The present review identified factors associated with trust and adherence[11,14-21] similar to those observed in other studies, such as the desire to protect others, return to pre-pandemic routines, perception of infection risk, and belief in vaccine effectiveness[30,31].

This meta-synthesis also underscores the role of healthcare professionals, particularly community and pediatric physicians, in fostering vaccine confidence and, consequently, adherence[11,14,15,17,20]. One study reported that trust in community healthcare professionals increased throughout the pandemic, ranking second in importance during the third study period[32].

The social circle was viewed as a reliable source for discussing COVID-19 vaccination, especially when it included individuals from the healthcare field[17,19,20]. Government leaders were also cited as positive influencers[15,17]. A study conducted in rural communities emphasized the importance of peers, family members, community leaders, healthcare professionals, and relatives working in health services as facilitators of COVID-19 vaccination. Participants also acknowledged the impact of government messaging, including the public vaccination of political leaders, as a motivator for adherence[33].

Evidence revealed a moderating effect of trust in government leaders on the relationship between information sources and adolescents' health literacy regarding COVID-19. Participants with higher trust in government leaders and greater consumption of traditional news media demonstrated lower COVID-19-related health literacy. Thus, the role of political leaders in influencing the population should be grounded in alignment with public health recommendations, given their impact on knowledge dissemination among youth and society as a whole[34].

The present study also highlights parents' need for control and autonomy over their children's vaccination decisions[17,19]. The influence of parents on adolescent vaccination has been reinforced by studies showing that, even when adolescents express their own opinions about vaccine acceptance, parents remain the main source of information and influence shaping COVID-19 vaccination decisions[35]. Consequently, the parental role as guardian and decision-maker continues to be central in vaccination adherence.

Anxiety and fear were recurrent feelings reported by participants[17,19,22]. Previous research has linked these negative emotions to vaccine hesitancy and lack of confidence regarding COVID-19 vaccination[36]. The need for greater transparency and access to vaccine-related information was also raised by parents[17-19]. Therefore, a new communication strategy is required — one that brings the population closer to reliable information. Moreover, it is essential to establish official and trustworthy feedback channels that allow the public to express doubts and receive accurate responses, helping to prevent misinformation[37].

Participants also valued the scientific effort and the speed of vaccine development, acknowledging the joint actions of governments and both public and private health systems as examples of agility and adaptation for the public good[14,38]. Nonetheless, the novelty of the vaccine was also viewed with suspicion[17], prompting the mention of alternative preventive practices[14,22]. Data from other studies indicate that the use of herbal or homeopathic remedies was significantly associated with lack of intention to vaccinate, reinforcing the need to disseminate scientifically grounded, evidence-based practices[39].

Parents reported barriers to accessing CO-

VID-19 vaccines, such as lack of transportation and long distances to vaccination centers[21]. These findings underscore the importance of health equity, aiming to reduce disparities among different population groups — particularly in countries lacking a universal healthcare system[40].

Among the factors associated with trust and distrust in vaccines, it is crucial to understand the sociocultural and historical influences underlying vaccine hesitancy in the populations represented across the studies. Most of the included studies were conducted in the United States, where healthcare coverage is predominantly private and non-universal. Furthermore, many Americans — especially those with conservative or libertarian values — place strong emphasis on individual freedom and personal decision-making, favoring minimal government interference. When scientific information is unclear, perceived as non-transparent, or becomes politicized, individuals often interpret it through their political worldviews, shaping their responses and behaviors[41].

In the U.S., vaccine hesitancy predates the COVID-19 pandemic and is rooted in diverse life experiences and contexts. Political conservatism has been associated with values that weaken trust in public health organizations and foster anti-scientific attitudes. However, partisan affiliation alone is not a significant predictor of vaccine hesitancy; rather, the lack of trust in public health institutions serves as a strong predictor of vaccine distrust — an enduring pattern historically observed among the U.S. population[42].

Additionally, Christian nationalism — a sociocultural phenomenon in the U.S. is among the most relevant factors contributing to lack of confidence in vaccines, as it is frequently associated with skepticism, conspiratorial thinking, and individualistic, anti-scientific worldviews. This ideology tends to favor traditional epistemic authorities that do not necessarily reflect evidence-based scientific reasoning[43].

Study limitations

Given the qualitative nature of the study, there is a potential risk of bias in the thematic synthesis process. Moreover, language restrictions may have excluded relevant findings from other regions and cultural contexts. As such, the generalizations drawn from this review may not fully represent the situation in each country, considering social, cultural, economic, and healthcare access differences across study settings.

CONCLUSION

The thematic synthesis identified key factors associated with trust and distrust in vaccination and their relationship to parents' intentions to vaccinate—or not vaccinate—their children since the COVID-19 pandemic. Weaknesses in vaccination intent were linked to belief in rumors, perceived decline in disease severity or reliance on natural immunity, and concerns about vaccine safety, including both COVID-19 and routine vaccines. The latter, however, were also associated with higher trust, attributed to their longstanding presence in healthcare systems, unlike the COVID-19 vaccine. Facilitators of vaccination included the perceived severity of infection, sense of collective responsibility, desire to return to normal routines, and motivation to protect others. The roles of government, health organizations, media, civil society, and healthcare professionals were highlighted as critical influences in shaping vaccination attitudes.

Therefore, the implementation of health education and literacy programs is essential to strengthen community engagement with health institutions, restore trust, and promote the dissemination of accurate information supporting vaccination. Addressing barriers to access is also vital to mitigate health inequities and to overcome the historical traumas experienced by marginalized populations. This study makes a positive contribution to the field of Public Health, providing evidence necessary for developing new strategies aimed at effective, educational, and equitable health interventions, focused on addressing the vulnerabilities that hinder vaccine adherence.

CRediT author statement

Conceptualization: Santos, BRR; Santos, PHF. Methodology: Santos, BRR; Santos, PHF. Validation: Santos, BRR; Santos, PHF; Santos, EMG; Cruz, ES; Paula, GLL; Melo, HKCS; Farias, KF de. Statistical analysis: Santos, BRR; Santos, PHF; Santos, EMG; Cruz, ES; Paula, GLL; Melo, HKCS; Farias, KF de. Formal analysis: Santos, BRR; Santos, PHF; Santos, EMG; Cruz, ES; Paula, GLL; Melo, HKCS; Farias, KF de. Investigation: Santos, BRR; Farias, KF de. Resources: Santos, BRR; Farias, KF de. Writing – original draft preparation: Santos, BRR. Writing – review and editing: Santos, BRR; Santos, PHF; Santos, EMG; Melo, HKCS. Visualization: Santos, BRR; Santos, PHF; Santos, EMG; Cruz, ES; Paula, GLL; Melo, HKCS; Farias, KF de. Supervision: Santos, BRR; Santos, PHF; Santos, EMG; Cruz, ES; Paula, GLL; Melo, HKCS; Farias, KF de. Project administration: Santos, BRR; Santos, PHF; Santos, EMG; Cruz, ES; Paula, GLL; Melo, HKCS; Farias, KF de.

All authors have read and agreed to the published version of the manuscript.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the workreported in this paper.

REFERENCES

1. Dong E, Du H, Gardner L. An interactive web-based dashboard to track COVID-19 in real time. Lancet Infect Dis [Internet] 2020 Jun 12; [cited 2024 Jun 20]; 20(5):533–534. Available from: https://www.thelancet.com/journals/laninf/article/PIIS1473-3099(20)30120-1/fulltext
2. Fiolet T, Kherabi Y, MacDonald CJ, Ghosn J, Peiffer-Smadja N. Comparing COVID-19 vaccines for their characteristics, efficacy and effectiveness against SARS-CoV-2 and variants of concern: a narrative review. Clin Microbiol Infect [Internet] 2022 Feb; [cited 2024 Jun 20]; 28(2):202–221. Available from: https://doi.org/10.1016/j.cmi.2021.10.005
3. Larson HJ, Jarrett C, Eckersberger E, Smith DMD, Paterson P. Understanding vaccine hesitancy around vaccines and vaccination from a global perspective: A systematic review of published literature, 2007–2012. Vaccine [Internet] 2014 Apr 17; [cited 2024 Jun 21]; 32(19):2150–9. Available from: https://doi.org/10.1016/j.vaccine.2014.01.081
4. Gerussi V, Peghin M, Palese A, De Martino M, Graziano E, Chiappinotto S, et al. SARS-CoV-2 and influenza vaccine hesitancy during the COVID-19 pandemic in a dynamic perspective. Hum Vaccin Immunother [Internet] 2024 Jun 2; [cited 2024 Jun 21]; 20(1):2358565. Available from: https://doi.org/10.1080/21645515.2024.2358565
5. Souto EP, Fernandez MV, Rosário CA, Petra PC, Matta GC. Hesitação vacinal infantil e COVID-19: uma análise a partir da percepção dos profissionais de saúde. Cad. Saúde Pública [Internet] 11 de Mar de 2024; [acessado em 21 de Jun de 2024]; 40(3):e00061523. Disponível em: https://doi.org/10.1590/0102-311XPT061523
6. Zhang P, Wei M, Jing P, Li Z, Li J, Zhu F. COVID-19 in children: epidemic issues and candidate vaccines. Chin Med J [Internet] 2022 Jun 5; [cited 2024 Jun 21];135(11):1314-1324. Available from: https://doi.org/10.1097/cm9.0000000000002169
7. Girard IM, Ward P, Durey A, Lund S, Calache H, Baker SR, et al. Primary caregivers' perceptions of factors influencing preschool children's oral health: social practices perspective—a protocol for qualitative metasynthesis. BMJ Open [Internet] 2023 Apr 11; [cited 2024 Jun 21];13(4):e068444. Available from: https://doi.org/10.1136/bmjopen-2022-068444
8. Tong A, Flemming K, McInnes E, Oliver S, Craig J. Enhancing transparency in reporting the synthesis of qualitative research: ENTREQ. BMC Med Res Methodol [Internet] 2012 Nov 27; [cited 2024 Jun 21]; 12:181. Available from: https://doi.org/10.1186/1471-2288-12-181
9. Thomas J, Harden A. Methods for the thematic synthesis of qualitative research in systematic reviews. BMC Med Res Methodol [Internet] 2008 Jul 10; [cited 2024 Jun 21]; 8:45. Available from: https://doi.org/10.1186/1471-2288-8-45
10. CASP - Critical Appraisal Skills Programme. [website]. CASP Qualitative Studies Checklist. [cited 2024 Jul 03]. Available from: https://casp-uk.net
11. Pelletier C, Gagnon D, Dubé E. "It's not that I don't trust vaccines, I just don't think I need them": Perspectives on COVID-19 vaccination. PLoS One [Internet] 2024 Feb 15; [cited 2024 Jul 03];19:e0293643–e0293643. Available from: https://doi.org/10.1371/journal.pone.0293643
12. Teixeira EP, Lynn FA, Souza MDLD. Guia para revisão sistemática de estudos observacionais. Texto Contexto Enferm [Internet] 13 de Mai 2024; [acessado em 03 de Jul de 2024]; 33:e20230221. Disponível em: https://doi.org/10.1590/1980-265X-TCE-2023-0221pt
13. PRISMA 2020 flow diagram. [website]. PRISMA statement. [cited 2024 Jul 03]. Available from: https://www.prisma-statement.org/prisma-2020-flow-diagram
14. Rajeh MT, Farsi DJ, Farsi NJ, Mosli HH, Mosli MH. Are parents' willing to vaccinate their children against COVID-19? A qualitative study based on the Health Belief Model. Hum Vaccin Immunother [Internet] 2023 Feb 8; [cited 2024 Jul 03];19:2177068. Available from: https://doi.org/10.1080/21645515.2023.2177068
15. Kohler RE, Wagner RB, Careaga K, Vega J, Btoush R, Greene K, et al. Parents' Intentions, Concerns and Information Needs about COVID-19 Vaccination in New Jersey: A Qualitative Analysis. Vaccines [Internet] 2023 Jun 13; [cited 2024 Jul 03];11(6):1096. Available from: https://www.mdpi.com/2076-393X/11/6/1096
16. Çelik T, Doğan D. COVID-19 Vaccine Hesitancy of Parents of Children with Type 1 Diabetes in Türkiye: A Mixed-Methods Study. J Pediatr Inf [Internet] 2023 [cited 2024 Jul 03];17(2):e108-e115. Available from: https://doi.org/10.5578/ced.20239805
17. Shen AK, Browne S, Srivastava T, Michel JJ, Tan ASL, Kornides ML. Factors Influencing Parental and Individual COVID-19 Vaccine Decision Making in a Pediatric Network. Vaccines [Internet] 2022 Aug 8; [cited 2024 Jul 03];10(8):1277. Available from: https://doi.org/10.3390/vaccines10081277
18. Moore R, Purvis RS, Willis DE, Li J, Langner J, Gurel-Headley M, et al. "Every Time It Comes Time for Another Shot, It's a Re-Evaluation": A Qualitative Study of Intent to Receive COVID-19 Boosters among Parents Who Were Hesitant Adopters of the COVID-19 Vaccine. Vaccines [Internet] 2024 Feb 7; [cited 2024 Jul 03];12(2):171. Available from: https://doi.org/10.3390/vaccines12020171
19. Honcoop A, Roberts JR, Davis B, Pope C, Dawley E, McCulloh RJ, et al. COVID-19 Vaccine Hesitancy Among Parents: A Qualitative Study. Pediatrics [Internet] 2023 Oct 23;[cited 2024 Jul 03];152(5):e2023062466. Available from: https://doi.org/10.1542/peds.2023-062466
20. Goulding M, Ryan GW, Minkah P, Borg A, Gonzalez M, Medina N, et al. Parental perceptions of the COVID-19 vaccine for 5- to 11-year-old children: Focus group findings from Worcester. Hum Vaccin Immunother [Internet] 2022 Sep 09; [cited 2024 Jul 03];18(6):2120721. Available from: https://doi.org/10.1080/21645515.2022.2120721
21. Schiff J, Schmidt AR, Pham PK, Pérez JB, Pannaraj PS, Chaudhari PP, et al. Parental attitudes in the pediatric emergency department about the COVID-19 vaccine. Vaccine [Internet] 2022 Out 26; [cited 2024 Jul 03]; 40(7328–7334). Available from: https://doi.org/10.1016/j.vaccine.2022.10.046
22. Fisher CB, Bragard E, Jaber R, Gray A. COVID-19 Vaccine Hesitancy among Parents of Children under Five Years in the United States. Vaccines (Basel) [Internet] 2022 Ago 14; [cited 2024 Jul 03]; 10(8): 1313. Available from: https://doi.org/10.3390/vaccines10081313
23. Mitteregger E, Wehrli M, Theiler M, Logoteta J, Nast I, Seliner B, et al. Parental experience of the neuromotor development of children with congenital heart disease: an exploratory qualitative study. BMC Pediatr [Internet] 2021 Out 01; [cited 2024 Jul 03]; 21(1):430. Available from: https://bmcpediatr.biomedcentral.com/articles/10.1186/s12887-021-02808-8
24. Williams SN, Armitage CJ, Dienes K, Drury J, Tampe T. Public decisions about COVID-19 vaccines: A UK-based qualitative study. PLoS ONE [Internet] 2023 Mar 06; [cited 2024 Jul 03]; 18(3):e0277360. Available from: https://doi.org/10.1371/journal.pone.0277360
25. Vázquez E, Juturu P, Burroughs M, McMullin J, Cheney AM. Continuum of Trauma: Fear and Mistrust of Institutions in Communities of Color During the COVID-19 Pandemic. Cult Med Psychiatry [Internet] 2023 Set 30; [cited 2024 Jul 03]; 48(2):290–309. Available from: https://link.springer.com/article/10.1007/s11013-023-09835-3
26. Chang J, Kochel R. Vaccine Hesitancy and Attributions for Autism among Racially and Ethnically Diverse Groups of Parents of Children with Autism Spectrum Disorder: A Pilot Study. Autism Res [Internet] 2020 Jul 24; [cited 2024 Jul 03]; 13(10):1790–1796. Available from: https://doi.org/10.1002/aur.2339
27. Jennings W, Stoker G, Bunting H, Valgarðsson VO, Gaskell J, Devine D, et al. Lack of Trust,Conspiracy Beliefs, and Social Media Use Predict COVID-19 Vaccine. Vaccines (Basel) [Internet] 2021Jun 03; [cited 2024 Jul 03]; 9(6):593. Available from: https://pmc.ncbi.nlm.nih.gov/articles/PMC8226842/
28. Upenieks L, Ford-Robertson J, Robertson JE. Trust in God and/or Science? Sociodemographic Differences in the Effects of Beliefs in an Engaged God

and Mistrust of the COVID-19 Vaccine. J Relig Health [Internet] 2021 Nov 29; [cited 2024 Jul 03]; 61(1):657–686. Available from: https://link.springer.com/article/10.1007/s10943-021-01466-5
29. Saeed R, Hashmi I. Pakistan Ranks Third Globally With the Most Unvaccinated Children: Is the Impact of Parental Perception and Attitude on Immunization an Essential Contributing Factor to an Unsuccessful Vaccination Coverage? Cureus [Internet] 2021 Nov 19; [cited 2024 Jul 03]; 13(11):e19751. Available from: https://www.cureus.com/articles/24393-pakistan-ranks-third-globally-with-the-most-unvaccinated-children-is-the-impact-of-parental-perception-and-attitude-on-immunization-an-essential-contributing-factor-to-an-unsuccessful-vaccination-coverage#!/
30. Liao Q, Yuan J, Wong IOL, Ni MY, Cowling BJ, Lam WWT. Motivators and Demotivators for COVID-19 Vaccination Based on Co-Occurrence Networks of Verbal Reasons for Vaccination Acceptance and Resistance: Repetitive Cross-Sectional Surveys and Network Analysis. JMIR Public Health Surveill [Internet] 2024 Abr 22; [cited 2024 Jul 03]; 10:e50958. Available from: https://publichealth.jmir.org/2024/1/e50958
31. Ige O, Sakas Z, Kang M, Green C, Brown D. Vaccine Confidence in NYC: Thematic Analysis of Community Stories. J Health Commun [Internet] 2023 Jun 30; [cited 2024 Jul 03]; 28(45–53). Available from: https://doi.org/10.1080/10810730.2023.2191226
32. Muğaloğlu EZ, Kaymaz Z, Mısır ME, Laçin-Şimşek C. Exploring the Role of Trust in Scientists to Explain Health-Related Behaviors in Response to the COVID-19 Pandemic. Sci Educ (Dordr) [Internet] 2022 Fev 05; [cited 2024 Jul 03]; 31(1281-1309). Available from: https://link.springer.com/article/10.1007/s11191-022-00323-5
33. Purvis RS, Moore R, Willis DE, Kraleti SS, Gurel-Headley MP, CarlLee S, et al. Key Conversations and Trusted Information Among Hesitant Adopters of the COVID-19 Vaccine. J Health Commun [Internet] 2023 Ago 20; [cited 2024 Jul 03]; 28(09):595–604. Available from: https://doi.org/10.1080/10810730.2023.2244458
34. Mathews CJ, McGuire L, Joy A, Law F, Winterbottom M, Rutland A, et al. Assessing adolescents' critical health literacy: How is trust in government leadership associated with knowledge of COVID-19? PLoS ONE [Internet] 2021 Nov 24; [cited 2024 Jul 03]; 16(11):e0259523. Available from: https://doi.org/10.1371/journal.pone.0259523
35. Garg M, Nagrecha AA, Gupta R, Williams M. COVID-19 Vaccine Perspective From Adolescents' Lens in the US. Cureus [Internet] 2024 Fev 04; [cited 2024 Jul 03]; 16(2):e53566. Available from: https://www.cureus.com/articles/224677-covid-19-vaccine-perspective-from-adolescents-lens-in-the-us#!/
36. Wang Y, Chen Y. Characterizing discourses about COVID-19 vaccines on Twitter: a topic modeling and sentiment analysis approach. J Commun Healthc [Internet] 2023 Mar 24; [cited 2024 Jul 03]; 16(1):103–12. Available from: https://doi.org/10.1080/17538068.2022.2054196
37. Lasco G, Yu VG. Communicating COVID-19 vaccines: lessons from the dengue vaccine controversy in the Philippines. BMJ Glob Health [Internet] 2021 Mar 02; [cited 2024 Jul 03]; 6(3):e005422. Available from: https://gh.bmj.com/content/6/3/e005422
38. Janssen M, Van DVH. Agile and adaptive governance in crisis response: Lessons from the COVID-19 pandemic. Int J Inf Manage [Internet] 2020 Dez; [cited 2024 Jul 03]; 55:102180. Available from: https://doi.org/10.1016/j.ijinfomgt.2020.102180
39. Bendezu-Quispe G, Benites-Meza JK, Urrunaga-Pastor D, Herrera-Añazco P, Uyen-Cateriano A, Rodriguez-Morales AJ, et al. Consumption of Herbal Supplements or Homeopathic Remedies to Prevent COVID-19 and Intention of Vaccination for COVID-19 in Latin America and the Caribbean. Trop Med Infect Dis [Internet] 2022 Jun 08; [cited 2024 Jul 03; 7(6):95. Available from: https://doi.org/10.3390/tropicalmed7060095
40. Zieff G, Kerr ZY, Moore JB, Stoner L. Universal Healthcare in the United States of America: A Healthy Debate. Medicina (Kaunas) [Internet] 2020 Out 30; [cited 2024 Jul 03]; 56(11):580. Available from: https://doi.org/10.3390/medicina56110580
41. Nuwarda R, Ramzan I, Weekes L, Kayser V. Vaccine Hesitancy: Contemporary Issues and Historical Background. Vaccines (Basel) [Internet] 2022 Set 22; [cited 2024 Jul 03]; 10(10):1595. Available from: https://doi.org/10.3390/vaccines10101595
42. Choi Y, Fox, AM. Mistrust in public health institutions is a stronger predictor of vaccine hesitancy and uptake than Trust in Trump. Soc Sci Med [Internet] 2022 Dez; [cited 2024 Jul 03]; 314:115440. Available from: https://doi.org/10.1016/j.socscimed.2022.115440
43. Whitehead A, Perry S. How Culture Wars Delay Herd Immunity: Christian Nationalism and Anti-vaccine Attitudes. Socius [Internet] 2020 Dez 07; [cited 2024 Jul 03]; 6(1-12). Available from: https://doi.org/10.1177/2378023120977727

How to cite this article: Santos B.R.R., Santos P.H.F., Santos E.M.G., Cruz E.S., Paula G.L.L., Melo H.K.C.S., Farias K.F. (2025). Parental confidence in vaccines since the COVID-19 pandemic: a qualitative meta-synthesis. *O Mundo Da Saúde*, 49. https://doi.org/10.15343/0104-7809.202549e17512025I. Mundo Saúde. 2025,49:e17512025.