

Traditional Beliefs, Policy Compliance, and Trust in Kazakhstan's Healthcare System

by

Akerke Amanzholova

Tolkyn Duisenbaikyzy

Togzhan Maratkyzy

Supervisor

Professor Riccardo Pelizzo

Policy Analysis Project

Paper submitted in partial fulfillment of the
Degree of Master of Public Policy

Graduate School of Public Policy

Nazarbayev University

Astana, Kazakhstan

April 17, 2026

Acknowledgments

We want to express our deepest gratitude to Dr. Ricardo Pelizzo for his invaluable guidance, constant support, and insightful feedback throughout the entire process of this research. His expertise, encouragement, and dedication were essential to the completion of this study, and we are truly grateful for his contribution to our work.

We also sincerely thank Professors Lisa Lim and Zhanibek Arynov for their support, encouragement, and valuable comments, which helped us improve this paper.

Abstract

This study examines how traditional beliefs and trust in politics affect compliance with Kazakhstan's health policy. Deeply rooted in the cultural context, traditional beliefs can influence how well people adhere to modern health policies and undermine public trust in healthcare institutions. This study uses a quantitative approach to data collection and an online survey structured for the population of Kazakhstan. In addition, the study considers factors such as the level of trust and compliance with health policies and the use of non-traditional medicine as an indicator of adherence to traditional beliefs, as well as demographic factors such as gender, age, and education. The study's results are intended to assist policymakers and health managers in Kazakhstan by offering insight into the factors influencing trust and adherence to the country's healthcare and identifying predictors of behavioral patterns among the population. The study potentially provides suggestions to increase the acceptability of policies based on traditional beliefs and the level of trust to improve compliance with policies in the health sector in Kazakhstan. By linking norms to health transformation, we aim to increase trust and commitment within the health system.

Table of Contents

Acknowledgments	2
Abstract	3
Chapter 1. Introduction	5
1.1 Background	5
1.2 Problem Statement	6
1.3 Research Objectives and Questions	6
Chapter 2. Literature Review	7
2.1 Modernization, Cultural Change, and Superstition	7
2.2 Health Beliefs, Traditional Medicine, and Public Trust	8
2.3 Public Distrust and Vaccine Hesitancy	10
2.4 Trust in Healthcare System in Kazakhstan	11
2.5 Barriers to the Healthcare System in Kazakhstan	12
Chapter 3. Methodology	13
3.1 Research Design	13
3.2 Data Collection and Sampling	14
3.3 Variables and Measurement	14
3.4 Data Analysis	14
3.5 Limitations	14
Chapter 4. Research Findings	16
4.1 Descriptive Statistics	16
4.2 Bivariate Analysis	17
4.3 Multivariate Analysis	18
4.4 Visual Illustration of Findings	19
4.5 Summary of Findings	21
Chapter 5. Discussion	23
Chapter 6. Conclusion & Policy Recommendations	26
6.1 Summary of Key Findings	26
6.2 Policy Recommendations	28
6.3 Final reflection	31
References	32

Note: This paper was proofread by Grammarly

Chapter 1. Introduction

Before modern science was applied to health, traditional medicine was an ancient and culture-bound medical practice. Countries practice traditional medicine differently, according to their societal and cultural heritage. Every human community develops a medical system to maintain health and treat diseases. In all cultures, traditional medicine has been practiced to some extent (WHO,1999). According to Eriksen et al. (2022), the healthcare system in Kazakhstan has evolved in line with the changes that have occurred in the country over the past 30 years since Kazakhstan became an independent state. They explain that the Government of the Republic of Kazakhstan is actively developing modern healthcare to achieve excellent overall health indicators for the population. For example, they cite that Kazakhstan introduced a compulsory health insurance system to expand the scope and quality of medical services and avoid informal payments and corruption. The World Health Organization (Moucheraud et al., 2021) argues that trust in a health system is essential for public health responsiveness since it lays the groundwork for adherence to sound policies and collaboration between many conscientious healthcare providers and patients who are viscerally opposed to specific policy responses.

While several factors may have hindered the government's ability to achieve its objectives in the field of health care, a growing body of research has suggested that one of the reasons why policy objectives may not be achieved is because of poor levels of policy compliance which, in their turn, may be shaped or affected by the population's values, attitudes and beliefs (Kruk et al., 2018). For example, the COVID-19 pandemic highlighted and exacerbated some of the longstanding trouble spots in core areas of global healthcare systems, such as trust issues, adherence to protocols, and cultural beliefs. This is especially relevant in Kazakhstan due to the dichotomy between well-rooted cultural practices intertwined with contemporary healthcare policies that have brought out the need to study the longitudinal impact of trust and compliance on health outcomes. These conventional beliefs work so that people no longer turn to or believe in modern evidence-based medicine but instead use alternatives such as taking herbs, consulting local herbalists and healers, or resorting to spiritual healing practices (Badman et al., 2022).

In addition to traditional beliefs, low levels of trust in government health programs and pharmaceutical companies may lead to refusal or low participation of the population in wellness

campaigns (Goren et al., 2022). Kazakhstan's healthcare system is plagued with systemic issues rooted in a mix of traditional beliefs, public skepticism towards health-related policies and limited trust in medical professionals and institutions. Studies suggest that conventional medicine practices, such as using local folk medical approaches and skepticism towards modern health treatments, are critical barriers to the proper provision of healthcare policy (Mwaka et al., 2014). The impression of inefficiency, corruption and inequality in access to medical services reduces the willingness of the population to comply with medical prescriptions, which reinforces this skepticism (Gershman, 2016).

Trust and compliance are a prerequisite for a successful implementation of healthcare policy. At the societal level, this erosion of trust can result in lower immunization rates, delayed care for preventable diseases, and misinformation (Ozawa & Stack, 2013). This increases the cost of treatment for advanced-stage diseases and decreases the efficiency of healthcare systems in general. Such issues emphasize the urgent need to address cultural, institutional, and informational barriers that compromise trust and adherence in Kazakhstan's health system.

Traditional beliefs and low levels of trust in institutional institutions such as hospitals represent a significant barrier to improving the overall health of the population in Kazakhstan. Even though the government of Kazakhstan is actively adapting local health programs to meet global standards, social factors such as distrust in the health care system and cultural factors such as traditional beliefs of the population play a crucial role in shaping the health behavior of the population. The existing literature focuses mainly on the economic and structural barriers to health compliance in Kazakhstan but does not address the cultural and trust dynamics that influence health behavior.

To fill this gap in the existing literature, this study explores how traditional beliefs and trust in healthcare institutions influence health policy compliance in Kazakhstan. This study aimed to provide new knowledge that will assist policymakers in developing culturally sensitive policies and levels of trust to achieve health policy compliance.

This research aimed to answer the following questions: 1) Does traditional belief and culture create barriers to compliance with healthcare policies in Kazakhstan? 2) What are the determinants of public trust in the health system, and how can it be improved so that policies work more effectively?

Chapter 2. Literature Review

2.1. Modernization, Cultural Change, and Superstition

Traditional beliefs, in the context of trust in the healthcare system and following health policies, are complex issues that reflect cultural beliefs and the social aspects of individuals in threatening behaviors in crises such as the COVID-19 pandemic. Based on the reviewed literature on this issue, some critical dimensions have been highlighted, including an interaction between cultural traditions, modern medical systems, and levels of trust in government institutions.

As researchers indicate, traditional beliefs can be supported even concerning modern medicine. For example, Pelizzo and Kuzenbayev (2023) examine the role of traditional practices, such as superstition, in legitimating authoritarian elites and, subsequently, political and medical systems. Beliefs related to shamanism continue to play a significant role in contemporary Asian societies, as Anderson (2006) suggests because they coexist with scientific treatment methods. This reflects a situation of medical pluralism where a combination of biomedical and traditional approaches is quite common. Paradoxically, while modernization and value changes brought about by cultural shifts alter the pattern of value orientations in society, superstitions and traditional beliefs persist even in the most developed contexts. According to Inglehart and Baker (2000), on the one hand, modernization brings more rational orientations, but on the other hand, the traditional values could persist into the present but adapted to new social circumstances. In that regard, Pelizzo, Turganov, and Kuzenbaev (2023) explain why a country's economic and cultural development could proceed further by retaining traditional superstitious beliefs.

The COVID-19 pandemic has shown that people in developing countries still doubt the strengths of modern medicine and retain their traditional treatment methods. It was evident from Kristianto et al.'s study (2022) that many people in Indonesia relied on herbal medicines instead of drugs manufactured by modern medicine during the pandemic era. This points out very clearly how culture is very significant to health perception and treatment adherence. According to Latypov (2023), it is observably true that the resurgence of interest in traditional medicine within post-Soviet Central Asia is a result of a few cultural and political factors. This also corroborates the findings within Kazakhstan, where conventional medical practices are deeply rooted in rural communities and have thus been influencing health decisions (Tleukhanova & Zhussupov, 2019).

2.2. Traditional Medicine, Health Beliefs and Public Trust

Such trust in the health system and healthcare institutions is essential for adherence to medical recommendations during a crisis, such as COVID-19. Chen et al. conducted a study in China (2021) shows that individuals' attitudes toward vaccines or compliance with specific precautions or behaviors depend on how much they trust doctors. The same argument is described in Saechang et al. 's (2021) work, which identified professional trust as a key driver of compliance in the pandemic. But makes trust in official medicine also an essential role that needs to be constructed to adequately fight infection.

Low levels of public trust in institutions reduce compliance with the health policies. Badman et al. (2022) and Goren et al. (2022) reported that trust in health institutions and government by the population is one of the most vital aspects regarding compliance with recommendations to prevent COVID-19 transmission. A cross-country analysis demonstrated a direct association between trust in public institutions and agreement with forced restrictions in the pandemic fight. These can be subverted by upholding traditional beliefs, studies have shown. Traditional beliefs in witches and sorcery are detrimental to social capital, for instance in sub-Saharan Africa, where they help maintain modern health systems' low trust (Gershman 2016).

This is significantly aided by the dissemination of conspiracy theories related to health institutions and policies. In fact, Galliford and Furnham (2017) argue that belief in such theories is often characterized by individual-level psychological traits and conservative beliefs aimed at defending radical political and social ideologies. For example, such theories about the origin and spread of COVID-19 have led to enormous distrust towards government and medical institutions (Jennings et al., 2021).

According to Pickel et al. Conspiracy theories proliferated during the COVID-19 pandemic (2022), and they led to a decrease in trust towards democratic institutions as well as the medical system, which hindered the implementation of a functioning vaccination campaign. In contrast, the results of research by Karić and Mededović (2021) indicated that low levels of trust in political institutions constituted one of the top drivers of such conspiracy beliefs, lowering compliance with measures designed to prevent COVID-19. A lack of awareness about herd immunity, fear over potential side effects from the vaccine, and belief in the virus being artificial eroded trust in government sources of information among members of the public.

In this regard, Kim and Kim (2020) claimed that there is a positive correlation between certain factors, such as authoritarian beliefs, social media trust-based religiosity, and belief in conspiracy theories. This looks to represent a surface political and social situation which is culturally embedded within the beliefs of human beings, even people that one way or another, contradict medical advice.

Traditional beliefs can either strengthen or undermine health policies. On the one hand, such beliefs can be incorporated into the medical system, which aims to gain more public trust in new types of medicine and techniques. In Kazakhstan, for example, Penkala-Gawęcka (2013) wrote that the Kazakh medical tradition was actively supported by the state, which linked it to a policy of nation-building. Mistrust in contemporary medical practices rooted in traditional beliefs is, however, an obstacle to the effective implementation of measures aimed at reducing infectious diseases. Vaughn et al. (2009) claim that cultural attributions of health serve as a determining criterion for the general population on what constitutes an illness and its methods of treatment. The researchers test their hypothesis by taking a study that illustrates that superstition and human frailty result in their willingness to indulge in conspiracy theories, especially where there is social and political disenchantment (Hoffmann et al., 2022). Subbotsky affirmed this in 2014, stating that, in his view, magical thinking is even in modern science times something real, while we are confronted with ambiguity. This implies that successful health programs should incorporate the cultural features of the population by introducing traditional medicine within modernizing medical treatment. This is required even more in times of crisis, such as during a pandemic, when quick and wide reactions to the hazards to people's health need to be taken.

It is thus a nontrivial exercise to understand how traditional beliefs, political trust, and receiving health recommendations interact dynamically across different levels of analysis. As the recent literature review indicates, traditional beliefs may shape people's perception of healthcare and political institutions during crisis conditions such as the COVID-19 pandemic. Conspiracy theories, as well as a lack of confidence in the government, might undermine efforts to maintain public health and comply with health recommendations. These results imply that such research is a priority area for exploring how these traditional beliefs influence compliance with health policy in Kazakhstan, where cultural traditions and the level of trust regarding government institutions are important determinants of health behavior.

2.3. Public Distrust and Vaccine Hesitancy in Africa and Applicability for Kazakhstan

Trust in government is an essential determinant of public conformance with health policies, including vaccination. Afrobarometer studies in many countries of the continent reported widely held distrust in government-led vaccination programs, which was coincidental with hesitancy toward COVID-19 vaccines. In the report by Moosa et al. (2021), only 28% of South Africans said they trusted the government "somewhat" or "a lot" to make sure that COVID-19 vaccines were safe. Another 54% expressed hesitation to get vaccinated. Furthermore, as many as 47% of South Africans believed that prayer was more helpful than vaccines against infection with COVID-19, a testament to the significant influence traditional beliefs had on vaccine acceptance.

Seydou (2021) also investigates similar issues within West African nations such as Benin, Liberia, Niger, Senegal, and Togo. Only 31% of citizens reported trusting their government to ensure vaccine safety; skepticism was exceptionally high in Senegal at 83% and Liberia at 78%. Vaccine hesitancy across the board was thus high at an average of 60%, showing reluctance to get vaccinated.

At the same time, this reluctance was even more pronounced in urban populations and among people with higher levels of education in the cases of Benin, Togo, and Niger. Sanny & Bloh (2021) documented that a meager 20% of the citizens trusted the government to ensure vaccine safety. In comparison, a mere 34% showed a disposition to get vaccinated. In addition, an astonishing 86% of those responding believed that prayer was more helpful than vaccination for preventing COVID-19, underlining how strongly traditional beliefs are entrenched in decision-making related to health.

This trend underlines the need for governments to take up trust in healthcare and the cultural contexts of health beliefs to effectively increase public compliance with vaccination programs. Similar findings can be understood from a piece by Keulder (2022), where only four out of 10 respondents trusted the government to ensure vaccine safety, while the rest hesitated to get vaccines. Their main reason for being vaccine hesitant was the vaccine's safety, though other reasons included a lack of trust in the source of the vaccines, fear of side effects, and skepticism toward the rapid development of the vaccine.

Thus, findings in African countries have shown how public distrust of the government negatively affects compliance with health policies. These findings may indicate the possible existence of this correlation in the Kazakhstani context.

2.4. Issue of Trust in the Healthcare System in Kazakhstan: insights from the COVID-19 Pandemic

The issue of Kazakhstanis' trust in public policy, in particular in the healthcare system, has become particularly acute in the context of the COVID-19 pandemic, when the level of acceptance and readiness for vaccination among the population showed the profound impact of mistrust on compliance with government measures to protect public health. The works of Kazakhstani researchers examine the effects of the COVID-19 pandemic on people's perceptions of vaccination in general and the COVID-19 vaccine among respondents and indicate the low level of trust in the healthcare system. In addition, they explain the reasons for and barriers to distrust of the healthcare system of Kazakhstan. In a complementary study by Nabirova et al. (2023), low trust in COVID-19 vaccine safety and effectiveness could have been influenced by the lack of published data on the predominant COVID-19 available in Kazakhstan, Sputnik V, and QazVac.

Furthermore, it points out the issue of the language barrier as the main factor that creates misinformation among the people. Nabirova et al. (2023) indicate that most of the literature on COVID-19 vaccines was predominantly in English, as are most scientific publications. Therefore, it is likely not easily accessible to most healthcare providers in Kazakhstan, where 97% of the population speaks Russian and 80% speaks Kazakh. Moreover, the data also showed that one in two providers believed common myths about routine vaccinations, proving that widespread Internet and social media vaccine misinformation is influencing healthcare provider knowledge about routine vaccines in Kazakhstan.

However, most studies do not specify the exact reasons for mistrust in authorities, instead, they are considered as influencing factors of low confidence in the COVID-19 vaccine. The research by Yeskendir et al. (2023) provides critical insights that most parents, regardless of their past behavior on immunization of their children, express mistrust of the Ministry of Health and societal groups involved in vaccine promotion and manufacturing. For example, only one-third of parents without a history of refusal (36%) and 10% of vaccine-resisting parents were

confident in the recommendations given by the authorities regarding the vaccination of children. Thus, the existing literature on this topic, although it indicates the presence of public mistrust in the healthcare system, does not directly indicate its causes.

2.5 Barriers to the Healthcare system in Kazakhstan

WHO argues that the government has not fully realized the goal of achieving sustainability and equality regarding access to public health. For example, rural areas in Kazakhstan are struggling with the shortage of hospitals. They cite that 56 percent of hospitals in rural areas have closed in the 5 years between 2013 and 2018 (Eriksen et al., 2020). In addition, they also report that the quality of hospitals in rural areas leaves much to be desired, as budget funds have been directed to reconstruct new regional hospitals and do not pay enough attention to rural hospitals. Low healthcare policy compliance among the rural population may be due to various barriers, as travelling to a hospital in the city is financially and time-consuming for the rural population, and due to the lack of alternatives, they are more likely to turn to local healers.

The results of Mamyrbekova's study (2012) showed that the factors negatively affecting compliance with doctors' orders and recommendations are: financial difficulties, namely the high cost of drugs - 43.6%, and lack of time to follow doctors' orders - 28.3%. Among the respondents were those who stated their distrust of medical workers, which is 4.3%, and 2.0% of respondents prefer traditional medicine methods.

The existing literature shows that economic and structural factors, such as high drug costs, hospital closures in rural areas, and mistrust of specialists, influence adherence to health recommendations and trust in the medical system. However, to understand the complete picture, it is also essential to consider less studied factors, such as traditional beliefs and mistrust of government institutions. Exploring these factors is particularly relevant because traditional beliefs and mistrust of the government may act as hidden barriers to adherence to medical prescriptions and perceptions of government efforts in the field of health.

Chapter 3. Methodology

The purpose of this study is to systematically investigate the relationship between various factors affecting traditional beliefs, trust, and commitment to health policy in an urban population in Kazakhstan using quantitative methods. This methodology delivered aggregate statistics to recognize urban behaviour trends in this regard.

The design of this study is a cross-sectional one as it interviews Kazakhstani residents at a given point in time. This design was opted for because it is the most suitable one for this study, which reflects the relationship between traditional beliefs, trust, and compliance with health policies.

A survey of various regions of Kazakhstan was conducted. A total of 110 respondents were assigned to the survey for quantitative methods. The strategy behind the sampling was to ensure diversity across demographic groups, such as variation in age, gender, and education level, as well as the language of the interview.

The survey gathered data on how much the population stuck to traditional beliefs, whether they trusted their country's health institutions, and whether they followed state healthcare policies. The questionnaire specifically measured beliefs in witchcraft, curses, and degree of religiosity along with other indicators of vaccination behaviour. The main outcome variable for the analysis was vaccination status, defined as having been vaccinated against COVID-19 (n=1) vs not (n=0). All data collected enabled the study of the association between traditional beliefs, demographic characteristics, and compliance with public health policy. We treated traditional beliefs, trust in healers or shamans, and levels of religiosity as explanatory variables and vaccination status as the dependent variable measuring compliance with health policy. Age, education level, and gender were included as additional control variables.

Based on the conducted literature review, it can be concluded that traditional beliefs and the level of trust in state institutions play a significant role in the perception of health policy. These results lead us to the **first hypothesis**: People who follow traditional beliefs are less likely to comply with health policy in Kazakhstan. In addition, the results of the Afrobarometer indicate that the lack of public trust in the state negatively affects compliance with health policy, which leads us to the formation of a **second hypothesis** for the Kazakhstani context that sounds as: Mistrust in government negatively affects compliance with health policy in Kazakhstan.

The description given for the method of data collection in this study was as a structured online survey that was distributed to the general population of Kazakhstan, namely in major cities including Astana, Almaty and Shymkent, and other cities across Kazakhstan. We encouraged broad participation on the survey by reaching out using Telegram, WhatsApp, TikTok, Instagram and local online communities. By using this distribution method, the survey was able to be distributed across geographic and demographic groups, as well as gather data related to beliefs around culture and trust in institutions.

The questionnaire was divided into three main sections. The first section captured demographic data, such as age, gender, and educational qualifications of respondents. A second part covered more traditional beliefs, religiosity, including witchcraft, curses and belief in God. They were assessed using Likert-scale questions. The third section assessed attitudes towards health policy and adherence to medical recommendations, including vaccination behaviour.

Data collected for this study were analyzed using statistical software. Descriptive statistics based on frequencies and percentages were used to summarize the main characteristics of the dataset, including demographic variables (age, gender, education) and key indicators pertaining to traditional beliefs and religiosity. Next, correlation analysis was performed to assess the interactions between vaccination behavior and belief-related variables (i.e., belief in witchcraft, curses, and belief in God, trust in shamans or healers). Logistic regression analysis was finally performed to estimate the predictors of vaccination, controlling for demographic characteristics. The dependent variable was vaccination status, reflected in a binary indicator of COVID-19 vaccination for each respondent. Age, education level, belief in witchcraft, belief in curses, belief in God, trust in healers or shamans, and gender were included as independent variables. Education and trust in shamans or healers were the only statistically significant predictors of vaccination status in this model, and no other variables obtained statistical significance in the full model.

This may introduce a limitation in this approach, which could be possible behavioral change by those answering the survey as there is potentially an incentive for the respondents to respond in what they believe is a positive manner that could result in data skewing. Second, despite the survey sample consisting of respondents from across different regions, it does not represent the whole population of Kazakhstan. And the last limitation is that sample size was not big enough to discover real statistical significance.

This study adds to the growing body of literature documenting culture, trust, and compliance with public policies. It may serve as a solid basis for future research in other countries facing an analogous issue.

In addition, this study is also likely to be extremely significant for health policymakers and health professionals in Kazakhstan. Such important educational factors, as well as trust in shamans or healers that are derived, can help to understand compliance to vaccination policy, which in turn could inform policies and allow policymakers and health professionals in Kazakhstan to better interventions improving public trust and consequently health outcomes.

Chapter 4. Research Findings

This section presents the empirical findings of the study. It begins with descriptive statistics, proceeds to bivariate associations, and concludes with multivariate logistic regression results.

4.1 Descriptive Statistics

Table 1. Descriptive statistics of key variables

Variable	Description	Obs.	Mean	Std. Dev.	Min	Max
Vaccinated	1 = vaccinated, 0 = not vaccinated	108	0.62	—	0	1
Witchcraft belief	Likert scale (1–5)	108	2.11	1.32	1	5
Curse belief	Likert scale (1–5)	108	2.64	1.48	1	5
Belief in God	Likert scale (1–5)	108	3.95	1.43	1	5
Education	Ordered scale (1–7)	109	—	—	1	7
Age	Years	103	35.59	15.78	18	70
Male	1 = male, 0 = female	109	—	—	0	1
Russian	1 = Russian, 0 = Kazakh	110	—	—	0	1
Trust healers	Likert scale (1–5)	108	1.89	1.07	1	5

Note: Binary variables are coded 0/1.

Table 1 reports descriptive statistics for the main variables included in the analysis. The dependent variable, COVID-19 vaccination status, is coded as a binary variable (1 = vaccinated, 0 = not vaccinated). In the sample, 62% of respondents reported being vaccinated.

The mean age of respondents is 35.6 years ($SD = 15.78$), with ages ranging from 18 to 70. The distribution is somewhat skewed due to several older respondents, although most participants are in their late teens and early twenties.

Belief-related variables demonstrate substantial variation. Belief in witchcraft has a mean of 2.11 ($SD = 1.32$), belief in curses has a mean of 2.64 ($SD = 1.48$), and belief in God has a higher mean of 3.95 ($SD = 1.43$), all measured on five-point Likert scales where higher values indicate stronger belief.

Education is measured as an ordered categorical variable reflecting increasing levels of educational attainment, such as high school, vocational education, bachelor’s degree, master’s degree, PhD. Gender is coded as 1 = male and 0 = female. Language of interview is coded as 1 = Russian and 0 = Kazakh.

Overall, the descriptive statistics suggest moderate vaccination uptake and considerable variation in belief measures and educational attainment.

4.2 Bivariate Associations

Table 2. Correlation Matrix with Significance Levels

Variable	1	2	3	4	5	6
1. Vaccinated	1					
2. Witchcraft belief	-.12 (.22)	1				
3. Curse belief	-.13 (.19)	.59*** (.000)	1			
4. Belief in God	-.11 (.25)	.38*** (.000)	.46*** (.000)	1		
5. Age	-.02 (.86)	-.14 (.15)	-.01 (.91)	.18 (.07)	1	
6. Education	.32** (.004)	.08 (.49)	-.05 (.64)	-.11 (.32)	.12 (.29)	1

For the below analysis, Pearson correlation coefficients (r) between vaccination status and independent variables are displayed in Table 2.

In the results that do appear, even non-believers are significantly believing in witchcraft ($r = -.12$, $p = .22$), belief in curses ($r = -.13$, $p = .19$), or belief in God ($r = -.11$, $p = .25$). These results give preliminary support to studies suggesting that traditional beliefs and religious beliefs may not be directly linked to vaccination in this sample of individuals.

Similarly, age has no significant correlation with vaccination ($r = -.02$, $p = .86$). Education, however, shows the strongest association with vaccination status ($r = .32$, $p = .004$),

suggesting a positive association between the level of education and vaccination status. This bivariate association attests that structural factors might be more significant relative to belief-related variables.

4.3 Multivariate Analysis

To explore predictors of vaccination, controlling for other variables, we estimated a series of logistic regression models (Table 3). The use of logistic regression is suitable for estimating the probability of being vaccinated since the dependent variable is binary. In the full model, including age, education, belief in witchcraft, belief in curses, belief in God, and gender, only trust in healers or shamans and education is shown as statistically significant predictors of vaccination. For education, the odds ratio is 2.73 ($p = .002$), and for trust in healers or shamans, the odds ratio is 1.99 ($p = .045$), meaning that every additional level of education and increased trust in shamans and healers to treat illnesses doubles the odds of being vaccinated.

$$\text{Logit (Vaccinated)} = \alpha + \beta_1\text{Age} + \beta_2\text{Education} + \beta_3\text{Witchcraft} + \beta_4\text{Curses} + \beta_5\text{BeliefInGod} + \beta_6\text{Male} + \beta_7\text{Trust healers} + \varepsilon$$

Table 3. Logistic Regression Predicting COVID-19 Vaccination (1 = Vaccinated)

Predictor	Coefficient (B)	Std. Error	p-value
Age	0.000	—	.588
Education	1.004**	0.325	.002
Witchcraft belief	-0.174	0.300	.561
Curse belief	-0.020	0.268	.940
Belief in God	-0.248	0.172	.149
Male	-0.545	0.437	.213
Trust healers	0.642*	0.320	.045

Note: Coefficients are reported in log-odds form; dependent variable coded 1 = vaccinated.

* $p < .05$, ** $p < .01$

All other predictors are irrelevant at 5% level. Witchcraft belief (OR = 0.84, $p = .561$), belief in curses (OR = 0.98, $p = .940$), and belief in God (OR = 0.78, $p = .149$) find no evidence

that they are meaningfully associated with vaccination behavior. Age (OR = 1.00, p = . 588) and sex (OR = 0.58, p = . 213), could not statistically predict uptake of vaccine.

This full model accounts for a small amount of variance in vaccination behavior (Pseudo $R^2 \approx .19$), suggesting that other factors, such as the variable which caused people's trust in institutions and/or vaccines to influence their behavior about vaccines, or exposure to misinformation, may explain additional heterogeneity not captured by this analysis.

4.4 Visual Illustration of Key Findings

Figure 1. Vaccination rate by education level

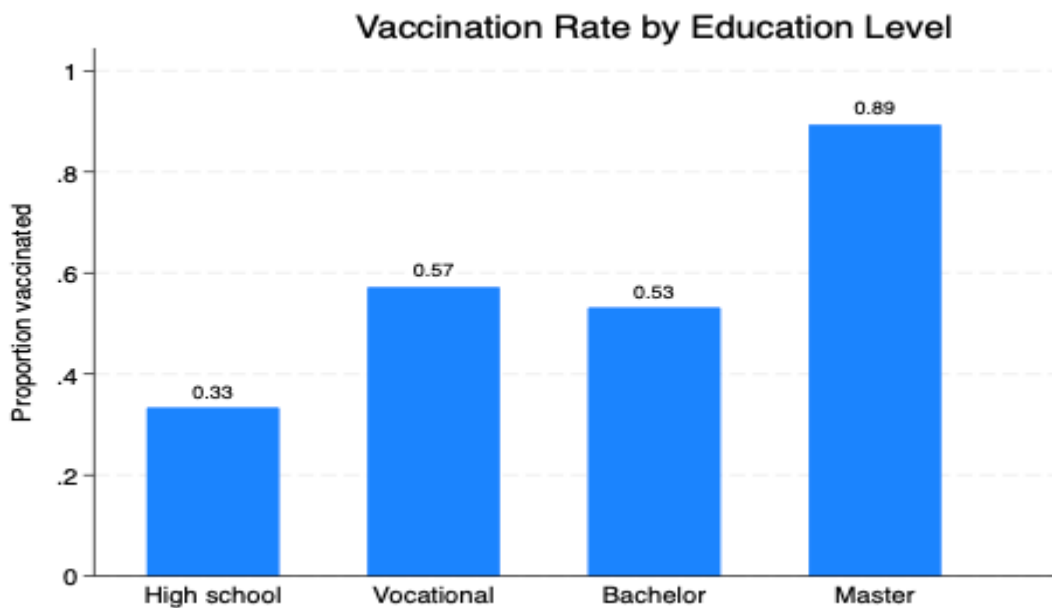


Figure 1 displays vaccination rates across education levels. The proportion of vaccinated respondents increases steadily with higher educational attainment. Approximately 33% of respondents with only high school education report being vaccinated, compared to 57% among vocational graduates, 53% among bachelor's degree holders, and nearly 89% among respondents with a master's degree.

The positive gradient visible in the figure visually confirms the regression findings: educational attainment is strongly associated with vaccination behavior.

Figure 2. Vaccination rate by level of trust in healers

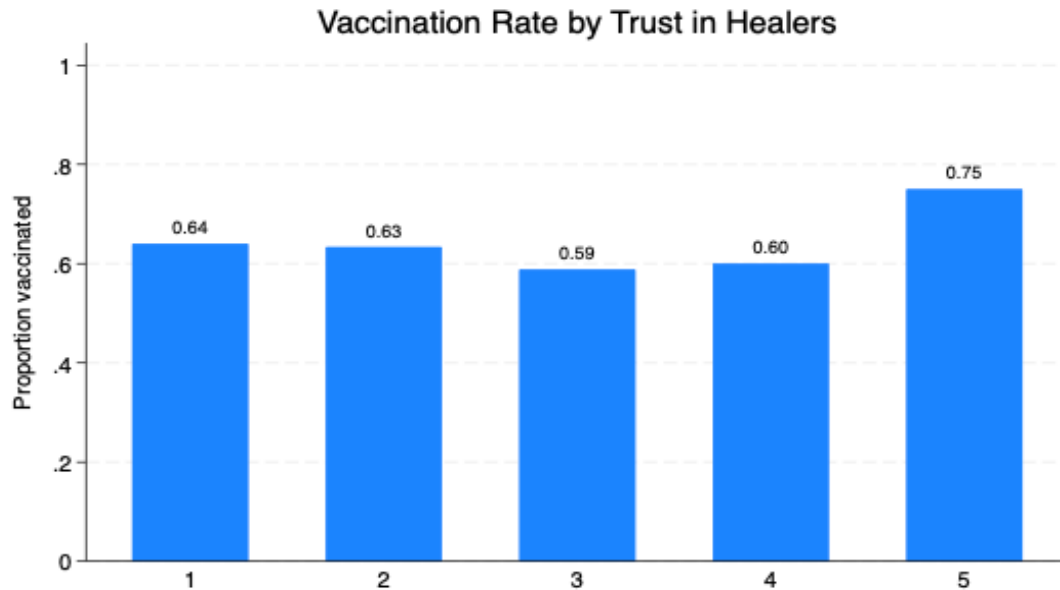


Figure 2 shows vaccination rates by the level of trust in traditional healers and shamans. Vaccination rates of those who had low to moderate levels remain relatively stable according to the figure. By comparison, about 64 percent of respondents who expressed the lowest level of trust in healers said they were vaccinated compared to 63 percent among those reporting a trust score of 2. Respectively, vaccination rates drop to about 59–60% for respondents with trust levels 3 and 4.

However, there has been a significant increase in the number of respondents who also place the greatest trust in traditional healers. Among respondents with a confidence level of 5, almost 75% reported vaccination. This means that people who report a very high level of trust in traditional healers are also more likely to say they have been vaccinated against COVID-19.

Overall, the figure suggests a positive association between trust in traditional healers and vaccination behavior, although the increase was not perfectly linear across all categories. Rather, the most powerful distinction manifests at the maximum tier of trust. This phenomenon complements the results from the logistic regression, where confidence in traditional healers had a positive relationship with vaccination.

One interpretation of the finding is that trust in traditional healers does not automatically exude distrust in formal healthcare. In the context of Kazakhstan, some participants may use both aspects in conjunction rather than distancing themselves from one or the other.

4.5 Summary of Findings

Albeit these empirical outcomes show that traditional and supernatural beliefs do not have any impact on vaccine hesitancy in this dataset. Demographic factors: age, gender, and language - also do not meaningfully predict vaccination behavior.

Education, by comparison, is the only significant predictor of vaccine uptake. Vaccination status is strongly and consistently associated with higher educational attainment, all else equal, even when controlling for belief-related and demographic variables.

In short, these findings demonstrate that compliance with health policy is shaped more by structural and informational factors such as educational attainment than by the principles of belief alone.

More precisely, people with a higher level of education were much more likely to report being vaccinated against COVID-19. The regression results show that each additional year of education corresponds to a significant increase in the chances of vaccination. This relationship remained statistically significant in various models (those that considered age, gender, language, religiosity, belief in witchcraft, curses, and trust in traditional healers). This means that people with a higher level of education are more likely to have access to reliable information, higher medical literacy, and greater trust in official medical advice.

There were also descriptive findings that corroborated this conclusion. Vaccination rates rose steadily for all educational groups. Respondents with only high school education had the lowest vaccination rates, while respondents with university and graduate degrees had the highest rate. This pattern suggests that educational attainment may be an important influence on how individuals interpret scientific information, assess the risks of disease and weigh the benefits of vaccination.

In sharp contrast, variables relating to supernatural and traditional beliefs failed to show a statistically significant association with vaccination behavior. Witchcraft belief, curse belief, and God-belief all showed weak and statistically non-significant effects in the regression models. Such a finding contradicts an implicit assumption that people with stronger supernatural beliefs will simply be more resistant to modern healthcare, or public health interaction.

The interesting part of the study findings is that trust in traditional healers was initially positively associated with vaccination status in the complete-case regression model. Respondents who expressed more trust in traditional healers were more likely to report being vaccinated.

Implying that the original relationship was not completely robust and perhaps affected by the smaller correlated sample size of this initial model.

However, these descriptive patterns remain interesting to observe. People who reported the highest levels of trust in traditional healers also had relatively high rates of vaccination." This may indicate that trust in traditional medicine does not always mean rejection of modern medicine. Keep in mind that, specific to the context of Kazakhstan, there may be some respondents who do not see traditional and formal healthcare practices as two mutually exclusive alternatives but rather combine both approaches. A person might consult with a doctor, get vaccinated, and still follow traditional healing practices for added support.

It should also be noted in the absence of a significant demographic impact. Age was not a strong determinant of vaccination behavior. Similarly, men and women differed little in their vaccination status, and the language of the interview, which is used here as an incomplete indicator of cultural or linguistic origin, also had no significant impact. These data indicate that the vaccine coverage in this sample is not sharply divided by major demographic groups.

In the aggregate, these findings suggest that vaccine hesitancy in this dataset is not predominantly motivated by culture, religion or traditional beliefs. What matters instead, it seems, is educational attainment. This indicates that efforts to improve vaccination rates and public health should avoid direct confrontation with the supernatural beliefs, instead focusing on access to information, health literacy, and making scientific discourse accessible for less educated sectors.

Instead of describing decision-making that results in vaccine hesitancy as a cultural problem, policymakers should treat it as an issue of information inequality and unequal access to health knowledge. It would probably be more successful in boosting the confidence of vaccines and decreasing resistance to public health interventions in Kazakhstan.

Chapter 5. Discussion

This research analysis addressed the study aimed at determining if health policy compliance is linked to traditional beliefs and demographic factors in Kazakhstan, represented by an indicator of COVID-19 vaccination uptake. These results have some important theoretical and policy implications.

First, results do not support the assumption that fewer vaccinations are correlated with traditional or supernatural beliefs. Although models using these variables as predictors resulted in statistically significant per-model fits, perceptions of witchcraft, perceptions of curses, and belief in the power of God were not statistically significant from the final model predicting vaccination behavior. While earlier studies have suggested that some traditional belief systems may undermine trust in biomedical institutions and public health interventions (especially among some cultural contexts) (Gershman, 2016), the evidence presented here suggests this is not a simplistic relation in Kazakhstan. This also corroborates recent literature that posits the influence of cultural beliefs on health behavior is highly context-specific, mediated by institutional and informational environments as opposed to a direct causal effect (Moucheraud et al., 2021).

Alternative and traditional beliefs and biomedical practices do not always operate as antagonistic systems. Finally, when it comes to medical pluralism, one may have a situation where both (or more than two) systems of meaning coexist in the same space/time frame instead of competing directly (World Health Organization (WHO, 1999)). That is to say, the continued existence of traditional belief does not necessarily mean vaccine resistance or denial of evidence-based health care. Rather, people with diverse belief systems can pragmatically practice multiple methods, utilizing biomedical interventions (e.g. vaccination) alongside their cultural or spiritual practices. Coexistence of traditional practices with the modern healthcare system in settings where institutionalization of modern healthcare systems has occurred abundantly indicates that maintenance of cultural continuity is not per se a public health compliance impediment (WHO, 1999).

Second, variables based on demographic factors (e.g., age, sex and term language) also did not serve as statistically significant predictors of vaccination status. Notably, no overall language effect was found, indicating that within this sample of respondents did not systematically differ with respect to vaccination uptake by their respective first language (Kazakh vs. Russian). This is an interesting finding considering Kazakhstan's sociolinguistic

diversity and suggests that public health messaging may be universally effective across linguistic groups. However, indicate that demographic categories alone may not be useful for identifying at-risk populations since poor health behaviors are as diverse as clients themselves, especially in a multi-cultural community, and efforts should also consider the complexities of social/economic/political factors (Chen et al., 2021).

Third, education was the sole strong and statistically significant predictor of vaccination. Vaccination was also significantly more likely among individuals with higher education, controlling for demographics and belief factors. This finding corroborates prior research demonstrating that education is predictive of health literacy, more robust capacity to assess medical information, and increased confidence in professional healthcare information (Chen et al., 2021; Ozawa & Stack, 2013). In this respect, these capabilities may as well act as a reductor of exposure to misinformation and conspiracy narratives, which are associated with vaccine hesitancy elsewhere (Jennings et al., 2021), during the COVID-19 pandemic. Education appears to act not just as a source of knowledge, but also as a buffer against informational threats in our ever more complex media environment.

Simultaneously, the relatively modest ability of the model to explain vaccination behaviour suggests that other variables are at play beyond those examined in this analysis. Such limitations of the analysis should be regarded as pivotal. Other factors influencing compliance may also influence incidence like institutional trust, vaccine safety perceptions, access to healthcare and susceptibility to misinformation; these could benefit from further direct examination (Moucheraud et al., 2021). Specifically, it has been identified that trust in public institutions is a crucial part of global vaccine acceptance (Ozawa & Stack, 2013) affecting individual willingness to vaccinate as well as adhering to government recommendations for vaccination.

Moreover, the lack of a statistically significant association between traditional beliefs and vaccination behavior may speak to the peculiar historical and institutional context of Kazakhstan. Perhaps the tradition of a centralized, biomedical healthcare system inherited from the Soviet period normalized vaccination behavior across different population strata and reduced conflict between cultural beliefs and medical compliance. Perhaps this institutional continuity sheds some light on why vaccination is viewed as routine and legitimate even by many people

maintaining a traditional or religious worldview (interestingly, those who were largely in favor of the practice).

A further caveat is that the method of operationalizing traditional beliefs in this study may not have fully captured their complexity. The broader the concept, like belief in God or any other supernatural forces, the more ways it can shape behavior, including contradictory ways depending on interpretation and circumstance. Some may interpret health outcomes considering divine predisposition, reducing the perceived need for vaccination; others may view medical interventions as instruments bequeathed through divine dispensation. Consequently, future research efforts should include more nuanced measures of religiosity and spirituality that contain dimensions such as fatalism, perceived control, and trust in religious leaders (Gershman, 2016).

At the same time, large demographic effects are not necessarily synonymous with no inequality. Other, more unnoticed structural determinants, such as social and economic situation, regional differences, or availability of health care structure, can have a greater importance in influencing vaccination behaviour⁴¹. At the same time, these dimensions were not captured directly in this model and therefore need to be further assessed. For example, urban-rural disparities in access to healthcare may result in ‘well-meaning non-compliance’ despite people agreeing with public health guidelines (Moucheraud et al., 2021).

The significant impact of education emphasizes the central role that informational and cognitive resources play in health choices. Education improves people’s capabilities to evaluate information and maneuver in an environment of complex media, a widespread issue during the COVID-19 pandemic, when misinformation has been rampant (Jennings et al., 2021). Education thus works both individually and structurally, echoing more expansive inequalities in knowledge and resource access.

These results indicate that Kazakhstani health policy compliance is built more on structural and informational factors, especially education, than upon traditional belief systems alone. This suggests that enhancing health literacy, improving public communication strategies, and reinforcing the breadth of institutional trust are all potentially more effective areas for policy to enhance compliance rather than assuming traditions or belief systems are the key obstruction. Meanwhile, a broader analytical framework, one which includes institutional, psychological, and structural variables, is required to précis the determinants of vaccination behavior in this context.

Chapter 6. Conclusion

6.1 Summary of Key Findings

This analysis examined the association of traditional beliefs, demographic, and health policy parameters with COVID-19 vaccine uptake as an empirical indicator in Kazakhstan. Key findings showed that there was no statistically significant association between either traditional or supernatural beliefs and vaccination behavior in this sample. Other predictors, such as age, gender, and language, were also not significant.

The only variable that was significantly associated with vaccination was education as it would suggest something higher up on the hierarchy, as did the informational and structural factors, which shows that social class played an important role in vaccination compliance, as information and religion are secondary to socio-economic status. Such a finding illustrates the need for health literacy and engagement with information. People with better education have easier access to, and a better ability to comprehend and interpret health information, potentially leading to higher confidence in vaccination against COVID-19, but less susceptibility to vaccine misinformation as well.

These findings add nuance to the wider understanding of health behavior in that they contradict the conventional wisdom that traditional beliefs are typically inversely associated with compliance with biomedical medicine. For Kazakhstan specifically, traditional beliefs do not seem to work as a direct resistance to modern medicine but rather coexist with the tacit acceptance of modern medical practices. This indicates that cultural beliefs should not be presented in prescription scenarios as wholly problematic elements of public health strategies. Instead, policies stand to gain from understanding the synergies that exist between cultural frameworks and biomedical interventions, which can proactively enhance culturally relevant health messaging.

However, more generally speaking, the lack of substantial demographic effects suggests that either vaccine hesitance or acceptance cannot be captured by surface-level social characteristics. It bars the mandatory reliance on demographic pigeonholing but instead focuses on more profound areas of structure and psyche. As an example, trust in government institutions, perceptions about the effectiveness and safety of vaccines received, and rates of exposure to misinformation will likely be decisive at the individual level. Although indirect scales that

measure these dimensions were not incorporated in the current study, they are critical directions for future research.

The results have public health policy relevance, too. Education was found to be closely related to vaccination uptake, indicating that improved health literacy may help improve compliance. It includes not only formal education but also targeted public information campaigns that deliver clear, accessible, and evidence-based messages. In an age of Sundiata, where misinformation could disseminate through the course of a tweet, ensuring people have the skills to critically analyse information is paramount.

Also, nurturing and reclaiming institutional trust ought to be a leading focus. High-quality health policy can still fail when the public does not view it as credible or legitimate. Building trust and increasing acceptance with public health measures can be supported by clear communications, actions that are in alignment with messaging, and involvement of people who facilitate local community engagement. This may especially apply to buttressing gaps in policy vs. public perception through collaboration with community leaders, educators, and healthcare professionals.

This study also has limitations that must be noted. Given that the model accounts for only some of the variability in vaccination behavior, we conclude that other pertinent factors were omitted. Factors including income level, geographic location, accessibility to healthcare services, and immediate or familial experience with COVID-19 might have added explanatory weight. Additionally, the cross-sectional design of the data precludes conclusions about causation. Future research could include longitudinal studies, so that the evolution of attitudes and behaviors can be captured over time, especially as public health circumstances change.

Future studies should potentially use a mixed-methods approach to complement quantitative results with qualitative data. Individual interviews or focus groups would provide more in-depth insight into how people interpret both traditional beliefs and medical advice in their daily lives. These kinds of approaches could provide a more detailed examination of the mechanisms driving health behavior.

This study suggests that educational and informational elements are more influential determinants of compliance with health policy in Kazakhstan than traditional belief systems alone. Health literacy, communication strategies, and institutional trust provide more effective public health interventions when prioritized by policymakers. On the one hand, however, we

need a more holistic research agenda that considers both the complexity and multidimensionality of what compliance really is.

6.2 Policy Recommendations

1. Strengthen health literacy (priority on low-education groups)

Since education is the most robust predictor of vaccination uptake, this highlights that decision-makers should prioritize investments in health literacy interventions among those populations with lower formal educational levels. The program information provided should be in a clear and simple language, avoiding technical terms, supplemented with visual representations such as infographics and practical examples explaining vaccine safety, efficacy and possible side effects. Effective avenues for health literacy include community-based workshops, school-based programs, and digital learning platforms. Furthermore, collaborations with local healthcare providers and educators can customize messages to the precise community population needs so that communication is contextually relevant.

Crucially, these interventions must not be just a one-time campaign but integrated in wider long-term education strategies. Improving general scientific literacy and critical thinking skills can help people process health information not just related to COVID-19, but beyond it as well. This strategy aligns with evidence that has shown an association between health literacy and trust in the healthcare provider, as well as adherence to medical recommendations (Chen et al., 2021; Ozawa & Stack, 2013). Policymakers could facilitate more sustainable compliance with public health measures by providing people with the necessities for informed decision-making. In the long run, these types of investments can also help build a more resilient society ready to address future public-health emergencies.

2. Build institutional trust through transparency and consistent communication

A high level of public trust is essential for policy compliance in health systems (Moucheraud et al., 2021). In this sense, Kazakhstan health authorities make the first steps towards a more open and proactive communication. This means frequently providing data on the safety, effectiveness, and possible harms of vaccines, and offering clear information about how policy decisions are made. Transparency not only reduces uncertainty, but it also sends a signal of accountability, a vital component for public trust. Creating independent review bodies or

using trusted third-party experts as intermediaries in communications processes, may expand credibility further.

Messaging consistency is also key. Conflicting or changing information can erode trust; in a rapidly moving situation, such changes may be justified by evolving scientific understanding, however. The implications of this for authorities is that they must coordinate communication across institutions to ensure coherence and clarity. Moreover, the use of interactive devices to communicate with the public, such as press briefings and meetings, social networks, and community forums, can provide a place for discussion where citizens can ask questions or tell their concerns. Such a participatory approach can enhance even the trust and thus compliance. Ultimately, the notion of institutional trust through sustained transparency and engagement can become systematic.

3. Use culturally sensitive outreach without endorsing non-evidence-based treatment

Outreach strategies should view traditional beliefs as a part of the problem rather than the framers of these health behaviors, per se, but instead located in the cultural content through which health behaviors are enacted. However, it is vital that public health messaging stays true to what the science says. The integration of different medical systems has been extensively documented (World Health Organization (WHO, 1999)), while culturally embedded forms of knowledge remain relevant for communities. Eliade (1964) suggests that authorities at a cultural level work as intermediaries responsible for community practice.

This translates to working with local trusted agents of authority, like community leaders, religious figures, and respected elders, to share relevant health information. Such actors can act to bridge the divide between formal public health systems and informal local populations, which can increase the legitimacy and acceptance of public health messaging. Nonetheless, any recommendations made must be consistent with biomedical doctrine. If anything, cultural sensitivity should provide additional support to the scientific basis of health interventions, not take it away. A thoughtful approach to collaboration could safeguard against cultural engagement undermining public health goals.

4. Proactively counter misinformation

As misinformation and conspiracy theories have been demonstrated to play a key role in vaccine hesitancy across different contexts (Jennings et al., 2021), it is the responsibility of public health agencies operating in Kazakhstan to proactively surveil and tackle misinformation.

This involves monitoring for misinformation patterns on social media and other platforms, mapping popular narratives, and acting fast with facts-based rebuttals. These attempts may be improved by creating dedicated monitoring units or partnerships with fact-checking organizations

Measures that work should consider the linguistic and cultural diversity of the population. It is necessary to provide information in Kazakh and Russian so that it is as widespread as possible. Messages should also be shared through trusted channels such as local media, healthcare providers, and community organizations. Instead of merely factchecking, communication strategies should also consider “prebunking”, anticipating misinformation and giving people the facts they need to spot it and counteract. This pre-emptive approach allows for less scope of misinformation, which is typically harder to contain after it reaches a critical mass.

5. Reduce structural barriers to access

Structural barriers limit the ability to comply with the health policy even when individuals have positive attitudes toward vaccination. Thus, ease of access to vaccination and hospital [primary healthcare] services is a major factor governing compliance. This might mean expanding mobile vaccination units, opening your clinics to work with working populations, and ideally those in some of the more rural and underserved areas. Extra consideration must be given to the vulnerable section of society, the elderly, and the physically disabled.

Moreover, it is essential to eliminate logistical constraints like transportation costs, waiting times, and capacity bottlenecks, such as knowledge about service availability. Making administrative processes simpler and ensuring that services are simple to use also contribute substantially to improving accessibility. Policymakers can alleviate these practical barriers and make compliance not just desirable, but possible. More functionality, such as digital appointment systems and coordination amongst healthcare providers, may also help here.

Dismantling those structural barriers, after all, is also a way to shore up trust in the healthcare system. People are more likely to interact with and buy into public health efforts when they believe services are available, deliverable, and above all, relevant. In this sense, boosting access is not just a matter of building infrastructure but also a cornerstone for developing sustained trust in health institutions.

6.3 Final reflection

This study set out to explore the relationship between traditional beliefs, trust, and compliance with health policy in the context of Kazakhstan. While the initial expectation was that cultural and belief-related factors would play a dominant role in shaping health behavior, the findings revealed a more nuanced reality.

One of the key insights of this research is that traditional beliefs do not necessarily act as a barrier to compliance with modern healthcare practices. Instead, they often coexist with biomedical approaches, suggesting that individuals may navigate multiple systems of meaning simultaneously. This challenges the common assumption that cultural beliefs and scientific medicine are inherently in conflict and highlights the importance of context-specific analysis when studying health behaviour.

At the same time, the strong and consistent role of education underscores the importance of informational and structural factors. The findings suggest that improving health literacy and access to reliable information may be more effective in promoting compliance than attempting to directly challenge or change deeply rooted beliefs. This has important implications for policymakers, as it shifts the focus from cultural resistance to informational inequality.

This study also revealed the complexity of measuring concepts such as trust and belief. While these variables are frequently discussed in the literature, capturing their full impact empirically remains challenging. Future research could benefit from more nuanced measures, and mixed-method approaches to better understand how individuals interpret and act upon both traditional and modern sources of knowledge.

Overall, this research contributes to a more balanced understanding of health behaviour in Kazakhstan by demonstrating that compliance is shaped not only by cultural values, but also by education, access to information, and broader structural conditions. It also highlights the importance of avoiding oversimplified narratives about culture as a barrier and instead encourages a more integrative approach to policy design.

In conclusion, effective public health strategies should not aim to replace traditional belief systems, but rather to work alongside them while strengthening education, communication, and institutional trust. Such an approach is more likely to lead to sustainable improvements in policy compliance and public health outcomes.

References

- Anderson, E. N. (2006). Healing Powers and Modernity: Traditional Medicine, Shamanism, and Science in Asian Societies (review). *Philosophy East and West*, 56(4), 702–703. <https://doi.org/10.1353/pew.2006.0047>
- Badman, R. P., Wang, A. X., Skrodzki, M., Cho, H. C., Aguilar-Lleyda, D., Shiono, N., Yoo, S. B., Chiang, Y. S., & Akaishi, R. (2022). Trust in institutions, not in political leaders, determines compliance in COVID-19 prevention measures within societies across the globe. *Behavioral Sciences*, 12(6), 1-20. <https://doi.org/10.3390/bs12060170>
- Chen, D., Zhou, Q., Pratt, C. B., Su, Z., & Gu, Z. (2021). Investigating the Relationships Between Public Health Literacy and Public Trust in Physicians in China's Control of COVID-19: A Cross-Sectional Study. *Frontiers in Public Health*, 9(2021), 1-14. <https://doi.org/10.3389/fpubh.2021.758529>
- Eriksen, A., Litvinova, Y., & Rechel, B. (2022). *Health systems in action: Kazakhstan* (2022nd ed., pp. 1-24). European Observatory on Health Systems and Policies. <https://eurohealthobservatory.who.int/publications/i/health-systems-in-action-kazakhstan-2022>
- Eliade, M. (1964). *Shamanism: Archaic Techniques of Ecstasy*. Princeton University Press.
- Galliford, N., & Furnham, A. (2017). Individual difference factors and beliefs in medical and political conspiracy theories. *Scandinavian Journal of Psychology*, 58(5), 422–428. <https://doi.org/10.1111/sjop.12382>
- Gershman, B. (2016). Witchcraft beliefs and the erosion of social capital: Evidence from Sub-Saharan Africa and beyond. *Journal of Development Economics*, 120, 182-208. <https://doi.org/10.1016/j.jdeveco.2015.11.005>
- Goren, T., Vashdi, D. R., & Beeri, I. (2022). Count on trust: The indirect effect of trust in government on policy compliance with health behavior instructions. *Policy Sciences*, 55(4), 593–630. <https://doi.org/10.1007/s11077-022-09481-3>
- Hoffmann, A., Plotkina, D., Roger, P., & D'Hondt, C. (2022). Superstitious beliefs, locus of control, and feeling at risk in the face of Covid-19. *Elsevier*, 196(2022), 1-10. <https://doi.org/10.1016/j.paid.2022.111718>
- Inglehart, R., & Baker, W. E. (2000). Modernization, Cultural Change, and the Persistence of Traditional Values. *American Sociological Review*, 65(1), 19-51. <https://doi.org/10.1177/000312240006500103>
- Jennings, W., Stoker, G., Bunting, H., Valgarðsson, V. O., Gaskell, J., Devine, D., McKay, L., & Mills, M. C. (2021). Lack of Trust, Conspiracy Beliefs, and Social Media Use Predict COVID-19 Vaccine Hesitancy. *MDPI*, 9(6), 1-14. <https://doi.org/10.3390/vaccines9060593>

- Karić, T., & Međedović, J. (2021). COVID-19 conspiracy beliefs and containment-related behaviour: The role of political trust. *Elsevier*, 175(2021), 1-6. <https://doi.org/10.1016/j.paid.2022.111718>
- Keulder, C. (2022, May 11). Namibians approve of government's COVID-19 response, but many doubt vaccine safety. Afrobarometer. <https://www.afrobarometer.org/publication/ad518-namibians-approve-of-governments-covid-19-response-but-many-doubt-vaccine-safety/>
- Kim, S., & Kim, S. (2020). Searching for General Model of Conspiracy Theories and Its Implication for Public Health Policy: Analysis of the Impacts of Political, Psychological, Structural Factors on Conspiracy Beliefs about the COVID-19 Pandemic. *MDPI*, 18(1), 1-28. <https://doi.org/10.3390/ijerph18010266>
- Kristianto, H., Pramesona, B. A., Rosyad, Y. S., Andriani, L., Putri, T. A. R. K., & Rias, Y. A. (2022). The effects of beliefs, knowledge, and attitude on herbal medicine use during the COVID-19 pandemic: A cross-sectional survey in Indonesia. *F1000Research*, 11(483), 1-24. <https://doi.org/10.12688/f1000research.116496.3>
- Kruk, M. E., Gage, A. D., Arsenault, C., Jordan, K., Leslie, H. H., Roder-DeWan, S., Adeyi, O., Barker, P., Daelmans, B., Doubova, S. V., English, M., García-Elorrio, E., Guanais, F., Gureje, O., Hirschhorn, L. R., Jiang, L., Kelley, E., Lemango, E. T., Liljestrand, J., ... Pate, M. (2018). High-quality health systems in the Sustainable Development Goals Era: Time for a revolution. *The Lancet Global Health*, 6(11). [https://doi.org/10.1016/s2214-109x\(18\)30386-3](https://doi.org/10.1016/s2214-109x(18)30386-3)
- Latypov, A. (2023). Islamic Tibb and Soviet Medicine: Trajectories, resiliency and appeal of Indigenous medical practitioners in Central Asia, 1921–1991. *Central Asian Affairs*, 1–55. <https://doi.org/10.30965/22142290-bja10051>
- Mamyrbekova, S. (2012). Organizational and implementation aspects of the quality of medical care for various population groups. *Journal of the Creation of the Scientific Center of Surgery Named After A.N. Syzganov*, 1. <https://cyberleninka.ru/article/n/organizatsionnye-i-vnedrencheskie-aspekty-kachestva-meditinskoy-pomoschi-razlichnym-gruppam-naseleniya/viewer>
- Moosa, M., Mpako, A., & Felton, J. (2021, July 28). South Africans support government's COVID-19 response but are critical of corruption and skeptical of vaccines. Afrobarometer. https://www.afrobarometer.org/wp-content/uploads/2022/02/ad467-south_africans_support_governments_covid-19_response_but_are_skeptical_of_vaccines-afrobarometer-27july21_1.pdf
- Moucheraud, C., Guo, H., & Macinko, J. (2021). Trust in governments and health workers low globally, influencing attitudes toward health information, Vaccines. *Health Affairs*, 40(8), 1215–1224. <https://doi.org/10.1377/hlthaff.2020.02006>

- Mwaka, A. D., Okello, E. S., & Orach, C. G. (2014). Barriers to biomedical care and use of traditional medicines for treatment of cervical cancer: An exploratory qualitative study in northern Uganda. *European Journal of Cancer Care*, 24(4), 503–513. <https://doi.org/10.1111/ecc.12211>
- Nabirova, D., Horth, R., Kassabekova, L., Henderson, A., Yesmagambetova, A., Alaverdyan, S., Nuorti, J. P., & Smagul, M. (2023). Factors associated with COVID-19 vaccine confidence among primary care providers in Kazakhstan, March–April 2021. *Frontiers in Public Health*, 11. <https://doi.org/10.3389/fpubh.2023.1245750>
- Ozawa, S., & Stack, M. L. (2013). Public trust and vaccine acceptance-international perspectives. *Human Vaccines & Immunotherapeutics*, 9(8), 1774–1778. <https://doi.org/10.4161/hv.24961>
- Pelizzo, R., & Kuzenbayev, N. (2023). Beyond Religion: Superstition, Traditional Beliefs and the Extreme Right. *World Affairs*, 186(4), 978-1018. <https://doi.org/10.1177/00438200231203101>
- Pelizzo, R., Turganov, D., & Kuzenbayev, N. (2023). Modernization, superstition, and cultural change. *World Affairs*, 186(4), 869-895. <https://doi.org/10.1177/004382002312031203>
- Penkala-Gawęcka, D. (2013). Mentally ill or chosen by spirits? 'Shamanic illnesses and the revival of Kazakh traditional medicine in post-Soviet Kazakhstan. *Central Asian Survey*, 32(1), 37–51. <https://doi.org/10.1080/02634937.2013.771872>
- Pickel, G., Öztürk, C., Schneider, V., Pickel, S., & Decker, O. (2022). COVID-19-Related Conspiracy Myths, Beliefs, and Democracy-Endangering Consequences. *Politics and Governance*, 10(4), 177–191. <https://doi.org/10.17645/pag.v10i4.5798>
- Saechang, O., Yu, J., & Li, Y. (2021). Public trust and policy compliance during the COVID-19 pandemic: The role of professional trust. *Healthcare*, 9(2), 1-13. <https://doi.org/10.3390/healthcare9020151>
- Sanny, J. A. N., & Bloh, O. (2021, January 20). Liberians laud government's COVID-19 response but claim unfair distribution of relief assistance. Afrobarometer. https://www.afrobarometer.org/wp-content/uploads/2022/02/ad420-covid-19_in_liberia-afrobarometer_dispatch-20jan21.pdf
- Seydou, A. (2021, March 15). Africa is starting to receive COVID-19 vaccines. But do citizens trust their governments to ensure they're safe? Afrobarometer. <https://www.afrobarometer.org/articles/africa-starting-receive-covid-19-vaccines-do-citizens-trust-their-governments-ensure-theyre/>
- Subbotsky, E. (2014). The Belief in Magic in the Age of Science. *Sage Open*, 4(1). <https://doi.org/10.1177/2158244014521433>

- Tleukhanova, T., & Zhussupov, A. (2019). The role of traditional beliefs in healthcare decision-making among rural Kazakh populations. *Central Asian Health Journal*, 28(4), 345-360. <https://doi.org/10.18502/ijph.v49i7.3580>
- Vaughn, L.M., Jacquez, F., and Bakar, R.C. (2009). Cultural Health Attributions, Beliefs, and Practices: Effects on Healthcare and medical education. *The Open Medical Education Journal*, 2(1), 64–74. <https://doi.org/10.2174/1876519x00902010064>
- World Health Organization (1999). Traditional and Modern Medicine: Harmonizing the Two Approaches: a Report of the Consultation Meeting on Traditional and Modern Medicine: Harmonizing the Two Approaches, 22-26 November 1999, Beijing, China. https://iris.who.int/bitstream/handle/10665/207162/19991126_CHN_eng.pdf?sequence=1
- Yeskendir, A., Gusmanov, A., & Zhussupov, B. (2023). Parental attitudes, beliefs and behaviors toward childhood and COVID-19 vaccines: A countrywide survey conducted in Kazakhstan examining vaccine refusal and hesitancy. *Vaccine*, 41(44), 6548–6557. <https://doi.org/10.1016/j.vaccine.2023.08.063>