

**ORIGINAL RESEARCH ARTICLE**

# Vaccine hesitancy and its association with demographics, mental health, and disability: Findings from the VH-3 study in the United States, India, and China

**Supplementary File**
**Table S1. COVID-19 vaccine acceptance rate across different regions of the world ( $n=98$  countries)**

Regions/Countries	COVID-19 vaccine acceptance rate (%)	Survey date	Notes
Eastern and Southern Africa ( $n=9$ )			
Ethiopia	92	February 2021	LIC
Uganda	87	November – December 2020	LIC
Rwanda	85	October – November 2020	LIC
Malawi	80	October – December 2020	LIC
South Africa	76	September – October 2020	UMIC
Zambia	66	November 2020	LMIC
Mozambique	65	March 2021	LIC
Kenya	64	February 2021	LMIC
Zimbabwe	50	February 2021	LMIC
Western and Central Africa ( $n=13$ )			
Niger	93	September 2020	LIC
Sierra Leone	88	October 2020 – January 2021	LIC
Nigeria	76	November – December 2020	LMIC
Cote d'Ivoire	71	September – November 2020	LMIC
Burkina Faso	67	October – December 2020	LIC
Gabon	67	September – December 2020	UMIC
DRC	56	August – September 2020	LIC
Benin	51	October 2020 – January 2021	LMIC
Ghana	51	February 2021	LMIC
Togo	50	October 2020 – January 2021	LIC
Liberia	34	October 2020 – January 2021	LIC
Senegal	21	October 2020 – January 2021	LMIC
Cameroon	15	May – August 2020	LMIC
Asia and the Pacific ( $n=22$ )			
Nepal	97	December 2020	LMIC
Vietnam	97	October – December 2020	ASEAN, LMIC
Myanmar	86		ASEAN, LMIC
Malaysia	83	December 2020	ASEAN, UMIC
China	82	January – February 2021	UMIC
India	79	January 2021	LMIC

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**Table S1. (Continued)**

Regions/Countries	COVID-19 vaccine acceptance rate (%)	Survey date	Notes
South Korea	77	May – June 2021	HIC
Pakistan	72	January – February 2021	LMIC
New Zealand	70	March 2021	HIC
Singapore	68		ASEAN, HIC
Thailand	67		ASEAN, UMIC
Timor-Leste	66		LMIC
Indonesia	65	September 2020	ASEAN, LMIC
Philippines	63	January 2021	ASEAN, LMIC
Afghanistan	63	December 2020 – January 2021	LIC
Lao PDR	62		ASEAN, LMIC
Bangladesh	61	January – February 2021	LMIC
Australia	59	August 2020	HIC
Brunei	59		ASEAN, HIC
Japan	56	February 2021	HIC
Taiwan	53	October 2020	HIC
Hong Kong	42	December 2020 – January 2021	HIC
Cambodia			ASEAN, No VA data available
Eastern Europe and Central Asia ( <i>n</i> =7)			
Montenegro	69	July 2021	UMIC
Kazakhstan	64	August 2020 – November 2020	UMIC
Ukraine	61	December 2020	LMIC
Kyrgyzstan	55	August 2020 – November 2020	LMIC
Albania	46	January 2021	Among nurses, UMIC
Kosovo	46	January 2021	Among nurses, UMIC
Russia	30	November – December 2020	UMIC
Latin America and the Caribbean ( <i>n</i> =20)			
Mexico	88	January – February 2021	UMIC
Puerto Rico	85	January – February 2021	HIC
Costa Rica	84	January – February 2021	UMIC
Brazil	83	January – February 2021	UMIC
Honduras	81	January – February 2021	LMIC
Panama	80	January – February 2021	HIC
Guatemala	80	January – February 2021	UMIC
El Salvador	79	January – February 2021	UMIC
Nicaragua	78	January – February 2021	LMIC
Colombia	77	January – February 2021	UMIC
Peru	75	January – February 2021	UMIC
Chile	74	January – February 2021	HIC
Argentina	72	January – February 2021	UMIC
Bolivia	71	January – February 2021	LMIC
Venezuela	69	January – February 2021	NA

(Cont'd...)

**Table S1. (Continued)**

Regions/Countries	COVID-19 vaccine acceptance rate (%)	Survey date	Notes
Ecuador	69	January – February 2021	UMIC
Dominican Republic	66	January – February 2021	UMIC
Uruguay	66	January – February 2021	HIC
Paraguay	65	January – February 2021	UMIC
Haiti	43	January – February 2021	LMIC
Middle East and North Africa ( <i>n</i> =22)			
Tunisia	92	September – November 2020	LMIC
Somalia	77	December 2020 – January 2021	LIC
Israel	75	March 2020	HIC
Morocco	70	September – November 2020	LMIC
Saudi Arabia	69	February – April 2021	HIC
Turkey	66	May 2020	UMIC
Iran	62	February – March 2021	Among HCW, UMIC
Libya	61	December 2020	UMIC
Yemen	61	April 2020	LIC
Kuwait	60	March – April 2021	HIC
UAE	60	September 2020	HIC
Sudan	57	March – April 2021	Among HCW, LIC
Oman	57	December 2020	HIC
Qatar	43	December 2020 – January 2021	HIC
Palestine	38	December 2020 – January 2021	Among HCW, UMIC
Syria	36	December 2020 – January 2021	LIC
Jordan	28	December 2020	NA
Egypt	25	January – March 2021	LMIC
Lebanon	21	November – December 2020	LMIC
Algeria	21	March – April 2021	LMIC
Bahrain	17	January 2021	HIC
Iraq	13	January 2021	UMIC
Western/Central Europe and North America ( <i>n</i> =27)			
Canada	91	December 2020 – February 2021	HIC
Ireland	88	January 2021	HIC
Norway	89	January – February 2021	HIC
Denmark	83	September 2020 – February 2021	HIC
Italy	82	December 2020	HIC
United Kingdom	81	October – December 2020	HIC
Finland	74	April 2021	HIC
Belgium	73	October 2020	HIC
Czech Republic	73	April – June 2021	Among university students, HIC
the Netherland	73	April 2020	HIC
United States	66	October – December 2020	HIC
Sweden	61	September 2020 – February 2021	HIC

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**Table S1. (Continued)**

Regions/Countries	COVID-19 vaccine acceptance rate (%)	Survey date	Notes
Germany	60	September 2020 – February 2021	HIC
Greece	58	April – May 2020	HIC
Austria	55	February – March 2021	HIC
Slovenia	53	October – December 2020	HIC
Poland	51	March 2021	HIC
Bulgaria	49	June 2021	UMIC
Spain	48	December 2020	HIC
France	47	September 2020 – February 2021	HIC
Hungary	47	September 2020 – February 2021	HIC
Romania	45	December 2020	HIC
Croatia	42	October – December 2020	HIC
Switzerland	40	December 2020	Among HCW, HIC
Serbia	38	October – December 2020	UMIC
Cyprus	35	December 2020	Among HCW, HIC
Portugal	35	September 2020 – January 2021	HIC

Notes: The ASEAN: 1. Brunei, 2. Cambodia, 3. Indonesia, 4. Lao PDR, 5. Malaysia, 6. Myanmar, 7. Philippines, 8. Singapore, 9. Thailand, and 10. Vietnam. For the current 2024 fiscal year, low-income economies are defined as those with a GNI per capita, calculated using the World Bank Atlas method, of US\$1,135 or less in 2022; lower-middle-income economies are those with a GNI per capita between US\$1,136 and US\$4,465; upper-middle-income economies are those with a GNI per capita between US\$4,466 and US\$13,845; high-income economies are those with a GNI per capita of US\$13,846 or more. The mentioned information can be retrieved from: <https://datahelpdesk.worldbank.org/knowledgebase/articles/906519> Source: Sallam *et al.* (2022).

Abbreviations: ASEAN: The Association of Southeast Asian Nations; DRC: Democratic Republic of Congo; HCW: Health care worker; HIC: High-income class; LIC: Lower income class; LMIC: Lower middle-income class; NA: Not available; UIC: High-income class; UMIC: Upper middle-income class; VA: Vaccine acceptance.

**Table S2. Vaccine hesitancy in the United States (US), India, and China**

Country	Authors	Year	n	Reasons for hesitancy
US	Afzal <i>et al.</i>	2022	3,759	Concerns about efficacy (CAE); concerns about side effects (CASE); rushed vaccine development (RVD); lack of trust in government (LOT-G); anti-vaccine attitudes
US	Badr <i>et al.</i>	2021	1,208	Low perceived susceptibility (LPS); perceived the vaccination process as being more convenient
US	Ehde <i>et al.</i>	2021	359	LPS; CASE; low trust in Center for Disease Control (CDC); potential impact of the vaccine on their health; vaccine approval process
US	Ghaffari-Rafi <i>et al.</i>	2021	359	Concerns about safety (CAS); self-perception of a pre-existing medical condition contraindicates with vaccine
US	Khairat <i>et al.</i>	2022	3,142	CASE; LOT-G; lack of trust in the vaccine (LOT-V)
US	Kuhn <i>et al.</i>	2021	90 (Homeless)	LOT of COVID-19 information from official sources, media, and friends. Perceived threat.
US	Lopez-Cepero <i>et al.</i>	2021	1,911	CAS; CAE; Novelty; LOT-G; the rigor of vaccine testing; not worried about getting COVID-19; LOT-V
US	Roberts <i>et al.</i>	2022	1,004	Anti-vax beliefs
US	Ruggiero <i>et al.</i>	2021	427	CASE; CAS
US	Shekhar <i>et al.</i>	2021	3,479	CAS; CAE; RVD
US	Sharma <i>et al.</i>	2021	428 (African American)	Perceived advantage; perceived disadvantage; participatory dialog; behavior confidence
US	Theis <i>et al.</i>	2021	816 (Peterson Airforce base)	CASE; CAE; vaccine makes me feel sick; vaccine infects from COVID-19; being worried about misinformation/political agenda
US	Tram <i>et al.</i>	2021	459,235	CASE; CAS; other people need more than me; LOT-V; LOT-G
US	Wu <i>et al.</i>	2022	306	CASE; CAS; CAE; RVD; concerned about the ingredients; low perceived threat; concern about vaccine causing MS relapse; making MS medication ineffective; prior bad experience with the vaccines
India	Ashok <i>et al.</i>	2021	264	RVD; lack of enough information
India	Jain <i>et al.</i>	2021	1,068 (Students)	CASE; CAS; LOT-G; lack of awareness regarding their eligibility for vaccination
China	Du <i>et al.</i>	2021	3,011 (Females)	Low perceived susceptibility; low perceived benefit; higher perceived barriers
China	Li <i>et al.</i>	2021	2,196 (Students)	CASE; CAE; perceived severity
China	Luk <i>et al.</i>	2021	1,035	CASE; CAE; CAS; knowledge of SARS-COV2 transmission; perceived degree of COVID-19
China	Shen <i>et al.</i>	2021	2,361	Lack of trust in the vaccine; risk perception
China	Wang; Zhang <i>et al.</i> , 2021	2021	382	Psychological; flexibility; self-efficacy; coping style
China	Wang <i>et al.</i>	2021	7,318	Confidence; complacent; convenience
China	Xu <i>et al.</i>	2021	4,748	Psychological distress; CAS
China	Zhang <i>et al.</i>	2021	1,015	Conspiracy beliefs; medical mistrust; knowledge of vaccines; vaccine confidence; complacency

Source: Pourrazavi *et al.* (2023).

**References**

Pourrazavi, S., Fathifar, Z., Sharma, M., & Allahverdipour, H. (2023). COVID-19 vaccine hesitancy: A Systematic review of cognitive determinants. *Health Promotion Perspectives*, 13(1):21-35.

<https://doi.org/10.34172/hpp.2023.03>

Sallam, M., Al-Sanafi, M., & Sallam, M.A. (2022). Global map of COVID-19 vaccine acceptance rates per country: An updated concise narrative review. *The Journal of Multidisciplinary Healthcare*, 15:21-45.

<https://doi.org/10.2147/JMDH.S347669>