

# DATASET ON YOUNG PEOPLE'S INTENTION TOWARDS COVID-19 BOOSTER VACCINES IN MALAYSIA

Ahmad Firdhaus Arham, Muhammad Adzran Che Mustapa, Wan Zulkifli Wan Hassan, Puteh Noraihan A. Rahman, Nasruddin Yunos, Nazri Muslim, Lim Kar Keng, Jamsari Alias, Aminudin Basir @ Ahmad and Zulkifli Mohamad  
 Pusat Pengajian Citra Universiti, Universiti Kebangsaan Malaysia  
<sup>1</sup>Ahmad Firdhaus Arham (benferdao@ukm.edu.my)

DOI: 10.47750/pnr.2022.13.508.109

## Abstract

This study assessed the level of acceptance and predictor factors influencing the intention of Malaysian youths towards three COVID-19 vaccines: the Sinovac inactivated virus vaccine, the AstraZeneca viral vector vaccine and the Pfizer mRNA vaccine. The study data are related to the intention of young Malaysians towards booster vaccines for controlling coronavirus disease 2019 (COVID-19) virus transmission. This study was conducted through an online survey from 1 January 2022 to 31 January 2022 involving semester 1 (2021/2022) students pursuing Philosophy and Current Issues course in the National University of Malaysia. Overall, the respondents demonstrated positive intentions towards the booster vaccines as they considered them beneficial and religiously acceptable but also acknowledged that the booster vaccines presented moderate risks. The detailed findings provide insights into the acceptance of young people towards booster vaccines. Accordingly, the development of policies and action plans by the Malaysian government and further studies by other researchers interested in the data are highly recommended.

Keywords: Intention, Predictor Factors, Young People, Booster Vaccines, COVID-19, Malaysia

## INTRODUCTION

Epidemiology history repeats as new bacterium and viruses evolved rapidly. The evolution of personal protective equipment, medical protection, medicines as well as vaccinations come with the intention to help the public to dealing with cataclysmic epidemics in the past [1]. The World Health Organisation (WHO) recommends an COVID-19 booster vaccine for vulnerable people to protect them from the variants [2]. Malaysia granted conditional approval for the COVID-19 vaccines by Pfizer, AstraZeneca, and Sinovac to be used as booster vaccines after the national vaccination rate exceeded 80% of the adult population [3]. Several studies have investigated the acceptance of COVID-19 vaccination with results varying across the country and world [4-7]. Although some booster acceptance studies have been published [8-14], there is limited knowledge on booster acceptance in Malaysia. Therefore, this study assessed the intentions towards the booster vaccines and the predictors among Malaysian youth. Refer to table 1 which displays the specifications data relevant to this study.

**Table 1:** Specifications of the Data

Subject	Vaccines, Infectious Diseases; Environmental Health
Specific subject area	Booster Vaccines; Coronavirus, COVID-19, Intentional Behaviour; Perceived Benefit; Perceived Risk; Knowledge; Trust in Key Players; Information Behaviour Seeking; Religiosity, Religion and Custom Acceptance
Type of data	Table, figure
How data were acquired	Survey through a structured questionnaire.
Data format	The data are in raw format and were analysed with descriptive and statistical details. The data file has been clean-uploaded.
Parameters for data	A structured survey using Google Forms where respondents answered a questionnaire

<b>collection</b>	presented in the Malay language. Random sampling was conducted by distributing the questionnaire through the National University of Malaysia (UKM) Folio, which is a website that connects students and lecturers. For this research, UKM students pursuing the Philosophy and Current Issues course in semester 1 (2021/2022) were selected to participate voluntarily from 1 January 2022 to 31 January 2022.
<b>Description of data collection</b>	The respondents were from various faculties and pursuing the Philosophy and Current Issues course, which is compulsory for all UKM students. There were 187 male and 440 female students. A total of 462 respondents had never been infected with the COVID-19 virus and 197 were from rural areas. Of the respondents, 489 were Malay, presenting the impression that most UKM students are Malay.
<b>Data source location</b>	Malaysia
<b>Data accessibility</b>	<a href="https://data.mendeley.com/datasets/7g5dkwz9ys/1">https://data.mendeley.com/datasets/7g5dkwz9ys/1</a>

## METHODOLOGY

This study distributed a self-administered questionnaire that was based on a validated study by Arham et al., who studied attitudes towards Wolbachia-infected *Aedes* mosquitoes [15]. The questionnaire was also based on the study by Hanif Sri, who examined the factors influencing intentions towards COVID-19 booster vaccines in Malaysia [16]. The questionnaire involved seven independent variables (perceived benefits, perceived risks, trust in key players, knowledge, information-seeking behaviour, religiosity and religious acceptance) to determine the respondents' intentions towards COVID-19 booster vaccines. The questionnaire was prepared in the Malay language. The questionnaire was divided into two sections: section A, which contained demographic questions, and section B, which contained questions regarding predictor factors that influenced intention towards the COVID-19 booster vaccine. All items were scored on a seven-point Likert scale that ranged from one (strongly disagree) to seven (strongly agree).

The study was conducted online from 1 January 2022 to 31 January 2022 involving National University of Malaysia (UKM) students pursuing the Philosophy and Current Issues course in semester 1 (2021/2022). The survey involved 627 respondents out of a total of 2408 targeted respondents. The respondents were chosen randomly using a questionnaire distributed through the UKM-Folio application, which enables lecturers to connect with students online. Based on the Guidelines for Ethical Review of Clinical Research or Research involving human subjects [17], ethical approval was not required for this study. The respondents' participation was entirely voluntary and non-participation was an option. The privacy of the respondents' personal information was maintained. Descriptive and inferential statistics were assessed with Statistical Package for Social Sciences (SPSS®) software using Pearson correlation and multiple regression analysis.

## FINDINGS AND DISCUSSIONS

### Demographic Analysis

The respondents comprised 440 women and 187 men and were aged 25 years and below. Most respondents were ethnic Malay (78.0%), followed by ethnic Chinese (11.6%), Indian (6.2%) and other (4.1%). Approximately 80.7% of the respondents were Muslim and 30.8% were from Selangor. Among the respondents, 68.4% stayed in the city, 26.2% had been infected with COVID-19, 81.2% had received two COVID-19 vaccine doses, while only 108 respondents had completed their COVID-19 booster vaccines. Most respondents were aware that mRNA vaccines such as that from Pfizer are booster vaccines (61.4%) for completing the vaccination cycle in Malaysia, followed by awareness of the AstraZeneca (53.7%) and Sinovac (47.0%) vaccines. Most respondents did not know or were unsure that Sinovac was a booster vaccine (53.0%). Table 2 depicts the respondents' demographic profiles.

**Table 1: Demographic Profiles of the Respondents (n = 627)**

Item		Frequency	Percentage (%)
<b>Gender</b>	Male	187	29.8
	Female	440	70.2
<b>Race</b>	Malay	489	78.0
	Chinese	73	11.6
	Indian	39	6.2
	Other	26	4.1
<b>Religion</b>	Muslim	506	80.7
	Non-Muslim	212	19.3
<b>State</b>	Johor	69	11.0
	Kedah	28	4.5
	Kelantan	48	7.7
	Melaka	27	4.3
	Negeri Sembilan	40	6.4
	Pahang	29	4.6
	Perak	64	10.2
	Perlis	4	0.6
	Pulau Pinang	31	4.9
	Sabah	8	1.3
	Sarawak	15	2.4
	Selangor	193	30.8
	Terengganu	42	6.7
	Federal Territories	29	4.7
<b>Location</b>	Rural	197	31.4
	City	429	68.4
<b>Previous COVID-19 infection?</b>	Yes	164	26.2
	No	462	73.7
<b>Received the complete COVID-19 vaccine?</b>	Received two doses of the COVID-19 vaccine	509	81.2
	Received the COVID-19 booster vaccine	108	17.2
	Waiting for the COVID-19 vaccine	7	1.1
	Did not register for the COVID-19 vaccine	3	0.5
<b>Awareness</b> <b>Do you know about inactivated virus booster vaccines, such as that from Sinovac?</b>	Yes	295	47.0
	No	102	16.3
	Not sure	230	36.7
<b>Do you know about viral vector booster vaccines, such as that from AstraZeneca?</b>	Yes	337	53.7
	No	85	13.6
	Not sure	205	32.7
<b>Did you know about mRNA</b>			

booster vaccines, such as that from Pfizer?	Yes	385	61.4
	No	72	11.5
	Not sure	170	27.1

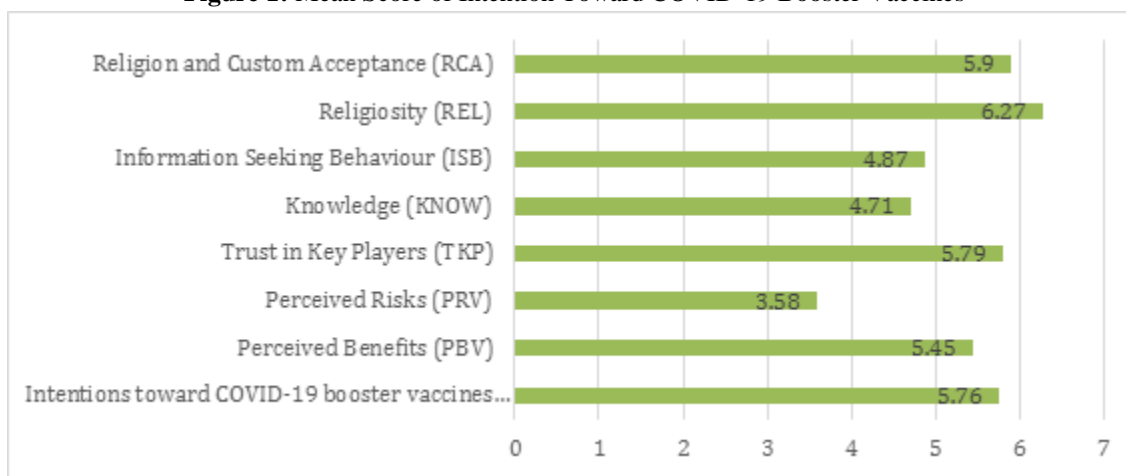
### Mean Score and Correlation Analysis

Figure 1 demonstrates that young Malaysians (mean [M] = 576) demonstrated a good perspective of the COVID-19 booster vaccination. The respondents acknowledged that the benefits of booster vaccination (M = 5.54) outweighed the risks (M = 3.58) and reported a high level of trust in key players (M = 5.79). The respondents also demonstrated substantial knowledge of the COVID-19 booster vaccine (M = 4.71) and good information seeking behaviour (M = 4.71). Therefore, Malaysian youths accepted the COVID-19 booster vaccine as they trusted the key stakeholders and were motivated to obtain information on the vaccines.

Interestingly, the respondents also reported a high level of religiosity (M = 6.27) and indicated that the COVID-19 booster vaccine was religiously acceptable (M = 5.90). Exhibiting strong religious beliefs, the respondents demonstrated good behavioural intention in this regard as religion requires adherents to care for their health. The respondents' sentiments were they could strongly support the COVID-19 booster vaccines if the vaccines did not violate religious practices or customs. Subsequently, a Pearson correlation analysis was used to develop hypotheses [18] for determining the relationship between the perceived benefits, perceived risks, trust in key players, knowledge, information-seeking behaviour, religiosity, religious acceptance and intention towards COVID-19 booster vaccines.

Table 3 demonstrates that there was a moderately positive correlation between perceived benefits ( $r = 0.764$ ,  $p = 0.000$ ), trust in key players ( $r = -0.640$ ,  $p = 0.000$ ) and religious acceptance ( $r = -0.586$ ,  $p = 0.000$ ) and intention to receive the COVID-19 booster vaccine. The perceived risks and intention to receive the COVID-19 booster vaccine were moderately negatively associated ( $r = -0.508$ ,  $p = 0.000$ ). There was a weak positive correlation between knowledge ( $r = 0.426$ ,  $p = 0.000$ ) and information-seeking behaviour ( $r = -0.330$ ,  $p = 0.000$ ) and intention to receive the COVID-19 booster vaccines. There was no significant association between religiosity and intention to receive the COVID-19 booster vaccines (correlation  $< 0.300$ ).

**Figure 1:** Mean Score of Intention Toward COVID-19 Booster Vaccines



**Note:** Low: 1–2.99; moderate: 3.00–5.00; high: 5.01–7.00

**Table 3:** Correlation Matrix of the Factors and Intention Towards COVID-19 Booster Vaccines

		INTV	PBV	PRV	TKP	KNOW	ISB	REL	RCA
ATWT	Pearson correlation	1	0.764**	-0.508**	0.640**	0.426**	0.330**	0.067*	0.586**
	significance		0.000	0.000	0.000	0.969	0.000	0.047	0.00

	(two-tailed)								
	N	627	627	627	627	627	627	627	627
	Strength of the relationship		Positive and moderate	Negative and moderate	Positive and moderate	Positive and weak	Positive and weak	Positive and no correlation	Positive and moderate

**Note:** \* $p < 0.05$ , \*\* $p < 0.01$  (two-tailed); strong: 1.00–0.80, -0.80 to -1.00; moderate: 0.80–0.50, -0.50 to -0.80; weak: 0.50–0.30, -0.30 to -0.50; no correlation: 0.30–0, 0 to -0.30.

### Multiple Regression Analysis

The factors that influenced COVID-19 booster vaccination intention were identified with stepwise multiple regression analysis (see Table 4). Perceived benefits, trust in key players, perceived risks, knowledge and religious acceptance all played a role in COVID-19 booster vaccine intention and the analysis result was  $F(1,621) = 10.727$  and  $p = 0.000$  ( $p < 0.05$ ). A  $p$ -value of  $> 0.05$  indicates that the group of independent factors is not statistically significantly correlated with the dependent variable [19]. Perceived benefits ( $\beta = 0.400$ ,  $t = 10.466$ ,  $p = 0.000$ ) were the strongest predictor of intention towards COVID-19 booster vaccination, accounting for 58.3% of intentions. This finding indicated that perceiving more benefits from the COVID-19 booster vaccine led to more positive intentions. A person who perceives benefits from their choices will support such choices [20, 21].

The second predictor of intention towards COVID-19 booster vaccine was trust in key players ( $\beta = 0.176$ ,  $t = 4.644$ ,  $p = 0.000$ ), followed by perceived risks ( $\beta = -0.118$ ,  $t = -5.603$ ,  $p = 0.000$ ), knowledge ( $\beta = -0.133$ ,  $t = -5.420$ ,  $p = 0.000$ ) and religious acceptance ( $\beta = -0.104$ ,  $t = 3.375$ ,  $p = 0.000$ ). Positive relationships with perceived benefits and trust in key players increased positive intention towards the COVID-19 booster vaccine. The findings were consistent with that of Arham (2020; 2021), who reported that perceived benefits and trust in key players were significantly related to attitude [15, 21]. As perceived risks were related negatively to intention, the findings were similar to the suggestion by Al Hakimi and Solvic that the benefits–risks relationship is inverse [22]. Briefly, greater benefits that outweigh the risks and higher trust in key players are related to more positive intention towards the COVID-19 booster vaccine.

The respondents intended to obtain knowledge ( $\beta = 0.133$ ,  $t = 5.420$ ,  $p = 0.000$ ) and reported that the booster vaccine implementation was religiously acceptable ( $\beta = 0.133$ ,  $t = 5.420$ ,  $p = 0.001$ ). Therefore, they supported receiving the COVID-19 booster vaccine. Information-seeking behaviour and religiosity did not contribute significantly to the change in attitude towards the booster vaccine.

**Table 4:** Multiple Regression Analysis

Model summary				
Model	R	R <sup>2</sup>	Adjusted R <sup>2</sup>	Standard error of the estimate
1: (Constant), perceived benefits	0.764	0.583	0.583	0.755
2: (Constant), perceived benefits, trust in key players	0.776	0.602	0.601	0.738
3: (Constant), perceived benefits, trust in key players, perceived risks	0.786	0.618	0.616	0.724
4: (Constant), perceived benefits, trust in key players, perceived risks, knowledge	0.797	0.636	0.633	0.708
4: (Constant), perceived benefits, trust in key players, perceived risks, knowledge, religious acceptance	0.801	0.642	0.639	0.702
Coefficients				
Factor	B	Beta ( $\beta$ )	t	Significance value
Intention towards COVID-19 booster vaccines (constant)	1.747		7.560	0.000

Perceived benefits	0.400	0.433	10.466	0.000
Trust in key players	0.176	0.164	4.644	0.000
Perceived risks	-0.118	-0.161	-5.603	0.000
Knowledge	0.133	0.146	5.420	0.000
Religious acceptance	0.104	0.106	3.375	0.001
F = 10.727, p = 0.000 (p < 0.05)				
*Predictors: (Constant), perceived benefits, trust in key players, perceived risks, knowledge, religious acceptance				

## CONCLUSION

In conclusion, this study assessed acceptance among young people and the predictor factors influencing intention toward the three COVID-19 booster vaccines from Sinovac, AstraZeneca, and Pfizer. The data are essential as this is the first survey to involve the intention of young people toward coronavirus disease 2019 (COVID-19) booster vaccines in Malaysia. The data also shed light on the important relationship between perceived benefits and risks and the intention toward COVID-19 booster vaccines, the importance of understanding the respondents' trust in key players, information-seeking behaviour, knowledge level, religiosity, and religious and custom acceptance. Most importantly, the data are beneficial for enhancing government leaders' and policymakers' awareness of the acceptance of COVID-19 booster vaccines. Therefore, a good policy on the COVID-19 booster vaccine can be implemented. For future research, the data will be valuable to researchers who intend to compare similar COVID-19 studies related to acceptance among young people and the predictor factors influencing intention towards COVID-19 booster vaccines. The data also can be used for variance and factor analyses, statistical analysis using analysis of variance (ANOVA), or multivariate ANOVA (MANOVA) to compare demographic details. Also, the structural equation modeling using SMART PLS or AMOS software can be done by analysing cross-country findings or as a benchmark of studies examining the same or other subjects.

## ACKNOWLEDGEMENTS

The researchers would like to acknowledge Pusat Pengajian Citra Universiti, Universiti Kebangsaan Malaysia for supporting this research.

## Authors' Contributions

AFA & MACM: Conceptualization, Methodology, Validation, Investigation, Data Curation, Writing-Original Draft Preparation. PNAR & LKK: Writing-Reviewing and Editing. ARS, ASY, AB, JA, ZM & SNAB: Visualization & Investigation. WZWH, HHS, NY, NM & HK: Supervision.

## REFERENCES

- [1] A Rahman, P.N., Kam, A.; Azmi, A.; Zasra, R. History of PPE: Special Reference to Beaked Masks During the Black Death and Its Aftermath. *Akademika* 2022, 92(1), 137-150, <https://doi.org/10.17576/akad-2022-9201-11>
- [2] Lazarus, J. v; Ratzan, S.C.; Palayew, A.; Gostin, L.O.; Larson, H.J.; Rabin, K.; Kimball, S.; El-Mohandes, A. A Global Survey of Potential Acceptance of a COVID-19 Vaccine. *Nature Medicine* 2021, 27, 225–228, <https://doi:10.1038/s41591-020-1124-9>
- [3] Guarascio, F. EXCLUSIVE WHO Estimates COVID-19 Boosters Needed Yearly for Most Vulnerable | Reuters Available online: <https://www.reuters.com/business/healthcare-pharmaceuticals/exclusive-who-estimates-covid-19-boosters-needed-yearly-most-vulnerable-2021-06-24/> (accessed on 27 March 2022).
- [4] Latiff, R. Malaysia Approves Pfizer-BioNTech Vaccine for Booster Dose | Reuters Available online: <https://www.reuters.com/world/asia-pacific/malaysia-approves-use-pfizer-biontech-vaccine-booster-shot-2021-10-08/> (accessed on 27 March 2022).
- [5] Lazarus, J. v; Ratzan, S.C.; Palayew, A.; Gostin, L.O.; Larson, H.J.; Rabin, K.; Kimball, S.; El-Mohandes, A. A Global Survey of Potential Acceptance of a COVID-19 Vaccine. *Nature Medicine* 2021, 27, 225–228, <https://doi:10.1038/s41591-020-1124-9>
- [6] Sallam, M. COVID-19 Vaccine Hesitancy Worldwide: A Concise Systematic Review of Vaccine Acceptance Rates. *Vaccines* 2021, 9.
- [7] Lin, C.; Tu, P.; Beitsch, L.M. Confidence and Receptivity for COVID-19 Vaccines: A Rapid Systematic Review. *Vaccines* 2021, 9.

- [8] Pal, S.; Shekhar, R.; Kottewar, S.; Upadhyay, S.; Singh, M.; Pathak, D.; Kapuria, D.; Barrett, E.; Sheikh, A.B. COVID-19 Vaccine Hesitancy and Attitude toward Booster Doses among US Healthcare Workers. *Vaccines (Basel)* 2021, 9, 1–11, <https://doi:10.3390/vaccines9111358>
- [9] Klugar, M.; Riad, A.; Mohanan, L.; Pokorná, A.; Trombetta, C.M.; Montomoli, E.; Marchi, S. COVID-19 Vaccine Booster Hesitancy (VBH) of Healthcare Workers in Czechia: National Cross-Sectional Study. 2021, <https://doi:10.3390/vaccines9121437>.
- [10] Alhasan, K.; Aljamaan, F.; Temsah, M.-H.; Alshahrani, F.; Bassrawi, R.; Alhaboob, A.; Assiri, R.; Alenezi, S.; Alaraj, A.; Alhomoudi, R.I.; et al. COVID-19 Delta Variant: Perceptions, Worries, and Vaccine-Booster Acceptability among Healthcare Workers. *Healthcare* 2021, 9.
- [11] Rzymiski, P.; Poniedziałek, B.; Fal, A. Willingness to Receive the Booster Covid-19 Vaccine Dose in Poland. *Vaccines (Basel)* 2021, 9, 1–14, <https://doi:10.3390/vaccines9111286>
- [12] Sugawara, N.; Yasui-Furukori, N.; Fukushima, A.; Shimoda, K.; Diclemente, J. Attitudes of Medical Students toward COVID-19 Vaccination: Who Is Willing to Receive a Third Dose of the Vaccine? 2021, <https://doi:10.3390/vaccines>
- [13] Yadete, T.; Batra, K.; Netski, D.M.; Antonio, S.; Patros, M.J.; Bester, J.C. Assessing Acceptability of COVID-19 Vaccine Booster Dose among Adult Americans: A Cross-Sectional Study. 2021, <https://doi:10.3390/vaccines9121424>
- [14] Tung, T.-H.; Lin, X.-Q.; Chen, Y.; Zhang, M.-X.; Zhu, J.-S. Willingness to Receive a Booster Dose of Inactivated Coronavirus Disease 2019 Vaccine in Taizhou, China. *Expert Review of Vaccines* 2022, 21, 261–267, <https://doi:10.1080/14760584.2022.2016401>
- [15] Arham, A.F.; Amin, L.; Mustapa, M.A.; Mahadi, Z.; Arham, A.F.; Yaacob, M.; Ibrahim, M.; Norizan, N.S. Perceived benefits and risks: A survey data set towards Wolbachia-infected Aedes Mosquitoes in Klang Valley. *Data in Brief* 2020, 32, <https://doi.org/10.1016/j.dib.2020.106262>
- [16] Hanif Sri, A. Kesedaran, pengetahuan dan sikap masyarakat awam terhadap vaksin covid-19 konvensional dan berasaskan bioteknologi moden di Malaysia. *MALIM: Jurnal Pengajian Umum Asia Tenggara* 2021, 22, <https://ejournals.ukm.my/malim/issue/view/1438>
- [17] Guidelines for the Ethical Review of Clinical Research or Research involving human subjects [Internet] Putrajaya (MY). Ministry of Health Malaysia. (2006) Available from: <http://www.nccr.gov.my/index.cfm?menuid=26&parentid=17> (accessed on 2 October 2021). Cheung,
- [18] M.W.; Chan, W. Meta-analytic structural equation modelling: A two-stage approach, *Psychological Methods*, 2005, 10(1), 40-64.
- [19] Siegel, A.F. Chapter 12 - Multiple Regression: Predicting One Variable From Several Others, *Practical Business Statistics (Seventh Edition)*, Burlington, MA: Academic Press, 2012, pages 355-418, <https://doi.org/10.1016/B978-0-12-385208-3.00012-2>
- [20] Frewer, L.J. Consumer acceptance and rejection of emerging agrifood technologies and their applications, *European Review of Agricultural Economics* 2017, 44, 683-704.
- [21] Arham, A.F.; Amin, L.; Mustapa, M.A.C.; Mahadi, Z.; Yaacob, M.; Ibrahim, M. Determinants of stakeholders' attitudes and intentions toward supporting the use of Wolbachia-infected Aedes mosquitoes for dengue control. *BMC Public Health* 2021, 21, 2314. <https://doi.org/10.1186/s12889-021-12166-w>
- [22] Alhakami, A.S.; Slovic, P. A psychological study of the inverse relationship between perceived risk and perceived benefit. *Risk Analysis*, 1994, 14(6), 1085–96. <https://doi.org/10.1111/j.1539-6924.1994.tb00080.x>.