



The influence of world view of optimism, perception of new vaccines, and perception of threat on Covid-19 vaccination attitude and behavior

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ARTICLE INFO

Article history:

Received 19 March 2023
Accepted 15 June 2023
Published 24 June 2023

Keyword:

Beliefs in the World's Positivity
Orderliness
Perceived Vaccine Effectiveness
Perceived Vaccine Novelty
Perceived Susceptibility and Severity
Vaccination Related Behavior

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DOI: 10.30604/jika.v8i2.2090
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ABSTRACT

Perceived vaccine effectiveness is an important vaccination attitude in determining vaccination behavior (vaccination intent, vaccination advocacy, and willingness to pay for vaccination) in terms of vaccination promotion as an effort to prevent infectious diseases. This study aims to identify the influence of world optimism (belief in the world's positivity and orderliness), perceived vaccine novelty, and perceived threats (susceptibility and severity) on attitudes and behavior related to vaccination. This research was conducted by a purposive sampling method using an online questionnaire to 160 respondents. Data analysis using Structural Equation Model (SEM) with SmartPLS software. The results found in this study were that belief in the world's positivity and orderliness did not affect perceived vaccine effectiveness. Perceived vaccine effectiveness positively affects vaccination intent and willingness to pay for vaccination but has no effect on vaccination advocacy. Meanwhile, the negative moderating effect of the perceived vaccine novelty does not affect all vaccination behavior. Perceived susceptibility significantly affects vaccination intent and advocacy but does not affect willingness to pay for vaccination. Furthermore, the perceived severity does not significantly influence all vaccination-related behavior. The managerial implication of this research for vaccination marketers and policymakers is that paying attention to several factors, namely perceived vaccine effectiveness and perceived susceptibility, will encourage people to increase vaccination-related behavior.

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INTRODUCTION

Coronavirus disease 19 (COVID-19) is a disease caused by the highly contagious SARS-CoV-2 virus (Shereen et al., 2020). On March 11, 2020, the World Health Organization (WHO) declared the spread of COVID-19 a global pandemic (Cucinotta dan Vanelli, 2020). The pandemic has impacted the economy and social problems and has become a public health crisis worldwide (Turbat et al., 2022). According to Yang and Wang (2020), immediate action is needed to deal with the COVID-19 pandemic,

namely vaccination, which is an effective step in protecting the community. WHO (2021) states that vaccines are safe and effective and can prevent seriousness and death due to COVID-19.

Despite the important role of vaccination in overcoming the pandemic, vaccines are still considered controversial, including negative attitudes and doubts regarding vaccination's safety, importance and effectiveness (Betsch et al., 2018; Trzebiński et al., 2021). This is supported by the low acceptance rate of the COVID-19 vaccine in the Middle East, Russia, Africa and several European countries,

which could become a big problem in global efforts to control the COVID-19 pandemic (Sallam, 2021). So based on this, it is important to research attitudes and behavior related to vaccination. There are various attitudes and behaviors related to vaccination, namely: perceived vaccine effectiveness, vaccination intentions, willingness to pay for vaccinations, and vaccination advocacy (Abbas et al., 2018; Cerda dan García, 2021; Hopfer, 2012; Hwang, 2020; Lacey et al., 2015). The importance of vaccination advocacy through support and positive expressions about vaccine efficacy is an effort to build public confidence in vaccination. Information is also needed about the willingness to pay for vaccinations to evaluate the feasibility of implementing a vaccination program and to provide insight into future price considerations, forecast demand, and implementation of the national immunization program (Criss et al., 2021; Hu et al., 2020). Based on the opinion of Trzebiński and Trzebiński (2022) that vaccination attitudes and behavior can be a consideration for marketers and policymakers to promote vaccines.

Another component that can shape vaccination attitudes and behavior is optimism consisting of belief in world order and positivity (Trzebiński et al., 2020). The strength of these two beliefs can differ for each person (Trzebiński dan Zieba, 2013). The interaction of these two factors is associated with the perceived vaccine novelty which will affect the intention to vaccinate (Trzebiński et al., 2021). In addition, according to Liu et al. (2022), other factors influence vaccination intentions, namely perceived threat, which consists of perceived susceptibility and perceived severity. The perceived susceptibility pays attention to the individual's likelihood of experiencing the disease, while the perceived severity emphasizes the general consequences of the disease (Toukhy, 2015).

Research related to vaccination attitudes and behavior has been carried out before. Where attitudes and vaccination behavior can be formed from the views of the world community, there is a negative interaction between belief in world order and positivity towards vaccination attitudes, perceived vaccine novelty have a negative impact on vaccination attitudes and behavior, perceived susceptibility and perceived severity have a positive impact on vaccination intentions (Moghaddam et al., 2021; Trzebiński dan Trzebiński, 2022; Turbat et al., 2022; Baumgaertner et al., 2018; Luyten, Desmet, et al., 2013; Luyten, Dorgali, et al., 2013; Pennycook et al., 2021; Sylvester, 2021; Trzebiński et al., 2021; Boerner et al., 2013; Sherman et al., 2021; Ye et al., 2021; Trzebiński et al., 2020; Küçükali et al., 2022; Maciuszek et al., 2022; Trzebiński dan Zieba, 2013), however, research related to world optimism and perceived novelty of the COVID-19 vaccine is still rarely carried out, and the addition of perceived susceptibility and perceived severity variables that influence vaccination-related behavior (vaccination intention, willingness to pay for vaccinations, and vaccination advocacy) is a novelty. That differs from previous studies.

This research further explores the attitudes and behavior of vaccination, which can be influenced by various factors, namely beliefs in positivity and world order, perceived vaccine novelty, perceived susceptibility, and perceived severity. This study can contribute to marketing management science and be a positive consideration for policymakers and vaccination marketers in carrying out vaccination promotions and at least can eliminate some of the negative views of the vaccine.

LITERATURE REVIEW

Beliefs in the World's Positivity

Belief in the positivity of the world can be interpreted as a belief that is owned by a person and can be shaped by various factors, namely the extent to which people in the world are considered good, useful, and trustworthy, and can be influenced by early social experiences such as caring in starting relationships with other people old (Trzebińskiet al., 2020). Generally, the world is positive and predictable and can consider a solution to a problem and answer new challenges to something traumatic (Trzebiński & Finch, 2013).

Trzebinskiet al. (2022) stated that the strength of these beliefs can change due to exclusion or inclusion in groups, damage to old, intimate, and significant relationships, unstable social rules, high mortality, and poverty. The concept used for the variable belief in the positivity of the world is positive thinking about the goodness of the world and its people (Trzebińskiet al., 2020; Trzebinskiet al., 2022).

Beliefs in the World's Orderliness

According to Trzebiński Dancing (2013) believes world order can be defined as certain beliefs possessed by a person, including the extent to which the world works under orderly rules and the extent to which an event can be explained with a deeper meaning perspective. This belief will become active when the personal rules in an individual's life are broken or threatened and do not always mean that those expectations are fully expressed or analyzed, but also means that the individual becomes aware and has consideration when making decisions (Trzebiński and Finch, 2004).

According to the statement by Trzebińskiet al.(2020) that the existence of order in the home environment, the initial relationship with parents, as well as the parental care of children's needs, are important factors in the initial development of basic expectations, while order in the social world is more general and can be assumed as a social world order that can play an important role in influencing an attitude towards certain events. The dimension used for the variable belief in the world order is that everything in this world is orderly and there is always an explanation (Trzebińskiet al., 2020; Trzebinski et al., 2022).

Perceived New Vaccine

Rindova and Petkova (2007) state that a new product is one whose attributes can be changed based on technological modifications. According to Bhattaet al. (2018), all product categories can be related to novelty. In contrast, some consumers perceive vaccines as new and can be influenced by several factors such as health knowledge, orientation to tradition, science or education.

The perception of vaccine novelty refers to consumer perceptions regarding vaccines outside the world order so that there is a discrepancy between the product (vaccine) and the mental scheme of wider life, namely human health, medicine and disease. New products to stimulate increasing the positive effect on attitudes on advertising and brand. However, the perception of product novelty can also cause negative responses, such as disorientation and disagreement, as well as the perception that the product is less useful (Mugge & Schoormans, 2012; Trzebiński & Trzebiński, 2022). The concept of the novelty perception variable is about the

impression that vaccination has long been known by the public (O'Quin & Besemer, 2015).

Perceived Vaccine Effectiveness

The perceived effectiveness of a vaccine relates to the degree of perceived efficacy of a vaccine in protecting people from disease. In related matters, the effectiveness of the COVID-19 vaccine revealed that confidence in the efficacy of the vaccine could significantly increase the chances of receiving the vaccine (Abbas et al., 2018). Perceived vaccine effectiveness is an attitude that can influence vaccination behavior and can be affected by schema discrepancies between vaccines and the world (Trzebiński & Trzebiński, 2022).

Based on the opinion of Moghaddam et al. (2021) that perceptions of vaccines in terms of effectiveness and self-efficacy will determine adherence to disease prevention measures. This is done through appropriate behavior, referring to feelings about control of the situation and the challenges experienced. According to Abbaset al. (2018) and Hwang (2020), the perception variable of vaccine effectiveness is related to the effectiveness of vaccines that can protect someone and control the pandemic from COVID-19.

Vaccination Related Behavior

Related behavior vaccination, according to Trzebiński and Trzebiński (2022), consists of the intention of vaccination, vaccination advocacy, and willingness to pay for vaccinations. Mattet al. (2022) states that intention is carried out consciously and influenced by subjective norms that will be able to determine a person's behavior or actions.

The intention to use a product is one of the most important factors that must be considered, according to Prasetya and Syah (2020). Attitudes and beliefs about behavior can determine this intention and have a big role in behavior that is not a habit or is rarely done, including vaccination. Intention to vaccinate against infectious diseases is recognized as a major problem that can affect the success of vaccination programs (Huet al., 2020). Attitudes and experiences regarding vaccination history, convenience, and perceived stigma strongly influence vaccination intentions (Baniket al., 2021). In his research, Wong et al. (2020) stated that other important factors also determine the intention to vaccinate, namely perceived benefits, perceived obstacles, and perceived disease susceptibility.

Criss et al. (2021) stated that advocacy could be interpreted as a repeated expression through words that call for behavior, in this case, vaccination advocacy, namely vaccination support through positive expressions about vaccine development and efficacy, and it has the potential to inspire vaccines. Presented by Shallalet al. (2021) that various health service providers must carry out campaigns related to vaccine advocacy and must be carefully crafted to overcome doubts about vaccination, and must be directed at vaccination education, especially for groups of people with low levels of education, and must be able to overcome negative emotions such as fear, anxiety, and disbelief. An important role is played by health workers, especially doctors, in terms of assisting vaccination advocacy to the general public because doctors have a high vaccination rate and low doubts about vaccination (Ulbricht Nova et al., 2021). The dimensions used in the vaccination advocacy variable are about support and positive expressions of the COVID-19 vaccination program (Lacey et al., 2015).

Willingness to pay is defined by Baniket al. (2021) as the maximum amount to which someone will be willing to allocate their funds to benefit from a program. The nominal money issued and felt by a person becomes the basis for the price of a product and service (Shahet al., 2022). Meanwhile, a person's intention to buy a product can be influenced by the price of the product itself (Putri & Shah, 2021). The decision to vaccinate depends on an individual's willingness to pay to benefit from improved health (Catma & Varol, 2021). Willingness to pay for vaccinations can differ from individual to individual and is influenced by knowledge gained, public authority, and the existence of estimated effects. Knowledge of the differences above is needed to reach an agreement between individuals (Tsuetsuiet al., 2021).

A study by Arshad et al. (2021) stated that the willingness to pay for vaccinations is related to vaccine acceptance and references to the general public regarding vaccinations that will assist health regulatory agencies in developing strategies to increase vaccine acceptance. The indicator used in the willingness to pay for vaccination is related to how much money is willing to be used for the COVID-19 vaccine (Cerda & García, 2021).

Perceived Threats

Liu et al. (2022) stated that perceived threats include 2 factors, namely perceived susceptibility and perceived severity. Perceived vulnerability refers to beliefs about the likelihood of contracting a disease. In contrast, perceived severity, namely one's concern over the seriousness of a health problem and the associated clinical and social consequences, is an important factor in predicting health behavior (Which et al., 2022).

The difference between the two constructs related to the threat, namely perceived susceptibility and attention to the possibility of individuals experiencing the disease. Meanwhile, perceived severity emphasizes the general consequences of the disease (Toukhy, 2015). A study conducted by Liu et al. (2022) stated that these two constructs are important elements in the classic health belief model, which aims to understand individuals in preventive health actions. The concept used in the variable perception of vulnerability is related to the risk of transmission of COVID-19 (Yang, 2015). Meanwhile, the perceived severity variable uses the belief that there will be serious consequences caused by COVID-19 in terms of health, economy, and long-term consequences (Nan & Kim, 2014; Wong et al., 2021; Yang, 2015).

RELATIONSHIP BETWEEN VARIABLES

Relationship between Belief in World Positiveness, Perception of Vaccine Effectiveness, and Belief in World Order

Beliefs are important in various social and economic relations and involve uncertainty and dependency (Shahet al., 2021). Trzebiński and Trzebiński (2022) state that beliefs about world order and positivity are important types of optimism stemming from one's worldview. New life developments strengthen these beliefs, significant and persistent losses and trauma, or sudden new challenges (Trzebiński & Finch, 2013). In the case of a vaccine that is seen as something out of order, a positive outlook one can

believe in the effectiveness of vaccines can save people from epidemics (Trzebiński et al., 2021).

Trzebiński et al. (2021) found a relationship between perceptions of vaccine safety and general beliefs about order and positivity in the world and found a negative interaction effect between the two beliefs. Interpretation of the effect of negative interaction between order and positivity can make the perception of the world as something orderly and positive (Zalewska et al., 2018) and in line with the schema nonconformity framework (Boyd & Zawisza, 2017; Eklund & Helmeffalk, 2022; Yoon, 2013) which states that when a product (vaccine) is deemed not following the scheme (world order), consumers can form attitudes unfavorable to the product. The study of consumer behavior states that hopes and beliefs in a just world are constructions related to beliefs in world order and positivity (Hasan et al., 2019; Wilson & Darke, 2012). Therefore, the hypothesis is formulated as follows:

Hypothesis 1: Belief in World positivity has a positive effect on Perceived Vaccine Effectiveness.

Hypothesis 2: Belief in World positivity positively affected Perceived Vaccine Effectiveness, moderated by Declining Belief in World Order.

Relationship between Perceived Vaccine Effectiveness and Vaccination-related Behavior

Trzebiński et al. (2021) explained that perceptions of vaccine effectiveness are included in vaccine attitudes which may be directly affected by the schema mismatch between vaccines and the world. The effect of perceived vaccine effectiveness on vaccination intention is predicted to be positive because the stronger a person's perception of vaccine effectiveness, the higher the likelihood of vaccination behavior. This is supported by previous research (Abbaset et al., 2018; Betsch et al., 2018, 2020; Dorman et al., 2021), which shows that the perception of vaccine effectiveness is closely related to the level of confidence in vaccine efficacy and can encourage positive behavior related to vaccination. Attitudes and experiences regarding vaccination history, convenience, and perceived stigma strongly influence vaccination intentions (Baniket et al., 2021). The effect of perceived vaccine effectiveness on willingness to pay for vaccinations and vaccination advocacy is also predicted to be positive because the stronger a person's perception of vaccine effectiveness is, the higher the probability that they are willing to pay to be vaccinated and the higher the likelihood that they will promote or educate vaccination of others (Trzebiński & Trzebiński, 2022). The general idea supports this according to Lohmann and Albarracín (2018), which states that attitudes can influence behavior, and previous research by Abbaset et al. (2018) showed that increasing awareness of the safety, efficacy, and need for influenza vaccination can increase vaccination behavior among adults. Therefore, the following hypothesis is proposed:

H3a: Perceived vaccine effectiveness has a positive effect on Vaccination Intention.

H3b: Perceived vaccine effectiveness has a positive effect on Vaccination Advocacy.

H3c: Perceived vaccine effectiveness positively affects Willingness to Pay for Vaccinations.

Perceived Vaccine Novelty moderated the relationship between Perceived Vaccine Effectiveness and Vaccination-related Behavior.

Liu et al. (2020) stated that certain conditions, such as the focus on promotional regulations or hedonic product categories, will allow consumers to prefer products that are considered new. Studies show a positive influence of perceived familiarity on adoption intention for new products; for example, adding a familiar taste to a newly developed food can increase consumer evaluation (Hwang & Lin, 2010). This could be different regarding vaccines, where perceived novelty can result in dissonance compared to existing consumer cognitive schemas, leading to negative behavior (Rindova & Petkova, 2007).

According to Boerner et al. (2013), past vaccination positively affects vaccination intention. This idea is in line with the empirical results of the study by (Boerner et al., 2013; Sherman et al., 2021; Ye et al., 2021), which states that vaccine novelties may not be as attractive as other marketing product novelties, such as new car models or cosmetics, because vaccines can be perceived as highly disruptive to the human body and nature. According to Youssef et al. (2022), there are factors that interfere with the acceptance rate of the COVID-19 vaccine, namely concerns about the novelty of the vaccine. Thus, decreased perceptions of vaccine effectiveness due to perceived novelty can negatively impact vaccination-related behavioral outcomes, such as vaccination intention, willingness to pay for vaccination, and vaccination advocacy. Based on the above information and findings, the following hypothesis is formulated:

H4a: The effect of Perceived Vaccine Effectiveness on Vaccination Intentions will decrease if Perceived Vaccine Novelty moderates it.

H4b: The effect of Perceived Vaccine Effectiveness on Vaccination Advocacy will decrease if Perceptions of Vaccine Novelty moderate it.

H4c: The Effect of Perceived Vaccine Effectiveness on Willingness to Pay for Vaccinations will decrease if Perceived Vaccine Newness moderates it.

Relationship between Perceived Vulnerability and Perceived Severity of Vaccination-Related Behavior

Based on the statement from many experts that people with a higher perceived vulnerability will be more likely to engage in health behaviors in terms of reducing risk, compared to people with a lower perceived vulnerability, for example, that perceived vulnerability is a significant determinant of healthy eating behavior healthy (Orjet et al., 2012). This is in line with what was stated by Guidry et al. (2019) that there is a direct effect of perceived susceptibility on Zika vaccination intentions.

Whichet et al. (2022) stated that perceived severity is also important in predicting health behavior. In a study on avian influenza, it was stated that the degree of perceived severity significantly impacts preventive health-related actions and that perceived severity is important in promoting individual intentions to adhere to the recommended preventive measures (Liu et al., 2022).

According to Turbot et al. (2022), perceptions of vulnerability and perceived severity of COVID-19 affected the group to vaccinate against COVID-19, namely participants with low concern about perceived susceptibility and perceived severity of COVID-19 were significantly higher in the group with low intention to vaccinate against COVID-

19. Perceived susceptibility and perceived severity influence vaccination intentions and align with the general idea conveyed by Lohmann and Albarracín (2018) that attitude influences behavior. So it would be expected that there would be a positive interaction effect of perceived susceptibility and severity on other vaccination-related behaviors, namely the willingness to pay for vaccination and vaccination advocacy. Thus, the hypothesis is formulated as follows:

H5a: Perceived susceptibility has a positive effect on vaccination intentions.

H5b: Perceived vulnerability has a positive effect on Vaccination Advocacy.

H5c: Perceived vulnerability positively affects Willingness to Pay for Vaccinations.

H6a: Perceived severity has a positive effect on vaccination intentions.

H6b: Perceived severity has a positive effect on Vaccination Advocacy.

H6c: Perceived severity positively affects Willingness to Pay for Vaccinations.

Based on the hypothetical framework above, the research model can be described as follows:

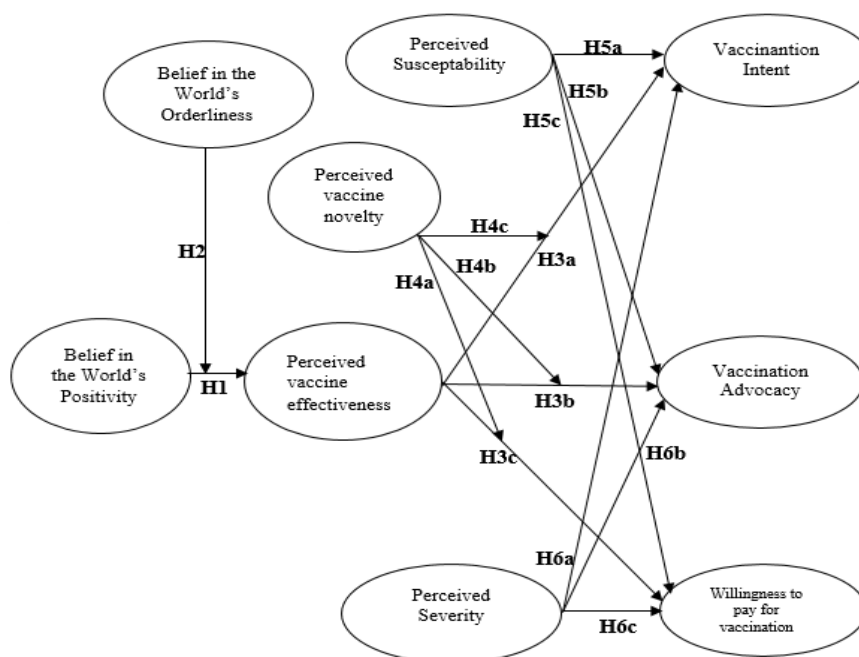


Figure 1. Research Model

RESEARCH METHODS

This study adopts previous research in terms of the variables studied. Namely, the Belief in World Positivity variable uses 4 questions, and the Belief in World Order variable uses 3 questions adopted from Trzebiński et al. (2022) dan Trzebinski et al. (2020). Vaccine Novelty Perceived Variables were measured using 3 questions adapted from Liu et al. (2020); O'Quin and Besemer (2015). Vaccine Effectiveness Perceived Variable adopted from Abbaset al. (2018) and Hwang (2020) with 3 questions. Perceived Vulnerability variable using 3 questions adapted from Yang (2015). The Perceived Variable of Severity is measured with 4 questions adopted from Nan and Kim (2014), Wong et al. (2021), and Yang (2015). Vaccination-related behavior consists of 3 variables, namely; Vaccination intention variable with 3 questions adapted from Hopfer (2012); Liuet al. (2022), Vaccination Advocacy variable using 3 questions adapted from Lacey et al. (2014), and Willingness to Pay for Vaccinations variable with 4 questions (Cerda & García, 2021). All items above were measured using a Likert scale with 5 scales ranging from 1 (strongly disagree) to 5 (strongly agree). The total measurement is 30 questions which can be seen in detail in Appendix 2 (operational variables) and Appendix 3 (questionnaire).

Data collection techniques using the survey method by distributing questionnaires online through the Google Forms application. Selection of research samples using the purposive sampling method all people over the DKI Jakarta Province. The criteria for respondents were people over 18 years of age who had received a COVID-19 vaccination, either the first, second or second dose of vaccination booster and those who have been exposed to COVID-19. Data was collected in October 2022. Samples were obtained from people in DKI Jakarta Province with characteristics socio-demographic in this study, including gender, age, occupation, education, and income in a month.

This study is a quantitative research using the method Structural Equation Model (SEM), with processing techniques and data analysis using SPSS software and Smart, please. Tests are carried out by factor analysis using SPSS in terms of validity and reliability. The validity test is done by looking at the Kaiser- Meyer-Olkin (KMO) measurement value and the Sampling Adequacy (MSA) measure. KMO and MSA values above 0.5 indicate that the factor analysis is appropriate. Reliability test with measurement method Cronbach Alpha. Mark Cronbach's Alpha which is close to 1, indicates that the reliability test is improving (Hair et al., 2014).

From the results of the analysis of the validity test, it was found that 30 questions on the questionnaire were declared

valid. Thus all variables are declared valid. The total respondents in this study were as many as 160 people.

RESULTS

The research respondents were residents of DKI Jakarta Province over 18 who had been vaccinated and exposed to COVID-19. Of the 160 respondents, 68.1% were women, and 31.9% were men. Most respondents are aged 25-40 years (63.75%). The majority education level is S1 (58.1%). While the majority of respondents' jobs are private employees (36.25%), with the majority of the income level of IDR 5,000,000 – 10,000,000 (33.75%). Profiles of research respondents can be seen in Appendix 5.

Construct Validity and Reliability tests were carried out based on recommendations from Cheah et al. (2018) and Hair et al. (2019) by testing Confirmatory Factor Analysis using a validity check (validity) with a limit value of the AVE number (Average Variance Extracted) of ≥ 0.5 . As for the determination of reliability (reliability) using Composite Reliability (CR) with a reliability score of ≥ 0.70 . From the data processing results of 160 respondents, it was obtained that all variables calculated by CR were above 0.70 and AVE above 0.50. Calculation results for AVE and CR from the variables Belief in World Positivity (AVE=0.581; CR=0.847), Belief in World Order (AVE=0.768; CR=0.908), Perceived Vaccine Effectiveness (AVE=0.758; CR=0.903), Perception Vaccine Novelty (AVE=0.706; CR=0.878), Perceived Vulnerability (AVE=0.740; CR=0.894), Perceived Severity (AVE=0.719; CR=0.910), Intention to Vaccination (AVE=0.837; CR=0.939), Willingness to Pay Vaccination (AVE=0.776; CR=0.933), Vaccination Advocacy (AVE=0.732; CR=0.891). More about construct validity and reliability tests can be seen in Appendix 5.

Structural test analysis was carried out to determine the value of R^2 in each equation. The R^2 value indicates how far the independent variable can explain the dependent variable. Based on the results of the SEM analysis, the results of the analysis are that Vaccination Intention (VI) variable is jointly influenced by the variables Perceived Vulnerability (PSC), Perceived Severity (PSV), Perceived Vaccine Effectiveness (PVE), and the moderating role of the Perceived Novelty of the Vaccine variable (PVN) with an R value² of

0.328. This shows that 32.8% of the Vaccination Intention variable (VI) can be explained by the variables Perceived Susceptibility (PSC), Perceived Severity (PSV), Perceived Vaccine Effectiveness (PVE), and the moderating role of the Perceived Novelty of Vaccines (PVN) variables. The remaining 67.2% can be explained by other variables not included in this study.

The second analysis, namely the Vaccination Advocacy (VA) variable, can be explained by the variables Perceived Vulnerability (PSC), Perceived Severity (PSV), Perceived Vaccine Effectiveness (PVE), and the moderating role of the Perceived Novelty of Vaccines (PVN) variable with an R value² of 0.256. Thus it can be interpreted that 25.6% of the Vaccination Advocacy (VA) variable can be explained by the variables Perceived Vulnerability (PSC), Perceived Severity (PSV), Perceived Vaccine Effectiveness (PVE), and the moderating role of the Perceived Novelty of Vaccines (PVN) variables. At the same time, the remaining 74.4% can be explained by other variables not included in this study.

The third analysis, namely the variable Willingness to Pay for Vaccination (WTP), can be explained by the variables Perceived Vulnerability (PSC), Perceived Severity (PSV), Perceived Vaccine Effectiveness (PVE), and the moderating role of the variable Perceived Novelty of Vaccines (PVN) with an R value² of 0.312. This shows that 31.2% of the Vaccination Advocacy (VA) variant can be explained by the variables Perceived Vulnerability (PSC), Perceived Severity (PSV), Perceived Vaccine Effectiveness (PVE), and the moderating role of the Perceived Novelty of Vaccines (PVN) variables. In comparison, the remaining 68.8% can be explained by other variables not included in this study.

The last analysis is the variable Perceived Vaccine Effectiveness (PVE) can be explained by the variable Belief in World Positivity (BWP) and the moderating role of the Belief in World Order (BWO) variable with an R -value of 0.024. This shows that 2.4% of the Perceived Vaccine Effectiveness (PVE) variant can be explained by the Belief in World Positivity (BWP) variable and the moderating role of the Belief in World Order (BWO) variable. In comparison, the remaining 97.6% can be explained by other variables which is not in this study.

The research results are as described in the diagram T-Value following:

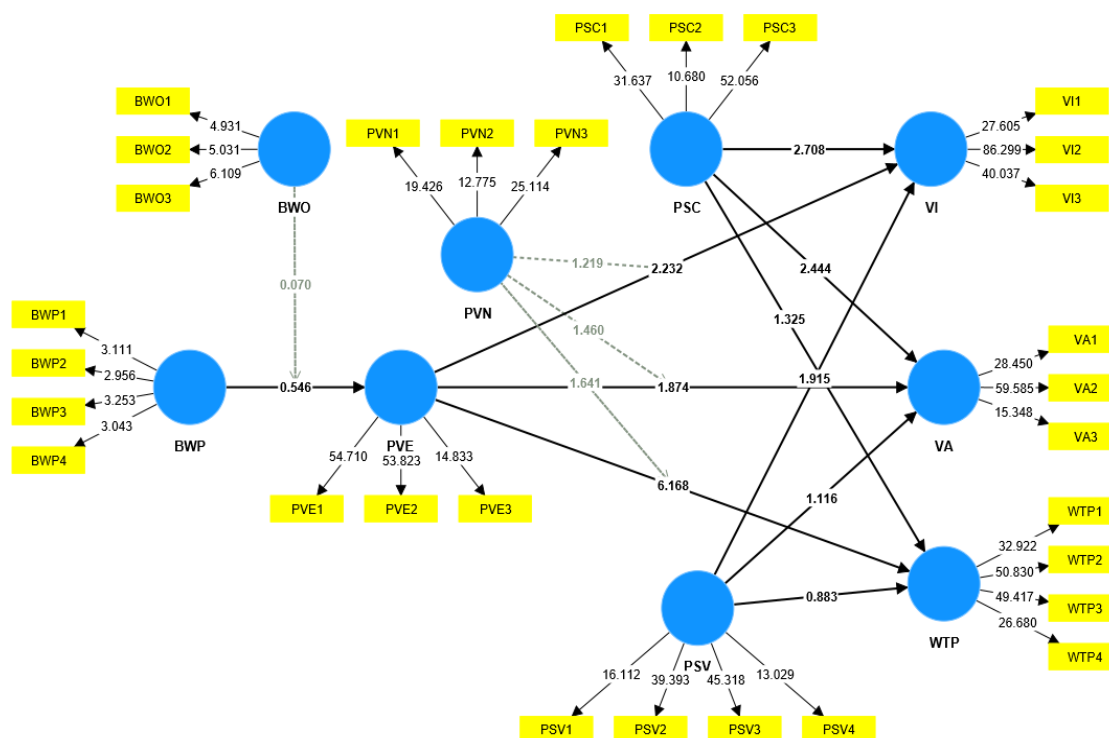


Figure 2.Path Diagram T- Value

Based on Path Diagrams T-Value as picture 2 above, it can be presented testing the research model hypothesis as follows:

0	Hypothesis Statement	T-Value	Information
H1	Belief in World positivity has a positive effect on Perceived Vaccine Effectiveness.	0,546	hypothesis rejected
H2	Belief in World positivity had a positive effect on Perceived Vaccine Effectiveness, moderated by Declining Belief in World Order.	0,070	hypothesis rejected
H3a	Perceived Vaccine Effectiveness has a positive effect on Vaccination Intentions.	2,232	Hypothesis accepted
H3b	Perceived Vaccine Effectiveness has a positive effect on Vaccination Advocacy.	1,874	hypothesis rejected
H3c	Perceived Vaccine Effectiveness has a positive effect on Willingness to Pay for Vaccinations.	6,168	Hypothesis accepted
H4a	The effect of Perceived Vaccine Effectiveness on Vaccination Intentions will decrease if it is moderated by Perceived Vaccine Novelty.	1,219	hypothesis rejected
H4b	The effect of Perceived Vaccine Effectiveness on Vaccination Advocacy will decrease if it is moderated by Perceptions of Vaccine Novelty.	1,460	hypothesis rejected
H4c	The Effect of Perceived Vaccine Effectiveness on Willingness to Pay for Vaccinations will decrease if it is moderated by Perceived Vaccine Newness.	1,641	hypothesis rejected
H5a	Perceived Susceptibility has a positive effect on Vaccination Intentions.	2,708	Hypothesis accepted
H5b	Perceived Vulnerability has a positive effect on Vaccination Advocacy.	2,444	Hypothesis accepted
H5c	Perceived Vulnerability has a positive effect on the Willingness to Pay for Vaccination.	1,325	hypothesis rejected

H6a	Perceived Severity has a positive effect on Vaccination Intention.	1,915	hypothesis rejected
H6b	Perception of Severity has a positive effect on Vaccination Advocacy.	1,116	hypothesis rejected
H6c	Perception of Severity has a positive effect on Willingness to Pay for vaccination.	0,883	hypothesis rejected

Based on the output results in Table 1, the results of testing hypothesis 1 show that the belief in world positivity has no significant effect on the perception of vaccine effectiveness. Accordingly, the results of the second hypothesis also have no significant effect; namely, the negative moderating role of belief in world order does not affect the relationship between belief in world positivity and perceptions of vaccine effectiveness.

The results of testing hypothesis 3 show a positive influence on the perception of vaccine effectiveness on vaccination intention and willingness to pay for vaccination (H3a, H3c) but have no significant effect on vaccination advocacy (H3b). Hypothesis 4 shows that the negative moderating role of perceived vaccine novelty has no significant effect on the path of perceived vaccine effectiveness on vaccination intentions, vaccination advocacy, and willingness to pay for vaccinations (H4a, H4b, H4c).

The results of hypothesis 5 testing indicate a significant effect of perceived vulnerability on vaccination intentions and vaccination advocacy (H5a, H5b) but no significant effect on willingness to pay for vaccination (H5c). Significant effect (H5a). While the results of testing hypothesis 6 did not find a significant effect between perceptions of severity on vaccination intentions, vaccination advocacy, and willingness to pay for vaccinations (H6a, H6b, H6c). Complete information about the results of the SEM analysis of this study can be seen in Appendix 5.

DISCUSSION

This research further explores the attitudes and behavior of vaccination, which can be influenced by various factors, namely beliefs in positivity and world order, perceptions of vaccine novelty, perceptions of vulnerability, and perceptions of severity. In the first hypothesis test, it was found that belief in the positivity of the world did not have a significant effect on the perception of vaccine effectiveness. This could be due to people's doubts regarding the belief that everything in this world can be seen as something positive and good so that people will be more aware of things that are out of order, in this case, vaccines. So that it can affect their perception of vaccine safety. It is also important to note that this study only looked at the relationship between these variables and cannot conclude a definite cause-and-effect relationship. The results of this test are not in line with the research by Trzebiński and Trzebiński (2022), which states that an optimistic worldview in the form of a strong belief in world positivity leads consumers to receive vaccinations. However, in line with previous research conducted by Trzebiński et al. (2021), basic assumptions about the world have little or little impact on attitudes towards COVID-19 vaccination.

In line with the results of testing the first hypothesis, the second hypothesis testing, which suggests that belief in world positivity has a positive effect on perceptions of vaccine effectiveness moderated by declining belief in the

world order, is also not proven empirically. This can be caused by many people who believe that this world is regulated by a general order, even though sometimes that order is difficult to understand. Therefore, an explanation for the interaction effect between the two beliefs is that belief in world order and positivity can lead to the belief that COVID-19 vaccination is unnecessary or unimportant due to the belief that the world is safe and orderly without vaccination. These results are inconsistent with the research of Trzebiński and Trzebiński (2022), which shows that belief in world order negatively moderates the positive relationship between belief in world positivity and willingness to vaccinate and perceptions of vaccine safety. Although this hypothesis is not proven, previous research indicates that the strength of the two beliefs is different and that they have an important role in various social and economic relations (Trzebiński & Finch, 2013). This has also been found previously based on the schema incompatibility theory; individuals with strong beliefs about a positive world order tend to refuse vaccinations because vaccinations are deemed not following their schemes (Trzebiński et al., 2021).

This study has proven a positive relationship between perceived vaccine effectiveness on vaccination intention and willingness to pay for vaccination (H3a, H3c). The stronger a person's perception of vaccine effectiveness, the more likely they will have better intentions to be vaccinated. Attitudes and experiences regarding vaccination history, convenience, and perceived stigma strongly influence vaccination intentions (Baniket et al., 2021). The results of this study refer to previous studies which show that the perception of vaccine effectiveness is closely related to the level of confidence in vaccine efficacy and can encourage positive behavior related to vaccination (Abbaset al., 2018; Betsch et al., 2018, 2020; Dorman et al., 2021). The effect of perceived vaccine effectiveness is also positive on willingness to pay for vaccinations in line with research by Trzebiński and Trzebiński (2022), which states that the stronger a person's perception of vaccine effectiveness is, the higher the likelihood they are willing to pay to be vaccinated.

Meanwhile, willingness to pay for vaccinations differs for each individual and can be influenced by various factors, namely knowledge acquired by public authority, and effect estimates. Knowledge of the differences above is needed to reach an agreement between individuals (Tsutsui et al., 2021). The effectiveness of the COVID-19 vaccine has been felt by the community as the COVID-19 cases have been sloping, increasing the tendency of the community to support the vaccination program and are willing to pay because it benefits in improving their health (Catma & Varol, 2021). Meanwhile, the effect of perceived vaccine effectiveness on vaccination advocacy was insignificant (H3b). It can be interpreted that even though the public feels the perceived effectiveness of the vaccine, it is not enough to influence someone's willingness to promote the vaccine. This could be because most respondents are private employees and spend more time working than on vaccination campaigns/advocacy. As well as, vaccination is a government program, so some people think the vaccination campaign is an obligation of the government. According to Ulbrichtova et

al. (2021), health workers, especially doctors, play a more important role in assisting vaccination advocacy to the general public because doctors have a high vaccination rate and low doubts about vaccination. Such vaccination advocacy should be carried out across a wide range of healthcare providers and crafted with care to overcome doubts about vaccination (Shallalet al., 2021).

The negative moderating effect of the perception of the vaccine's novelty does not weaken the relationship between the perception of vaccine effectiveness on all vaccination behaviors, namely, vaccination intention, vaccination advocacy, and willingness to pay for vaccination (H4a, H4b, H4c). This could be because the COVID-19 vaccination has been carried out in Indonesia for almost 2 years, so some people already think that the COVID-19 vaccination is nothing new and can be accepted as an action that can overcome the COVID-19 pandemic. So that it can encourage other people to vaccinate and are willing to pay for vaccinations because they have experienced the vaccine's effectiveness. The high vaccine acceptance rate in Indonesia is evidenced by 93.3% (Sallam, 2021). The results of this test are not in line with the research by Trzebiński and Trzebiński (2022), which states that perceptions of vaccine novelty can affect perceptions of vaccination effectiveness and negatively harm the results of vaccination behavior. Other studies also state that there are factors that interfere with the acceptance rate of the COVID-19 vaccine, namely concerns about the novelty of the vaccine and that there is a negative relationship between the side effects of COVID-19 vaccination and the intention to vaccinate (Sherman et al., 2021 by Youssefet al., 2022). Adverse effects are operationalized as negative consumer beliefs about vaccine safety and novelty, such as the COVID-19 vaccination. The novelty of the COVID-19 vaccine, particularly concerning the life-threatening pandemic, is a new, unexpected event. Thus, perceiving vaccines as new can make consumers more suspicious and less confident about the effectiveness of these vaccines. Nevertheless, on the other hand, according to Boerneret al. (2013) that past vaccination is positively related to vaccination intention. Yet al. (2021) also stated that people with higher vaccine familiarity would be more likely to be vaccinated against COVID-19.

Another hypothesis found in this study, namely, the perception of susceptibility positively affects vaccination intention and vaccination advocacy (H5a, H5b), proved to be significant. The community's belief that everyone can be at risk of being infected with COVID-19 will increase the tendency to vaccinate against COVID-19. As well as with the belief in the perceived efficacy of the vaccine can encourage the public to support the vaccination program through positive expressions (Crisset al., 2021). This hypothesis is based on the theory that people with a higher perception of vulnerability will be more likely to take preventive action and participate in health behaviors (Orjiet al., 2012) which in this case is the intention of vaccination and vaccination advocacy. This result is also in line with previous research, which showed that the higher the perception of susceptibility to COVID-19, the higher the intention to vaccinate against COVID-19 (Turbatet al., 2022), as well as a direct effect of perceived susceptibility on Zika vaccination intentions (Guidryet al., 2019).

This study showed different results on other vaccination behaviors, where it was found that perceived susceptibility did not have a significant effect on willingness to pay for vaccination (H5c). It can be interpreted that even though the community realizes that everyone is vulnerable to contracting COVID-19, it is not enough to influence

someone's willingness to be willing to pay for vaccinations. This could be due to other factors that may play a role in determining a person's willingness to pay for vaccinations, such as the economic and social conditions of most respondents with incomes ranging from IDR 5,000,000.00 to IDR 10,000,000.00. So that the willingness to pay for vaccinations is not a top priority for the community, and they prefer free vaccination programs organized by the government. The test results are also not in line with research by Orjiet al. (2012), who stated that perceived vulnerability is a significant determinant of health behavior. These results can provide important information for vaccination marketers to emphasize the importance of vaccination and determine the right target according to the socio-economic conditions of the community.

The results of testing the last hypothesis found no significant effect between perceived severity on vaccination intentions, vaccination advocacy, and willingness to pay for vaccinations (H6a, H6b, H6c). This could be caused by several factors, such as the low level of perceived severity in the study sample, lack of understanding about the benefits of vaccination, or other factors that influence vaccination behavior, such as trust in vaccines or sources of information about these vaccines. Most of the research sample is of productive age and tends to have better immune systems than the elderly, so they have a lower perception of severity and can ultimately be a determining factor in vaccination behavior. Previous research explained that perceived severity is an individual's subjective assessment of a disease or health condition's severity and potential adverse effects (Yang et al., 2022). Perception of severity can influence health behavior because individuals who perceive a health condition as serious are more likely to take the necessary preventive or treatment measures. Overall, the results of this study indicate that perceived severity is not always a determining factor in vaccination behavior. Therefore, efforts are needed to increase public understanding of the benefits of vaccination and provide accurate and reliable information about the COVID-19 vaccine and instill the concept of belief in the serious consequences caused by COVID-19 in terms of health, economy, and long-term consequences long (Nan and Kim, 2014; Wong et al., 2021; Yang, 2015).

CONCLUSION

In this study as a whole, the results showed that belief in world positivity did not have a significant effect on perceptions of vaccine effectiveness. However, it was moderated by belief in world order. Meanwhile, perceived vaccine effectiveness has a positive effect on vaccination intentions and willingness to pay for vaccinations but does not significantly affect vaccination advocacy. Furthermore, a negative moderating variable, namely the vaccine novelty, does not weaken the relationship between perceptions of vaccine effectiveness on all vaccination behaviors (vaccination intention, vaccination advocacy, and willingness to pay for vaccinations). Besides that, perceived vulnerability has a positive effect on vaccination intentions and advocacy but does not significantly affect willingness to pay for vaccination. Moreover, the perception of severity does not significantly affect all vaccination behavior. This study still has limitations in various aspects and must be corrected for further research. Namely, the respondents in this study were less heterogeneous in terms of sample size and demographic area, and this study could not explain other factors that are

important in influencing perceptions of vaccine effectiveness and vaccination behavior. Suggestions for further research, namely, it is necessary to increase the number of research samples and mention their respective demographic areas so that a more heterogeneous sample is obtained to generalize the research results and the need to carry out a deeper study regarding the factors that influence the perception of vaccine effectiveness so that the significance of the research results can be better. This research can provide several managerial implications in marketing management and be applied to policymakers and vaccination marketers. It is essential to pay attention to the effectiveness of vaccines in encouraging vaccination, both in terms of use, information dissemination, and payment. So that vaccination advertisements can emphasize the importance of providing complete information about the vaccines being offered, including the safety and effectiveness of these vaccines for consumers. This can help consumers understand the benefits of vaccines and make more informed decisions about their willingness to pay for vaccinations. If the vaccine offered is considered an effective solution to address a health problem, consumers tend to pay higher. Implications other managerial aspects, namely vaccination marketers, must also pay attention to the vulnerability factor as one of the consumer aspects that can be used to encourage the intention to use vaccines and spread positive information related to vaccination so that the vaccination campaign can emphasize that everyone can be infected with COVID-19 anytime and anywhere through positive expressions.

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