



RESEARCH ARTICLE

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Vaccine Literacy: A Concept Analysis

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ABSTRACT

The 2019 Coronavirus Disease (COVID-19) is dubbed as one of the deadliest and worst global pandemics. Many pandemic policies and programs were implemented in different countries across the globe, including creating vaccines that would enhance human immunity against the symptoms caused by the virus. Since then, debates on vaccines have emerged, citing vaccine hesitancy often associated with certain factors like socioeconomic status, beliefs, and vaccine awareness. This birthed an intensive call for vaccine literacy as an effective means of encouraging people to get vaccinated against viruses. This paper uses the Walker and Avant (2019) approach of concept analysis with the help of its eight systematic stages. Results showed that vaccine literacy was adopted after the concept of health literacy. It is defined as a process of providing vaccine information, building communication, and increasing people's engagement about vaccines. The identified defining attributes of vaccine literacy include "health literacy," "disease prevention," "education," and "immunization." Vaccine literacy is considered relevant in the nursing practice as knowledge of vaccine literacy quickly advances nurses' practice roles through vaccination education, creating developmental policies about vaccines, and prescribing immunization to patients.

Keywords: vaccine hesitancy; COVID-19; nursing; concept analysis

INTRODUCTION

Background

The COVID-19 pandemic caused significant loss of human life worldwide. According⁽¹⁾ the COVID-19 pandemic reached 4.5 million deaths. globally. In not more than two years of living with a pandemic, there were many solutions that both government agencies and private companies came up with. Indeed, these solutions should not just remain a fight of Science alone. Still, there is so much more about it⁽²⁾ until the world begins to understand that the best solution to curb the virus is to vaccinate all individuals against COVID-19. Due to the increase in fatalities, scientists have announced the potential vaccine against coronavirus⁽³⁾. Today's available vaccines include Pfizer-Biontech, Moderna, Johnson & Johnson's Janssen, AstraZeneca, and Sinovac⁽⁴⁾. On March 4, 2021, the Philippines was the first in Southeast Asia to receive vaccines from the COVAX facility with more than 480,000 doses of AstraZeneca vaccines⁽⁵⁾. The distribution of vaccines worldwide was affected by vaccine hesitancy caused by insufficient vaccine literacy. Vaccine literacy is an initiative to get more people to get vaccinated. Its goals include the possible decrease of certain disease cases.⁽⁶⁾

All authorized COVID-19 vaccines are highly effective in reducing infections, viral transmission, hospitalization, and death from COVID-19.⁽⁷⁾ However, despite the availability of the vaccine, a survey revealed that out of 7.6 billion people worldwide, more than 1 billion people decided not to get vaccinated. In some countries, citizens lack trust in their government which compromises unwillingness to be vaccinated.^(8,9) According to Pulse Asia Survey (2021), 6 out of 10 Filipino adults are not inoculated to be vaccinated. Some reported that the vaccine might not be effective and expensive, and they fear possible side effects because of the Dengvaxia controversy⁽¹⁰⁾. Mostly, senior citizens and people with comorbidities are hesitant to accept the COVID-19 vaccine due to the reports of the increased death toll after being vaccinated.^(11,12) These events added to the public's doubts and lack of trust regarding vaccines, making it more challenging to vaccinate every individual against COVID-19.

This concept analysis presents the definitions and uses of vaccine literacy. It aims to give the public a better understanding of the concepts and importance of vaccine literacy as part of health literacy. It involves different

scholarly articles, case studies, research studies, and other related case analyses to dig the meanings and concepts of vaccine literacy as used in science.

Definitions and Uses of Concepts

Vaccines manifest visible progress in the field of Medical Science. These were developed initially during the 18th Century to curb the smallpox disease. Edward Jenner was the first person who ever discovered the ability of vaccines to demonstrate immunity from specific infectious diseases.⁽¹³⁾ As mentioned, the first vaccine was made primarily for smallpox patients, as Jenner successfully developed the first vaccine for a 13-year old boy. After two centuries, the world has finally reached a collective immunization against the disease.⁽¹⁴⁾ Since then, vaccines have decreased the number of cases and death from other infectious viruses and infections. One of these is the 2019 Coronavirus Disease (COVID-19) pandemic.^(15,16)

Vaccine literacy is considered a considerable part of health literacy. A study from⁽¹⁷⁾ said that vaccine literacy (VL) is based on the overall idea of health literacy (HL). Health literacy is a process of relating abilities to meeting health demands. It contributes to disease prevention and promotion of health, as well as to making healthcare decisions. As described in the study regarding the validation of Italian tools in assessing vaccine literacy in vaccinating adults in this country, vaccine literacy is connected with the motivation, knowledge, and competence of people about vaccines if they are capable of understanding and using this information to get vaccinate children and adults⁽¹⁷⁾.

Vaccine literacy does not always come out of scholarly articles and publications in a similar study. However, the ideas of vaccine literacy can be traced back to its most relevant form, health literacy. The study used the survey that both discussed vaccine literacy and vaccine hesitancy highlighted that vaccine literacy must not be considered merely knowing vaccines. Instead, it is more about creating systems to increase people's engagement towards vaccines⁽¹⁸⁾. Of course, vaccine literacy is used to treat vaccine hesitancy. It is typically used to introduce vaccines to anti-vaccination groups by motivating them and increasing their confidence in these vaccines.

Vaccine literacy may be an existing concept even before the emergence of the global COVID-19 pandemic. Still, there is a lack of developed systems to improve people's literacy to increase disease prevention and health promotion. Vaccine literacy is considered a part of obtaining vaccine convenience and employing communication strategies where concepts of vaccine literacy are introduced to those who may have a low literacy level. This concept is not present in many research studies. This adds up to a lack of understanding of people on vaccines and disables people from accepting vaccines when they are most confident and motivated.⁽⁶⁾

A study in China assessing the effects of a major vaccine scandal in the mentioned country in 2016 on parents' trust in vaccines. It intended to connect and build an association between the outcomes of vaccination-related reports that mislead people about the scandal and their vaccine literacy. The study implied that health literacy is a general term for vaccine literacy. It described vaccine literacy as a tool that helps in reducing the adverse effects of having too many misleading reports about vaccination. It means that these reports are treated as a factor that decreases people's vaccine literacy and increases their vaccine hesitancy.⁽¹⁹⁾

The concept of vaccine literacy was founded by a much more significant idea, health literacy. The researchers believed that there is a low literacy associated with vaccine rejection. However, the researchers irradiated that there is no clear line that distributes differences between the literacy level of people on health and the decision they make in receiving vaccinations. In this matter, vaccine literacy serves as a solution to curb illiteracy about vaccines. The global COVID-19 pandemic is an excellent opportunity to develop a more robust system in introducing vaccines and increase understanding of the positive outcomes of being vaccinated.⁽²⁰⁾

The COVID-19 pandemic is a timely opportunity to link education and vaccines. For these researchers, this is the central concept of vaccine literacy. It can connect health and education to influence their take on vaccines positively. The concept is also described as applying health information to give proper judgments to induce better decisions related to the healthcare they want to receive, diseases they want to prevent, and the overall health promotion vaccinated.⁽²¹⁾

Vaccine literacy could be a shot to advance and promote health. It is defined as a degree wherein the public can understand the health information, including the services that will guide them through their health decisions.⁽²²⁾ The United Nations takes this concept as a relevant factor to ensure development regarding health literacy promotion. This was described after the Ministerial declaration of the United Nations in 2009.⁽²³⁾ For the researchers, it is essential to have the ability to obtain information about vaccines and process these for smoother decision-making on receiving vaccines.^(23,24)

The European Chamber of Commerce of the Philippines was allowed to describe the concepts of vaccine literacy during an online dialogue as their response to building public support for the vaccines available to curb the COVID-19 pandemic. The organization said that the roll-out of the vaccine had opened debates about vaccines, leaving unanswered questions to millions of Filipinos.⁽²⁴⁾ The session was entitled "COVID New Vaccine Information, Communication, and Engagement," implying that vaccine literacy is about providing vaccine information, building communication, and increasing people's engagement about vaccines.⁽²⁵⁾

METHODS

This concept analysis uses different methods to ensure that the concepts, definitions, and ideas of the topic being discussed are properly analyzed based on how they are used in other scholarly articles and research studies. It focuses on the steps of concept analysis as prescribed by the Avant & Walker method⁽²⁶⁾ that was introduced in 1994 with eight main steps.⁽²⁷⁾

A concept analysis is a particular exercise for students or researchers to become familiar with different concepts. In the case of this study, it analyzes the concepts of vaccine literacy, knowing that the term is very rampant today due to the emergence of the global COVID-19 pandemic, which to get immune out of its possible symptoms, a person is recommended to take a vaccine shot (usually two shots).

As mentioned, the primary method used in this concept analysis is the Avant & Walker method (2019) and is performed using eight main stages⁽²⁶⁾. These include the (1) Selection of concept, (2) Determining the aims or purpose of analysis, (3) Identifying the uses of the concept discovered, (4) Determining the defining attributes of the concept, (5) Identifying a model case, (7) Identifying the borderline, related, contrary, invented, and illegitimate cases connected in the concept, and (8) Identifying the antecedents and consequences as well as defining its empirical referents. These steps are employed in this concept analysis to analyze how vaccine literacy is used in the research field.⁽²⁶⁾

As seen⁽²⁶⁾, it does not present how a researcher must accomplish the project. Instead, it specifically mentions the data that must be analyzed to ensure that a researcher knows precisely where to extract its definitions, meanings, concepts, and uses—the data collected in this paper studies different scholarly articles and researches. For instance, the part of data collection was categorized based on the form of the document. The Avant & Walker Method (2019) suggests the researcher collect case studies, model cases, related cases, contrary cases, and borderline cases. It also includes the concept's antecedents, consequences, and empirical referents connected with the idea of vaccine literacy.⁽²⁶⁾

Data Collection

This concept analysis data collection that follows the Avant & Walker Model (2019) relies on the list of documents supporting the concept. Firstly, it presents its defining attributes that serve as the heart of the study, followed by related cases, case studies, a model case, contrary cases, and borderline cases. It also includes the concept's antecedents, consequences, and empirical referents.⁽²⁶⁾

Defining Attributes

The defining attributes serve as the heart of concept analysis. A concept requires another related concept to be formed.

Based on the related scholarly articles and studies cited in this study, the concept of vaccine literacy is directly related to the terms "health literacy," "disease prevention," "education," and "immunization." These are part of the critical attributes of the term "vaccine literacy."

Vaccine literacy is the ability to understand health information and services to develop an appropriate decision that concerns health. It was also noted that the concept of vaccine literacy was patterned after health literacy. It is concerned with the abilities and knowledge to fulfill health demands. Vaccine literacy is directly associated with health literacy, knowing that vaccines are used to stimulate a body's immunity as a response against a disease. This connects with another concept attribute, which is "disease." The condition is related to the prevention and health promotion of the public. The study irradiated that vaccine literacy keeps the public safe from health challenges such as diseases.⁽⁶⁾

Another attribute that would help define the concept is "education." According to⁽²⁸⁾, education serves as a good foundation for well-being and health. The organization believes that education contributes to having enough knowledge to avoid sickness or diseases. The Global Education Monitoring Report proves that parents' education influences their children's nutrition and vaccination rates. This has helped the public become safer from preventable diseases. A framework published in 2016 confirms that education gives a person the right attitude, skills, and values to make an informed decision about their health and adequately respond to the challenges that may or may not affect them.⁽²⁸⁾

The last defining attribute of vaccine literacy is "immunization." This attribute is, most of the time related to the terms "vaccination" and "inoculation." the Centers for Disease Control and Prevention defines "immunization" as a process where a person is being protected against a particular disease. The person receives a vaccination to increase his immunity. In a study by⁽⁶⁾, the term immunization is used to serve as a tool to assess vaccine literacy. This only proves how important this term is in this concept.

The non-critical defining attributes of the concept being discussed include "information," "knowledge," and "awareness." These terms are present in most of the related articles and studies cited in this paper but were not given emphasis. This only shows how relevant and connected these terms are in the concept, and though not required, it will provide a better understanding to readers. Vaccine literacy's critical and non-critical attributes

make the concept distinct from other concepts. For instance, the term may be directly related to health literacy, but vaccine literacy is unique as it caters to education regarding immunization from a challenging disease.

RESULTS

Case Studies on Vaccine Literacy

Different case studies published worldwide relate to vaccine literacy and its attributes. However, the concept of vaccine literacy remains new for some people, which also becomes why there is still an increasing case of vaccine hesitancy globally. This makes the concept of vaccine literacy more challenging to deal with even more complex to encourage people to get vaccinated while bearing the correct information and knowledge about vaccines. Some of the relevant studies about vaccine literacy can be found below:

Lots of infectious diseases in the history of humankind have taken millions of lives and jeopardized human health. (29) said that despite advanced methods in treating diseases and preventing them, history dictates the positive aspects of vaccination. Vaccinations received many controversies, and it will continue to happen to know that there is no vaccine present today that is 100% safe or effective. Getting vaccinations equates to having risks, so vaccines are growing controversies. This case study proved that vaccination has helped reduce the number of deaths of certain diseases. Looking at measles cases in the Czech Republic before vaccination, 50,000 cases, and 50 recorded deaths. Meanwhile, after vaccination, the cases of the disease as mentioned above were reduced to 10, and no deaths aside from the exceptional cases due to postponed immunization. (29)

Wiltshire is a city located in South West England and has a total area of 3,485 km2. This country's council consistently creates a series of case studies about vaccination, the COVID-19 pandemic, and vaccine literacy (30). This initiative reflects the city's belief in health literacy, saying that the local government must prioritize local health protection, social care systems, and planning. A case study published by the Local Government Association of Wiltshire (2021) tried to promote vaccination towards travelers and communities in the area. Currently, there are 20 vaccination centers in the country, catering to more than 500,000 people. Experts have seen how the rate of vaccination becomes lower among their residents. This was the sign for them to employ a vaccination literacy program. They used a TV star to promote vaccination and built pop-up vaccination clinics across the area. The case study concluded that the initiative must be implemented nationally as vaccine literacy makes other communities. (30)

A case study conducted in Japan involving older Japanese parents' family caregivers mentions that the Japanese government was already starting to vaccinate older people in June 2021. It focuses on the response of caregivers of the more aging population and how their presence in the care facility would impact the vaccination decisions of aging parents. (31) said that the study aims to look at vaccination literacy and health literacy based on how the participants assess their sources of information, mass media, social media, professions, colleagues, friends, and others. The study included 292 participants and looked at their ages, genders, and work hours. It was found that older caregivers have lower vaccine literacy levels. The study recommends the Japanese government use social media and other networks to tailor better health communication strategies that would increase the vaccine literacy of caregivers. (31)

(21) conducted a case study on vaccine literacy, highlighting an online survey as a tool to identify the knowledge and perceptions of participants about COVID-19 vaccinations. The participants of the study include the adult population of Italy. All data were collected by 'SurveyMonkey,' an online-based survey building survey. Using different statistical tools and methods, the researchers found out that respondents' mean vaccine literacy score was 2.92. The score was lower among female respondents compared to males. The respondents also did not favor vaccines because they think they are unsafe (83%) and have a natural immunity (84%). This shows how low vaccine literacy is in the most adult population (21).

The studies above dictate the current status of vaccine literacy in many countries. As seen in some of the cited case studies, some countries were doing their best to influence the literacy of their population, while some countries are still struggling to convince the government to create a program that will increase mass vaccine literacy. Overall, it was seen how low vaccine literacy was in most countries, and it only shows that the concept of vaccine literacy is more relevant than ever. These studies are all related to other cases presented in this paper that can be found under the model, borderline, related, and instances of contrast. This means that all of the case studies cited contributed to building up the concept of vaccine literacy in this paper.

Case Studies

Model Case

A model case is an example of the use of the concept that demonstrates all the defining attributes of the concept. (26)

In this concept analysis, it can be said that there are not enough resources about vaccine literacy. Its contrast case, on the other hand, called vaccine hesitancy, has many existing model cases and analyses. However, to fully understand the concept of vaccine literacy, below is an example of a model case consisting of all attributes of the concept such as "health literacy," "disease prevention," "education," and "immunization."

Patient Ali always reads news updates online. She found out that it was March 2020 when the World Health Organization announced the emergence of the 2019 Coronavirus Disease (COVID-19) pandemic. It was dubbed one of the deadliest and worst global pandemics and the smallpox disease, black death plague, and the third plague pandemic that killed millions of people throughout history. She also read that COVID-19 killed more than 4 million people and has recorded over 200 million cases worldwide. Since then, Patient Ali became more educated about how to improve her immune system and take care of her family's health during the pandemic. Then, due to the increase in fatalities, scientists have announced the potential vaccine against coronavirus that causes the COVID-19 pandemic last April 2, 2020. She always reads about different surveys about vaccines to help her decide whether she would also receive the vaccine or not. According to Pulse Asia Survey (2021), she found out that 6 out of 10 Filipino adults are not inoculated to be vaccinated. Some reported that the vaccine might not be practical, expensive, fear possible side effects, and might become the same as the Dengvaxia controversy. These added to her doubts and lack of trust regarding vaccines, making it more challenging to vaccinate every individual against COVID-19. When the government official asked the patient if she wanted to get vaccinated, she immediately looked for information about COVID-19 vaccines. She found that experts believe that this global pandemic is an excellent opportunity to educate people about vaccines as it helps immune people from the symptoms of COVID-19. In June 2021, Patient Ali successfully received her first COVID shot and expects to receive her second shot by July 2021. She now educates many people about the effectiveness of vaccines.

Analysis: This is a case model because it has every defining attribute of vaccine literacy. Patient Ali is being educated about the Covid-19 disease and the available vaccines by reading news updates and surveys to become more health literate. Through her reading, she found out the effect of vaccines their potential to prevent disease and further complications. Therefore, she was convinced and got vaccinated. As mentioned, the case of COVID-19 became an opportunity for experts to educate people about the effectiveness of vaccines. By learning the individual concepts of "health literacy," "disease prevention," "education," and "immunization," all in one model case, it only shows that the overall theme of the case is vaccine literacy.

Related Cases

Related cases are instances of concepts related to the concept being studied but do not contain all the defining attributes. They are similar to the concept of being learned; they are connected to the central concept ⁽²⁶⁾.

An increasing study states that vaccine literacy exists during the global COVID-19 pandemic. This only proves a need to further reevaluate governmental programs about vaccine literacy to pull more people who avoid jabs against the virus. There is a long history of vaccination, but problems are being encountered about people's awareness and knowledge about the safety and effectiveness of vaccines. Several related cases are present, but not all of these explain the defining attributes of the concept, as cited in this paper.

Mayor Arroyo knows how important it is for local government units to build programs to motivate people to get a COVID-19 jab. He established a series of case studies about vaccine literacy but does not contain all the concept's attributes since it relies more on follow-up and vaccine tracking. It is an initiative to increase the participant's engagement on vaccines, which the City has been doing since 2015. Throughout the run of the study, the vaccinators were able to get more than 1,000 people who came forward for COVID-19 vaccination after declining for a jab for the first time. This made the program track the vaccination status in the area and also serves as an outreach worker to follow up with the foreseen decline of the vaccine at the same time. The team plans to involve the city's mobile clinics to target more groups who are hesitant to get vaccinated.

Analysis: This is not mainly about vaccine literacy, as the case above does not explicitly state that the Mayor wants his people to be literate about vaccines. Instead, just be motivated to get the vaccines through a continuous follow-up and tracking their vaccination status.

Contrary Case

Avant & Walker ⁽²⁶⁾ said that contrary cases are clear examples of "not the concept."

There are not many resources about the concept discussed in this paper. There are much more resources about its contrary cases, such as vaccine hesitancy, health education, and health literacy. These terms are related to vaccine literacy and may be considered generalities of its attributes but are not the concepts. This means that instead, the studies have focused on vaccine literacy, as the concept discussed in this paper, the studies are more concerned and focused on other ideas. An example of a contrary case is below.

Patient Bernie is a 50-year older man with two sons and one daughter. He is already recovering from COVID-19 after staying at the hospital for a few weeks. All of his family members were already vaccinated after they received a good conversation with a Government Health Officer in their area about the effectiveness of COVID-19 vaccines. The problem is that the older man declined to get vaccinated even after his family encouraged him to get vaccinated as soon as his doctor allowed him to have it. He was too mad, saying that he could survive the virus only with the help of his natural immunity.

Analysis: This is a contrast case because it is not directly about vaccine literacy, but it contributes to people's overall perceptions of vaccines. It is about vaccine hesitancy. Vaccine hesitancy is defined as a delay or

refusal of receiving a vaccine despite its availability. The case presented shows how colossal vaccine hesitancy and low health literacy affect their engagement with vaccines. There are available vaccines for these preventable diseases, but it appears that despite their access, some people would not prefer to get vaccinated due to misinformation.

Borderline Case

Borderline cases are examples or instances that contain most of the defining attributes of the concept being examined but not all of them. They may contain most or even all of the defining characteristics but differ substantially in one of them, such as length of time or intensity of occurrence.⁽²⁶⁾

It was mentioned that there was a lack of scholarly articles regarding vaccine literacy. However, the 2019 Coronavirus Disease became an opportunity for health experts to advertise vaccines and introduce its positive effects and impacts during the existence of a deadly global pandemic. The concept of vaccine literacy may be new, as health experts usually use health literacy. Still, it did not become a hindrance for scholars to create studies that embody the defining attributes of vaccine literacy. Going back to the attributes cited above, vaccine literacy becomes a concept through its directly related terms, "health literacy," "disease prevention," "education," and "immunization."⁽²⁶⁾ irradiated that the borderline cases are examples of studies that consist of only a few of the defining attributes of the concept.

Patient Cathy lives in the Philippines. It is one of the countries in the world with the most significant number of COVID-19 cases. This pandemic has affected so much, including the economy, the education sector, and the health sector. As a way for the Philippine government to ensure that the Filipino people would go back to normal, they advertise vaccination as a tool to get immunity from COVID-19 symptoms such as headache, body pain, difficulty breathing, cough, and many more. However, the government noticed that a considerable number of Filipinos are still hesitant to take COVID-19 jabs. Its goal is to vaccinate more people, including Patient Cathy who does not know about vaccines.

Analysis: Patient Cathy is aware of the vaccine's immunity because of some government advertisements; however, she has lacked knowledge about the full effect and benefits of the vaccine. She has not been educated by the government but needs to be vaccinated as imposed by the Government. The case cited above is an example of a borderline case because it is about vaccine literacy, despite the that it does not consist of all of its defining attributes. The defining attributes included in the borderline case are "disease prevention" and "immunization" only, leaving "health literacy" and "education" behind.

Antecedents

Antecedents are incidents or events that must happen first before the concept occurs. This case analysis focuses on vaccine literacy, which is about educating the public regarding vaccines. It is important to note that vaccines are part of medical solutions to protect people from a specific disease. This only means that the antecedents of vaccine literacy must have something to do with diseases and other health concerns.⁽²⁶⁾

Stern & Markel⁽³³⁾ said that humans have already benefited from vaccines for not less than two centuries. But despite this, there is still a continuous public doubt on vaccinations. The first vaccine was made by Dr. Edward Jenner, a doctor living in Berkeley, England, for the smallpox disease during the 1790s. He successfully vaccinated an 8-year old child named James Phipps. This event became the foundation of modern vaccinology, which paved the way for creating other vaccines against diseases. The Centers for Disease Control and Prevention said certain diseases are already being forgotten due to vaccines. These diseases have killed millions of people worldwide, and some cases still exist today, but the way vaccines have helped solve these long-rooted diseases only means that vaccines work. This means that the antecedents of the concept of vaccine literacy are the existence of (1) diseases, (2) epidemics, and (3) pandemics. There is vaccine literacy because there are health concerns that must be solved.

Consequences

Consequences are described as incidents that result from a particular aspect⁽²⁶⁾. In this concept analysis, the consequences of vaccine literacy are not limited to the positive outcomes, such as the public's acceptance of vaccines, but it also includes adverse outcomes.

The defining attributes of vaccine literacy cited in some parts of this concept analysis are reflected in the consequences of the concept. It is known that vaccine literacy talks about education and information about the effectiveness of vaccines. Based on the model cited under the model case and analysis in this paper, both vaccine literacy and health literacy, as published b by⁽²¹⁾, equate to different attributes such as vaccine empowerment, confidence (vaccine trust and effectiveness), healthcare system trust and vaccine delivery convenience, and vaccine acceptance and uptake. These serve as the positive consequences of vaccine literacy towards the public. On the other hand, some negative consequences that vaccine literacy might deliver include the chances of lack of vaccines due to high demand from the crowd and negative impacts on people's health if the vaccine is not studied and effective. Also, social media platforms became the source of information about vaccines, impacting people's

decision-making. The concept of vaccine literacy sees the mentioned positive outcomes as their results and not their counterparts.

Empirical Referents

Avant & Walker⁽²⁶⁾ said that these include classes or categories of an actual event or phenomena that demonstrate the occurrence of a particular concept. In this paper, the idea being studied is vaccine literacy, which certainly has something to do with people's trust and acceptance of vaccines. It was highlighted in this paper that measuring vaccine acceptance is very important as it states the anxiety and knowledge of the public towards vaccines. The researchers highlighted five critical factors in vaccine acceptance with this tool, which comes after vaccine literacy. The list includes (1) perceived safety of vaccines; (2) perceived effectiveness and necessity of vaccines; (3) acceptance of the selection and scheduling of vaccines; (4) positive values and affected toward vaccines; and (5) perceived legitimacy of authorities to require vaccinations. These key factors serve as tools that will help researchers measure not just the acceptance of the public on vaccines but also their vaccine literacy. These are calculated using Cronbach's Alpha with five sub-scales.⁽³²⁾

DISCUSSION

This concept analysis focuses on vaccine literacy. Vaccine literacy (VL) is based on the overall idea of health literacy (HL). Health literacy is a process of relating abilities to meeting health demands. It contributes to disease prevention and promotion of health, as well as to make healthcare decisions.⁽¹⁷⁾ Several researchers described the concept as a degree wherein the public can understand the health information, including the services that will guide them through their health decisions⁽²²⁾.

This paper uses the Avant & Walker (2019) method of concept analysis. Its main stages include the (1) Selection of concept, (2) Determining the aims or purpose of analysis, (3) Identifying the uses of the concept discovered, (4) Determining the defining attributes of the concept, (5) Identifying a model case, (7) Identifying the borderline, related, contrary, invented, and illegitimate cases connected in the concept, and (8) Identifying the antecedents and consequences as well as defining its empirical referents. Indeed, these steps were followed in this concept analysis.

The United Nations takes this concept as a relevant factor to ensure development regarding health literacy promotion. Now, it is easier to say that vaccine literacy is connected with health literacy, knowing that scholars also used the concept in their respective studies. Of course, this concept is built by different defining attributes. As cited in this paper, its critical details include "health literacy," "disease prevention," "education," and "immunization." It also has non-critical attributes, which are relevant factors but are not needed in this concept, such as "awareness," "information," and "knowledge." These make up the concept of vaccine literacy and help people understand what it is really about. The only model case that consists of all these defining attributes can be found in the model created by⁽²¹⁾ after the COVID-19 pandemic emerged, stating that both health literacy and vaccine literacy starts with education and result in vaccine empowerment, confidence (vaccine trust and effectiveness), healthcare system trust and vaccine delivery convenience, and vaccine acceptance and uptake.

Lastly, by looking at the studies and other scholarly articles included in this paper for review, it appears that there are not enough resources about vaccine literacy. During the 2019 Coronavirus Disease (COVID-19), experts saw an opportunity to promote vaccines to the public. Aside from this, there is also an increase in vaccine hesitancy found in many countries like the United States, Jordan, Japan, Hong Kong, Italy, and China. The only thing seen as a solution for this is vaccine literacy's concept being analyzed.

Limitations

This concept analysis successfully reviewed the existing scholarly articles and studies about the concept of vaccine literacy. However, there were limitations upon the fulfillment of this paper. Firstly, it is known that there was already an idea about vaccine literacy even before the pandemic started. Still, the conversations about this concept became more significant due to the emergence of the COVID-19 pandemic. This contributed to the limited resources encountered by the resources, which indirectly affected the structure of this paper. Secondly, people are more familiar with "health literacy" than "vaccine literacy." This influenced the available research studies published by researchers. Thirdly, this paper was fulfilled during the strict implementations of health protocols and lockdowns in the Philippines. This limited the ability of the researchers to look for other relevant articles and studies. Lastly, the limitation of this study is secluded in the concept of vaccine literacy alone but not limited to diseases with available vaccines and vaccination programs. This provides the researchers the freedom to expand the limit of the study as long as it is still related to the concept.

Implication for Nursing Practice

The study analyzes the concept of vaccine literacy as part of health literacy. This means that nurses are directly impacted by the lack of vaccine trust and acceptance of patients, especially global challenges like the

2019 Coronavirus Disease (COVID-19). Nurses also play a massive part in the vaccination process of their patients. They assist in administering these vaccines and contribute to solving the issues caused by viruses. Aside from that, as front liners and part of the medical experts, they are responsible for ensuring that the population they are serving believes that vaccines work as they receive correct and appropriate information about vaccines. Suppose nurses have suitable vaccine literacy, more than what the public knows about vaccines, th. In that case, This will also serve as their way to show their leadership roles in pulling the people out of vaccine hesitancy.

CONCLUSION

Based on the cited research studies and other scholarly articles, it was shown how huge the influences of vaccines were in solving global health challenges. The researchers use Avant & Walker's (2019) method of concept analysis. Studies about vaccine literacy are lacking due to its counterpart, health literacy. However, these two terms are directly connected as vaccine literacy was created based on health literacy.

The defining attributes of vaccine literacy, as studied in this concept analysis, and based on different scholarly articles and studies, are "health literacy," "disease prevention," "education," and "immunization." These defining attributes are considered 'critical.'

There is a growing vaccine hesitancy seen across the globe, based on the studies and articles cited in this paper, and vaccine literacy serves as a way to counteract it. The antecedents of vaccine literacy include the existence of (1) diseases, (2) epidemics, and (3) pandemics. There is vaccine literacy because there are health concerns that must be solved.

In terms of vaccine literacy's consequences, positive outcomes include vaccine empowerment, confidence (vaccine trust and effectiveness), healthcare system trust and vaccine delivery convenience, and vaccine acceptance and uptake; and its negative consequences include the lack of supply due to high demand of vaccines from the public and negative impacts on people's health if the vaccine is not indeed studied and effective.

The empirical referents of vaccine literacy are based on five critical factors determined by ⁽³²⁾. It includes: (1) perceived safety of vaccines; (2) perceived effectiveness and necessity of vaccines; (3) acceptance of the selection and scheduling of vaccines; (4) positive values and affected toward vaccines; and (5) perceived legitimacy of authorities to require vaccinations. Knowledge of vaccine literacy helps nurses quickly advance their practice roles through vaccination education, creating developmental policies about vaccines, and prescribing immunization to patients.

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