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## **Viral Content: A Theory of Vaccine Hesitancy Based on Information Encountering in the Greater Manila Area, Philippines**

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### **ABSTRACT**

*Background.* Ground experiences of the researchers indicate substantial concern about the side-effects of the AstraZeneca vaccine in some individuals who lined up to get vaccinated. The Philippine Department of Health, Food and Drug Administration temporarily suspended the administration of the AstraZeneca vaccine to persons below 60 years old on April 8, 2021, due to reports of “rare cases of blood clots with low platelets detected in some individuals inoculated with the vaccine.” The authors hypothesize that such encountered information affected the behavior of the vaccine-eligible population, leading to further information gathering, sense-making, and possibly, vaccine hesitancy.

*Objectives.* The researchers sought to determine: (1) how the respondents in this study obtained information regarding the AstraZeneca vaccine, (2) what specific information gaps the respondents sought to make sense of, and (3) how the encountered information affected their willingness to take the COVID-19 vaccine.

*Methods.* A qualitative study was conducted with twenty-one respondents using a grounded theory framework, through a survey with open-ended questions, and follow-up interviews.

*Results.* The study found that “vaccine hesitancy” is not a general phenomenon to be tackled by one approach, but a multifactorial and graded response to encountered information. The strength of response to the encountered information was influenced by its origin, content, and the personal beliefs of the person receiving the information, and vaccine hesitancy may not necessarily translate to vaccine refusal.

*Contributions.* A theory of how encountered information affects vaccine hesitancy was constructed, which can be applied to public health/health information literacy campaigns on social media, television, and other information dissemination platforms.

## INTRODUCTION

The COVID-19 pandemic in the Philippines has seen efforts to overcome it through preventive health policies, lockdowns, and vaccination efforts coordinated between the national government and local government units (Estadilla et al., 2021). A noteworthy policy is the imposition of the NCR+ Bubble, which is a temporary geographic entity composed of the National Capital Region, as well as nearby provinces with a comparable population and level of development (Inter-Agency Task Force for the Management of Emerging Infectious Diseases, 2021). The scope of the area is comparable to the more commonly used term of the *Greater Manila Area*, which refers to the capital and its surrounding provinces (Malasig, 2021). This particular policy has locked a substantial number of the country's economically active population in its own "bubble", not just physically, but also in terms of policy and circulating pandemic-related information. 1 cm paragraph indent for second and subsequent paragraphs.

Another move to curb the pandemic is vaccine procurement, which has been promoted by the government since late 2020; with the first batch of vaccines arriving in the country on February 28, 2021 (Tomacruz, 2021; Rappler, 2021). The country has received over 12 million doses as of June 13, 2021. The Coronavac vaccine from Chinese manufacturer Sinovac makes up the majority of the country's vaccine stock with 7.5 million doses procured. Other vaccine brands such as that of Pfizer-BioNTech, Sputnik V, and Oxford-AstraZeneca comprise the remaining 5 million vaccines, all received from the COVAX Facility. The first set of AstraZeneca vaccine arrived in the country on March 4, 2021, with an initial 480,000 doses delivered (World Health Organization, 2021).

Our on the ground experiences as vaccinators painted a picture of heightened concern and reluctance on the part of some individuals (majority of which were senior citizens) who lined up to get vaccinated. Most of the concerns and questions concern the potential side effects of the AstraZeneca vaccine. This is unsurprising as the Philippine Department of Health, and Food and Drug Administration temporarily suspended the administration of the AstraZeneca vaccine to persons below 60 years old on April 8, 2021 due to reports of "rare cases of blood clots with low platelets detected in some individuals inoculated with the vaccine" (Department of Health, 2021); this is the first and only instance of vaccine suspension in the Philippines at the time of writing of this article. While this suspension was eventually lifted on May 8, 2021 (Department of Health, 2021), multiple local and international media continued to highlight the reported side effects of the vaccine -- such as the aforementioned blood clots and, more recently, a condition named "capillary leak syndrome" (European Medicines Agency, 2021). We hypothesize that such encountered information affected the behavior of the vaccine-eligible population in the NCR+ Bubble (an economically significant and densely populated area), leading to further information gathering, sense-making, and possibly, vaccine hesitancy.

## LITERATURE REVIEW

### **The COVID-19 Pandemic and Vaccination**

#### *COVID-19 Pandemic*

The COVID-19 pandemic is a global event characterized by the spread of the SARS-COV-2 Virus, a coronavirus that causes the Coronavirus Disease 2019 (COVID-19). The exact origin of the virus is still a contested topic, but the general consensus is that the spread of the virus originated from a wet market in Wuhan, China (Platto, Wang, Zhou & Carafoli., 2021). The

spread of COVID-19 has led to massive societal impacts, affecting every aspect including economics, politics, migration, and the holding of large-scale events; this disruption is projected to continue well beyond the hypothesized period, until “control” of the virus is established (McKibbin & Fernando, 2020).

The pandemic has also had a noticeable impact on public health (including public health information), revealing glaring flaws in the capacity and equitable access of healthcare in many countries worldwide, particularly those in the developing world (Okereke, 2021). In the Philippines, which falls into this category, the pandemic response has been particularly strict, imposing the world’s longest lockdown on the populace, alongside other preventive healthcare measures (Hapal, 2021).

Information dissemination of health information has been particularly challenging during the pandemic, with the World Health Organization using the term “Infodemic” to describe the influx of false and misleading information with regard to the outbreak (WHO, 2020). In particular, fake news has proliferated (especially on social media) about all aspects of the pandemic, from the virus to the vaccine, with detrimental effects on public healthcare programs (Naeem, Bhatti & Khan, 2021).

#### *Oxford-AstraZeneca Vaccine*

The Oxford-AstraZeneca Vaccine is an adenovirus vector vaccine developed by a collaboration between Oxford University and the pharmaceutical company AstraZeneca. The vaccine’s mechanism involves a modified viral vector (adenovirus ChAdOx1 from chimpanzees), which simulates the production of the SARS-COV-2 virus spike protein while simultaneously being stripped of its infective and reproductive capability (Voysey et al., 2021). An initial report by AstraZeneca (2021) on the vaccine’s efficacy estimates it at 76% (efficacy being defined as the measure of how much the risk of getting the disease is lowered when a vaccinated individual is exposed, versus an unvaccinated control group), while also providing 100% protection against severe disease, placing it within the range of acceptability for public use. This high efficacy (pre-emergence of variants), and the fact that the vaccine is the only not-for-profit vaccine deployed on a global scale, has made the vaccine a valuable asset in the global effort against the COVID-19 pandemic (Knoll & Wonodi, 2021).

However, the promising results of the Oxford-AstraZeneca Vaccine was met with controversy in early 2021, when media coverage of serious side-effects and adverse events (ranging from blood clots, capillary leak syndrome, and neurological complications) was heightened; this led to higher incidence of primary healthcare consultations driven by public anxiety over the potential side-effects of the received vaccine (Larsen, Grøslund, Telle & Magnusson, 2021). The media coverage stemming from reports of blood clots and one death, and the eventual temporary suspension of the vaccine’s deployment in Europe (Wise, 2021), translated to the Philippine context as well (Department of Health, 2021).

#### *Vaccine Hesitancy*

Dubé, Laberge, Guay, Bramadat, Roy & Bettinger. (2013) described vaccine hesitancy as the reluctance of individuals, groups, or communities to engage in vaccination despite scientific evidence, due to perceived issues of safety, efficacy, or outright necessity. Despite vaccination being one of the most successful public health endeavors, eliminating diseases such as smallpox, vaccine hesitancy has been a growing trend in recent years, particularly with the advent of social media (Wilson & Wiysonge, 2021).

The COVID-19 vaccines are not exempted from the phenomenon of vaccine hesitancy, and this is seen as the next great challenge to overcome the pandemic, as information is more accessible, facilitating the dissemination of misleading, seemingly contradictory, or outright false information that damage public perception of vaccine safety, and healthcare intervention in general (Soares et al., 2021).

## **Information Behavior**

### *Information Encountering*

Information encountering is defined by Erdelez as “an instance of accidental discovery of information during an active search for some other information” (Erdelez, 2005, 180 cited by Miwa, et al., 2011). In contrast to purposeful information seeking (see, for example Kuhlthau, 1994), information encountering or opportunistic discovery of information occurs when users come across information without the intention of seeking it (Pálsdóttir, 2011). This theory has a functional model which presupposes the existence of an initial information seeking task related to a foreground problem, and one or more background problems that are not in the scope of the active search (Erdelez, 2005). The model similarly assumes that the user may put focus on the background task in the meantime but would inevitably return to the foreground problem. In real-life situations, however, users often do not return to the initial information seeking goal and switch to the encountered information as their new foreground problem (Erdelez, Basic, & Levitov, 2011).

In a study by Pálsdóttir (2005, cited by Pálsdóttir, 2011), it was found that those seeking health information find it more often by chance, as opposed to finding it on purpose, when conducting purposeful information searching and vice versa. However, in the same study, Pálsdóttir noted the rarity of encountering information while searching the Internet or browsing through social media, albeit for older respondents aged 70 and older. Instead, conversational encounters with family, friends, and acquaintances who mention information through direct initiation (e.g., a daughter actively seeking medical information and relaying information to the respondent) or as a segue (e.g., a conversation with a relative on eyeglass replacement leading to the discovery that a labor union may shoulder part of the cost). The study had shown that elderly people needed a form of assistance in seeking information, thus information encountering and information sharing are important aspects of the information behavior of the respondents. The general models of Erdelez (2005), and Pálsdóttir (2011), which discuss how information is encountered and how information is interpreted (sensemaking) respectively, are useful for the analysis of specific situations, such as the phenomenon of vaccine-related information in a pandemic, and the subsequent hesitancy that it possibly triggers.

According to Yadamsuren and Heinström (2011), an important motivation in following the news is surveillance, which they defined as “making sure you keep up to date with things, which may affect you or someone close to you.” While it could be viewed that surveillance is a product of active news consumption, the authors noted that accidental exposures (or information encountering) may be related to this need.

We consider that information encountering plays a big role in people’s reception of a certain entity—in this case, perception of a specific brand of vaccine. It is in our interest to determine whether the encountered information would suffice their information need or it would trigger further action.

### *Sense-Making*

We posit the notion that a person's further action or inaction upon reception of the encountered vaccine information is tied into the framework of sense-making. Gaps are a key concept in the methodological foundation of sense making. This focus on gaps allows researchers to assume discontinuity as they empirically approach how people make sense when engaging messages or content. For some movements, similar gaps from prior engagement may recur, thus enabling a person to navigate past it with no questions asked. This is regarded as the bridge in the gap (Reinhard & Dervin, 2012). In our study, we consider information on the composition and possible side-effects of the AstraZeneca vaccines as a possible gap, recurring or otherwise, for the subjects of this study. We intend to identify the bridges (or bridging processes) that people employ to close the gaps caused by encountering information on AstraZeneca vaccines. Dervin, the proponent of the methodology, defined the sense-making methodology as a means to "talk in terms of their real material conditions and situations and the ideas, conclusions, emotions, feelings, questions, confusions they had and the connections between these and their past horizons" (2003). This methodology employs interview as the chief approach, as it provides a means to drill into a conversation, in contrast to spontaneous communication.

Based on the literature review, the following research questions were developed:

1. How do the respondents obtain information regarding the AstraZeneca vaccine?
2. What are the specific information gaps that respondents sought to make sense of?
3. How does the encountered information affect the willingness of the respondents to take the COVID-19 vaccine?

### **METHODOLOGY**

To determine the effect of information encountering on the vaccine hesitancy of the eligible population in the NCR+ Bubble, we conducted a qualitative study utilizing the grounded theory framework. After securing informed consent, data was gathered through an open-ended survey and follow-up interviews, and from this data, we synthesized a theory on the effect of information encountering on vaccine hesitancy within the Greater Manila Area.

This study utilized purposive sampling, with the researchers selecting respondents who lived in the geographic area covered by the study (the population of the study being residents of the Greater Metro Manila Area), as well as the additional exclusion criteria of not being medical professionals, as this segment of the population was judged to have more skewed views of the topic discussed. The questionnaire was disseminated over social media channels (e.g., Facebook) and to various groups which have participants that live in the selected geographic area. No incentives were offered for the participants in this study.

Sample size was determined by the point of data saturation; that is, where data has become repetitive and provides no new insight to the researchers. Based on an article by Guest, Bunce & Johnson (2006), the minimum sample size agreed upon by the researchers was twelve respondents, but the researchers sought to exceed this figure in order to provide a more robust dataset for analysis.

The questionnaire is prefaced by a consent form, which was adapted from the sample form of the University of the East Ramon Magsaysay Memorial Medical Center Ethics Review Committee (2018) for non-clinical trial studies. The creation of the contents of the questionnaire started from the research questions, and initial testing of the open-ended questions was facilitated through informal interviews by one of the researchers during two instances of a vaccination drive within the study's geographic location. Based on the

responses, the questions were narrowed down to the relevant factors of information encountering, and its effect on vaccine hesitancy and choice.

The gathered data was coded with a bottom-up approach, generating concepts (e.g., blood clots, rashes, fevers, chills), and developing common categories from these concepts (e.g., side effects). Concepts were then related with each other, and an overall theory outlining these relationships was generated via discussion and consensus from the researchers. Inter-coder reliability was facilitated via constant discussion and dissection of the themes generated by the researchers in every step, and percent agreement for categories generated is at 100%.

## **FINDINGS**

### *Gathered Data*

A total of twenty-one valid responses were gathered during the data collection period, from respondents who encountered the disseminated questionnaire on social media. We find that most of the respondents encounter anecdotal information from word-of-mouth sources, usually through a relative or acquaintance who claimed to have been vaccinated with the AstraZeneca vaccine. Most of the anecdotal information points to a common theme of what side effects they experienced after receiving the shot. Respondent 1 narrated, “I have seen it from my sister who took AstraZeneca Vaccine. She had rashes and fever a few hours after her first shot.” Respondent 5 described a similar situation, noting that “My sister and her friend were vaccinated with AstraZeneca and experienced fevers and chills for one day.” These are further substantiated by the information coming from reports on different media platforms (e.g., social media sites and television). A recurring answer from the respondents on the information coming from these sources is reports on blood clotting caused by the vaccine. Respondent 4 answered, “I heard about possible [blood clotting], the usual soreness on the jab site, [flu-like] side effects and headache.” Respondent 12 gave a similar answer, saying that they “saw a news report in social media stating that the [AstraZeneca] vaccine could cause blood clotting and elevated blood pressure.” Conspiracy theories via non-conventional internet sources (e.g., imageboards) also appeared in one response by Respondent 15 citing that “I encountered conspiracy theories on vaccines and world domination from 4chan”.

Ten respondents conducted active searches as a response to the encountered information. Almost all of the searches were triggered by curiosity, or fear of the reported side-effects. Respondent 2 actively searched for it due to “one of our relatives [experiencing] mouth bleeding after 1 dose of AstraZeneca.” Respondent 11 conducted a search after experiencing symptoms of the side effect first hand. The respondent narrated, “I got vaccinated with it and I wanted to know if I'm suffering the expected side effects or I was just really weak and my body can't handle the vaccine.” One particular answer from Respondent 6 concerns not only the side effects but also its policy implication, saying that they “actively researched it since it was reported to be halted in the Philippines and in Europe due to its complications.” Nonetheless, two respondents claimed that their further searches were driven by their interest to know how the AstraZeneca vaccine or COVID-19 vaccines in general work. Respondent 18 is particularly interested in contrasting the different COVID-19 vaccines since they have learned that AstraZeneca is made from chimp adenovirus and wishes to “learn how it differs from mRNA/inactivated virus vaccines.” Respondent 17, on the other hand, was interested in the immune mechanisms that happen in the vaccination process, as well as the data on the efficacy values of available COVID-19 vaccines.

Notably, these findings did not significantly affect their perception of vaccination as a means of protection against COVID-19. Seventeen respondents highlighted their perceived

importance of vaccination to address the pandemic. Echoing a similar sentiment with the majority, Respondent 3 noted, “A vaccine is still a vaccine. I still badly wanted to get vaccinated because it’s better to have a layer of protection from COVID-19.” Respondent 15, who was the only one to encounter conspiracy theories, declared that “I only read the conspiracy theories as a form of entertainment, but it does not affect my perception of the vaccine, as I care more about my health issues and my obligation to help the country recover.” Three respondents were negatively affected, generalizing the received side effects as a universal risk in COVID-19 vaccines. However, in a similar fashion to those who were unaffected, a general perception emerged that since it was a universal risk, it equalized the cost-benefit considerations of all COVID vaccines while recognizing their importance in addressing the pandemic. Two respondents were positively affected, Respondent 7 and Respondent 14. Respondent 7 cited anecdotal information from neighbors who got vaccinated and did not feel side effects, saying that they “saw [their] neighbors who did not have side effects from vaccination, [thus] I believed that it is only a case to case basis.” Respondent 14 meanwhile received information from friends who claimed to be “health practitioners abroad.”

In stark contrast to general vaccine perception, the respondents expressed their feelings of unease, distrust, or lowered preference for the AstraZeneca vaccine. In particular, Respondent 1 stated that “Yes, because of the news, I wanted to avoid AstraZeneca or any other vaccines that [have] high chances of side effects (especially severe ones). I cannot risk any side effects because I have an existing heart disease”. Respondent 3 provided a similar answer, saying “I would have been scared if I would be receiving [AstraZeneca] because I have hypertension that can be caused by nervousness. If I get nervous from the [side-effects] of [AstraZeneca], my blood pressure might increase.” Respondent 3 shared a similar sentiment to that of Respondent 1, both outright rejecting the vaccine, saying, “I just couldn't risk it knowing I'm quite susceptible to health conditions relating to vaccines or shots.”

Fourteen respondents remained unaffected by the information. Respondent 5, for example, claimed that “all vaccines are effective in protecting an individual from developing severe covid symptoms and thus preventing death.” Anecdotally, four respondents, meanwhile, expressed immediate preference with any vaccine that was not developed in China, which they claimed was the most inferior among all the vaccines. Respondent 15 explained that they still wanted to be vaccinated but remained distrusting of China-made vaccines due to what they perceived as “a lack of reliable information about its effectiveness and because of the [People’s Republic of China’s] other affairs”, pertaining to socio-political perceptions on the Chinese government.

### *Results*

The plethora of information on COVID-19 vaccines plays a significant role on how people perceive vaccination and vaccines. Ranging from news stories on TV or on a phone, to stories told by family and friends, and even to conspiracy theories and fringe anecdotes, diverse sources of information on the AstraZeneca vaccine can easily be consumed without conducting an active search. We note that anecdotal information is specifically held in high authority in this case, with eight out of twelve respondents who encountered information through word of mouth noted that they experienced varying levels of hesitation due to the reported side effects by their sources. Regardless of the objective truth value of the information, most of the respondents resolved the dilemma of consolidating voluminous and conflicting information by putting more weight on word-of-mouth information due to the

**Table 1. Categories generated from concepts**

| <b>Concepts</b>         | <b>Category</b>     |
|-------------------------|---------------------|
| Rashes                  | Side Effects        |
| Fever                   |                     |
| Blood Clots             |                     |
| Fatigue                 |                     |
| Stroke                  |                     |
| Elevated Blood Pressure |                     |
| Brand                   | Specific Preference |
| Western                 |                     |
| Choice                  |                     |
| Chinese                 |                     |
| Death                   | Fear                |
| Blood Clots             |                     |
| Senior Citizen          |                     |
| Comorbidities           |                     |
| Side Effects            |                     |
| Friends                 | Trust               |
| Family                  |                     |
| Doctors                 |                     |
| News                    |                     |
| Social Media            |                     |
| Trust                   | Vaccination         |
| Safety                  |                     |
| Protection              |                     |
| Requirement             |                     |

perceived proximity to the idea of receiving the AstraZeneca vaccine. This relative specificity also yielded a narrower effect on the reception of the respondents, thus generating the phenomena of specific hesitancy in some people.

Age did not play a significant role in the responses of the participants. Instead, an observed contributing factor is pre-existing conditions or comorbidities experienced by a number of the respondents. Those who were affected by these conditions were more likely to be hesitant toward the AstraZeneca vaccine. This amplifies the effect when consuming the encountered information, specifically on the issue of side effects.

An overwhelming majority of respondents recognized the importance of vaccination in preventing COVID 19. However, there was hesitancy due to concerns that were perceived to be specific to one vaccine. This lends credence to the idea that vaccine hesitancy is not purely black and white. There are cases when vaccination is outright rejected, when vaccination is indiscriminately embraced, when there is preference over one particular vaccine brand, and when there is rejection of only one specific vaccine brand. Similarly, it should be noted that vaccine hesitancy, either general or specific, does not necessarily translate to vaccine avoidance.

Overall, five categories were generated from the data gathered. *Side Effects*, defined as the negative effect of vaccines, are a main concern and point of contention of the respondents, and the side effects of concern are specified in responses, with statements like rashes, fever, and blood clots being the concepts under this category. *Side Effects*, alongside blood clots, and concern for senior citizens and co-morbidities, make up the category of *Fear*, as these are the factors seen by the respondents as reasons to be fearful of the vaccine.

*Specific Preference* is another category, defined as the proclivity of a respondent to choose specific vaccine brands. This is influenced by the origin of the vaccine (Chinese versus Western vaccines), brand, and the availability of choice in vaccination centers. The category of *Trust*, that is, what the respondents are likely to believe in and have confidence in, are mostly sources of information; family, friends, doctors, social media, and the news are all sources that inspire feelings of trust among the respondents. Finally, the category of *Vaccination* is associated with trust, safety, protection, and requirement, demonstrating that the respondents still view vaccines in a positive light, though some may have a neutral stance and view it as a simple requirement to comply with.

## DISCUSSION

From the categories of themes generated from the data, the researchers propose that vaccine hesitancy can be visualized as a flowchart, which starts when an information user (with their own context, beliefs, material conditions, etc.) encounters and takes in information (which also has its own characteristics such as origin, media, or content). If the user is not affected by the information, they proceed with vaccination or non-vaccination, depending on their existing knowledge prior to the encountered information. If the user is affected by the information positively (e.g., the information is trusted due to it being from a family member), they exhibit vaccine confidence, and proceed with the vaccination. However, the phenomenon of specific vaccine confidence (confidence based on a specific characteristic such as brand or type) and general vaccine confidence cannot be defined by this study, as data gathering focused on vaccine hesitancy. This warrants further investigation.

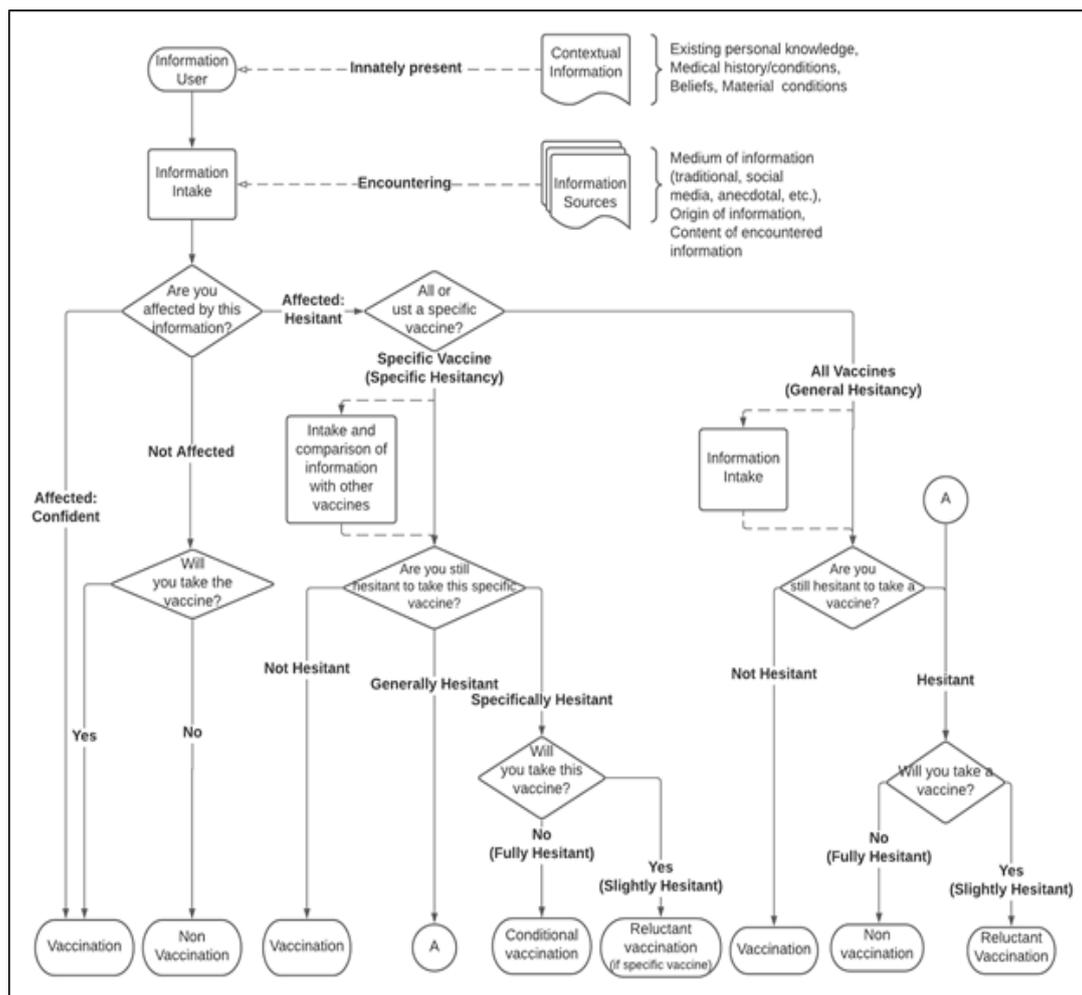
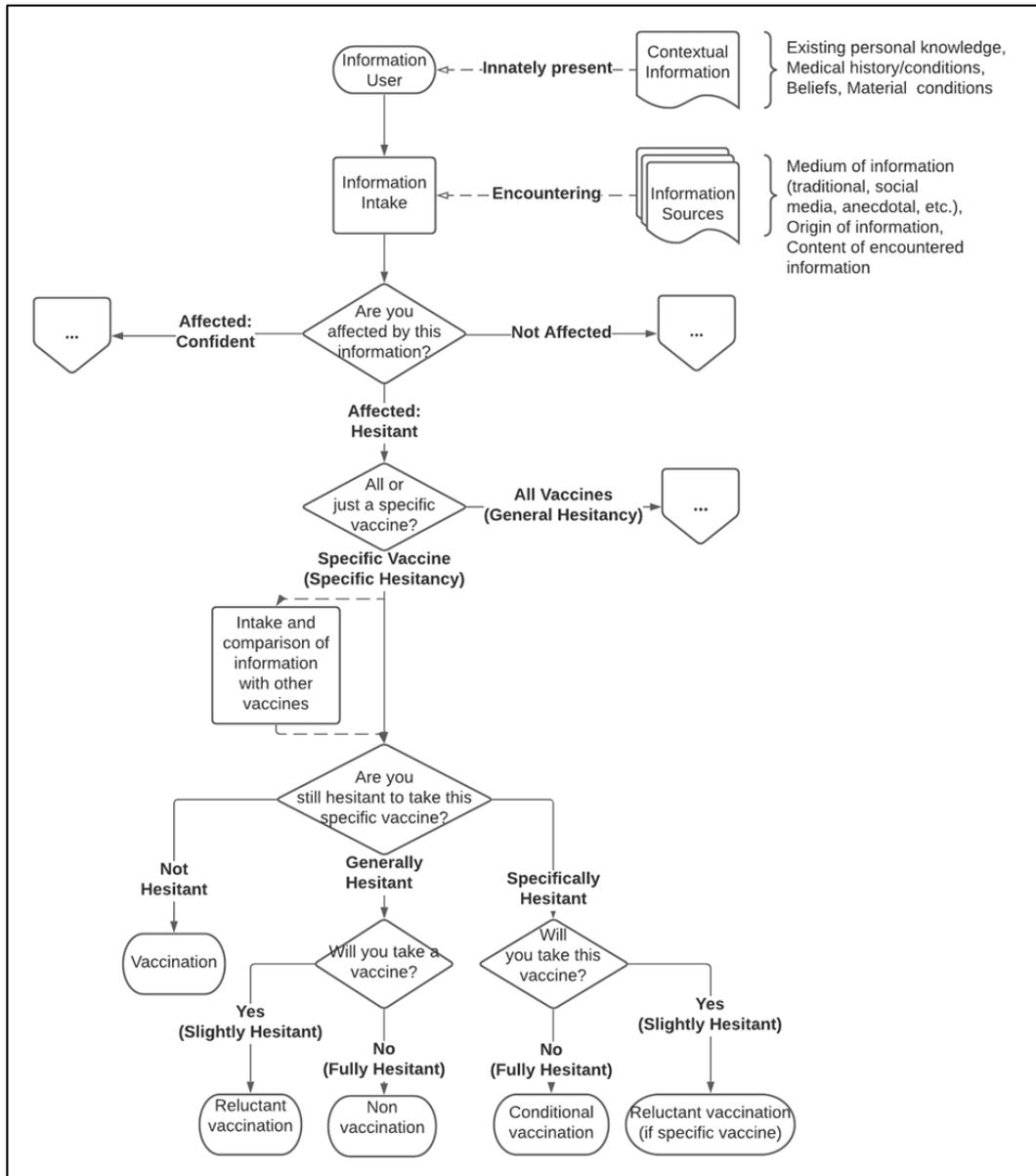


Figure 1. Vaccine Hesitancy Model

The main process shown by this model is that of *vaccine hesitancy*. If the user deems that the information affected them negatively (e.g., they have a concern about *side effects*, which translates to *fear*), they exhibit *vaccine hesitancy*. The inherent characteristics of the information (e.g., the content is about one vaccine only) and the inherent beliefs and knowledge of the person (e.g., that a “Western” vaccine is better) then interact to produce either specific vaccine hesitancy (hesitancy towards one brand or type of vaccine) or general vaccine hesitancy (hesitancy towards all vaccines).

If the user develops specific vaccine hesitancy, they proceed to the valuation of the information. If it truly makes them hesitant; this may be followed by an optional, and often active, second intake and comparison of information about the other vaccine choices, usually from anecdotal evidence from relatives and friends. At this stage, they may decide that they are no longer vaccine hesitant, and proceed with vaccination, or they may decide that they are still hesitant and proceed to another level of evaluation. The level of specific vaccine hesitation (slight or full) is dependent on the user’s traits and the encountered information so far, and there are three possible outcomes: (1) they may be slightly hesitant, and still proceed with vaccination (but they will be reluctant if it is the specific vaccine), (2) they may be fully hesitant, and still get conditionally vaccinated *as long as* it is not the specific vaccine, and (3) if they encounter more negative information, they may develop general vaccine hesitancy

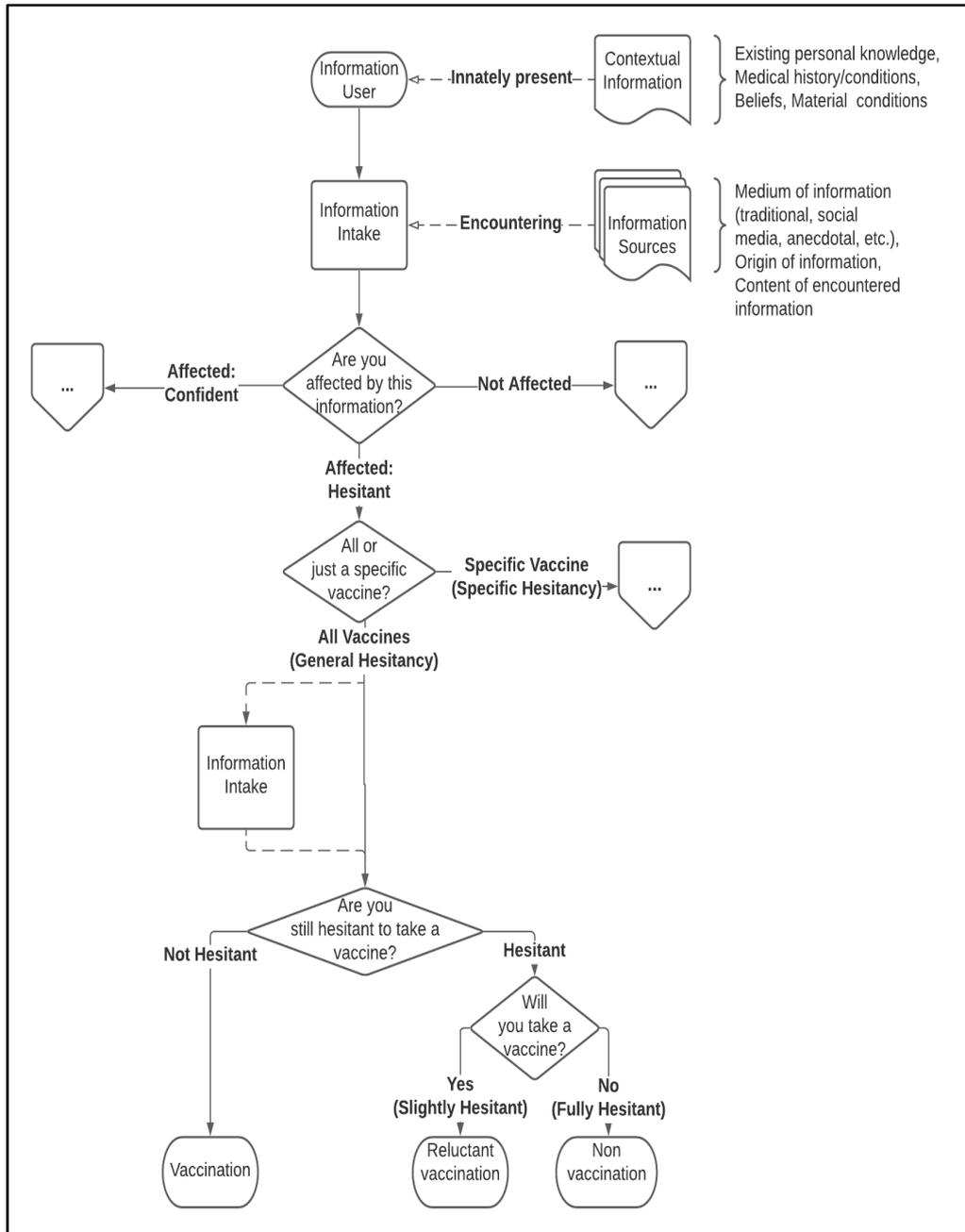


**Figure 2. Specific Vaccine Hesitancy Pathway**

which may manifest as slight general hesitancy (reluctant vaccination), or full general hesitancy (non-vaccination).

Meanwhile, if the user develops general vaccine hesitancy, it follows the same process of second evaluation of information, after an optional second intake of information about the vaccines. The user may then decide that they are not hesitant after evaluating the encountered information, and proceed with vaccination. If they are hesitant however, another round of evaluation occurs (e.g., “is the vaccine a work requirement, despite my hesitation?”), and they may be slightly hesitant, in which case they will still be reluctantly vaccinated, or they may be fully hesitant, in which case they will not be vaccinated at all.

All in all, the data clearly show that “vaccine hesitancy” is not a general phenomenon to be tackled by one approach, but rather, a multifactorial, and often graded (slightly versus fully hesitant) response to encountered information. Many insights can be gained from this model, such as the possibility of multiple level health information campaigns, which can target the many levels of information intake and evaluation that information users experience. It also



**Figure 3. General Vaccine Hesitancy Pathway**

opens up many research opportunities, such as the ethics of consent if a reluctant person still gets vaccinated due to external factors.

## CONCLUSION

Information encountering affects vaccine hesitancy in a nuanced way, as opposed to the prevailing narrative of “misleading/false information equals vaccine hesitancy.” We must be discriminatory in tackling the issue of vaccine hesitancy in relation to encountered information, as public health efforts on social media, news networks, and other avenues may inadvertently push an unwanted narrative in the minds of the recipients. The emphasis on the safety of one vaccine brand, for example, may reduce and devalue the perception of the public

towards another vaccine brand. Information and healthcare professionals must work hand in hand to craft policy and campaigns which are nuanced enough to positively impact public trust in *all* scientifically validated vaccines without creating unintended harmful perceptions.

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