Socio-Psychological Determinants of Seasonal Flu Control, in the Context of Covid-19, in the Democratic Republic of Congo among Nurses

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Abstract

Background: Little is known about the socio-psychological determinants of influenza control among health workers in the Democratic Republic of the Congo (DRC). Our study aimed to describe the level of knowledge, perceptions, attitudes and practices of nurses on seasonal influenza and vaccination. **Methods:** This descriptive qualitative study conducted in two major cities of the Democratic Republic of the Congo, Kinshasa and Lubumbashi, was based on the health beliefs model. Data were collected using the focus group technique and analyzed using thematic and phenomenological approaches. **Results:** Our study revealed that nurses had limited knowledge about seasonal influenza. The majority confused the seasonal flu with Covid-19 because of the similarities in their symptoms, modes of transmission and specific preventive measures. In addition, the flu was perceived as mild, rarely or not at all serious, not posing a threat to health. Most of them had an unfavourable attitude to the vaccination and resorted to self-medication when they felt sick. **Conclusion:** This study allowed us to understand the knowledge, perceptions, and attitudes towards influenza vaccination and the practices of nurses in two large cities in the DRC. However, it is crucial to train nurses on seasonal flu and to make them aware of the vulnerable people s' mortality risk.

Keywords

Determinants, Seasonal Flu, DRC

1. Introduction

Seasonal flu is an acute respiratory infection of viral origin (CDC, 2022). It can

seem serious or benign, depending on the case. It is severe in vulnerable groups, including the elderly (≥65 years old), pregnant women at any stage of their pregnancy, children six months to five years old and people with chronic diseases (Barker & Mullooly, 1982; WHO, 2018). Influenza virus infections are responsible for significant morbidity and mortality worldwide, specifically among children under five and the elderly (Iuliano et al., 2018).

The WHO estimates 5 million severe cases and 290,000 to 650,000 deaths occur annually due to seasonal flu (Iuliano et al., 2018; WHO, 2017). Outbreaks can result in high levels of absenteeism from work and loss of productivity. Clinics and hospitals can be overwhelmed during the peak of illness (Thompson et al., 2009). The social and economic costs are enormous on a global scale (WHO, 2018), reaching annually 11.2 billion dollars (6.3 - 25.3 billion) in the USA and between 6 and 14 billion euros in Europe (Balicer et al., 2006).

To reduce the health and socio-economic burden of seasonal Influenza, WHO and CDC/Atlanta have recommended some prevention and control measures such as vaccination of people, barrier measures (washing hands, wearing masks, avoiding contact with sick people), antiviral prophylaxis and therapy (WHO, 2019; CDC, 2021). Among these measures, influenza vaccination remains the most effective strategy for preventing Influenza and alleviating complications (Grohskopf et al., 2019).

The success of such measures requires healthy behaviours on the part of at-risk groups. Knowledge, the perception of the risks associated with the disease, the effectiveness of everyday actions, the favourable attitude and the intention to act are factors that figure out these behaviours (Muller & Spitz, 2012).

During the 2003 SARS outbreak and the 2009-2010 influenza pandemic, studies have shown that the improvement in knowledge, the high perception of risk and the perceived effectiveness of the actions carried out had resulted in positive behavioural change through the adoption of preventive measures during these events (Leung et al., 2004).

The WHO recognizes healthcare workers as a risk group susceptible to contracting and spreading Influenza to their patients and colleagues (Simpson & McMenamin, 2012). Therefore, it recommends shots to healthcare workers during seasonal and pandemic Influenza epidemics to decrease morbidity and mortality and work absenteeism (Jenkin et al., 2019). Vaccination of healthcare workers is both a benefit to their well-being and a moral and ethical responsibility towards patients (Côté et al., 2012).

However, a systematic review of healthcare workers' vaccination coverage worldwide amid the 2009 influenza pandemic showed rates ranging from 9 to 92% (Triandis, 1979; Prematunge et al., 2012). Insufficient knowledge, perception of vaccine ineffectiveness, and fear of side effects were associated with low vaccination coverage. In addition, among health workers, the review showed a disparity between occupational categories. For example, doctors were generally better informed and had higher vaccination rates than infirmaries (Dubé, 2011).

Other studies have shown an association between low influenza vaccination

coverage and low country income, like in some African and Southeast Asian countries (Dubé, 2011; Ortiz et al., 2022).

In the Democratic Republic of Congo, which has approximately 100 million inhabitants, seasonal flu affects more children under 12 years old (more than 60% of cases). Its incidence is estimated at 1205.3 (864 - 1607.5) per 100,000 inhabitants for ILI cases and 48.5 (28.9 - 72.7) per 100,000 inhabitants (Babakazo et al., 2018) for SARI cases, with a lethality rate of 3.5% (McMorrow et al., 2015).

Regarding the influenza infection control organisation, only sentinel influenza sentinel surveillance has been set up since 2007. There are no policies on influenza vaccination or antivirals. In addition, no KAP study on Influenza, including influenza vaccination, was found. Therefore, we have conducted this qualitative study to analyse knowledge, perception, and attitude toward seasonal flu and vaccination in Kinshasa and Lubumbashi.

2. Methods

A descriptive qualitative methodology (Jens et al., 2009). 2016) was used to assess nurses' knowledge, perceptions, attitudes, and practices regarding seasonal Influenza and vaccination.

2.1. Conceptual Model

We utilised the health belief model to conduct this study. According to this model, adopting preventive behaviour in health requires that an individual perceives a threat to his health and believes in the effectiveness of the envisaged action (Corace et al., 2016, Durham et al., 2012; Reuter & Renner, 2011).

2.2. Participants

Participants in this study came from four health facilities in two of the largest cities in the DRC, two in Kinshasa and two in Lubumbashi. In Kinshasa, Mont Amba hospital centre in the Lemba health district and Kabinda General Hospital in the Lingwala health district were selected. In Lubumbashi, Kenya General Hospital in the Kenya health district and Hakika General Hospital in the Ruashi health zone were picked out.

To be recruited in this study, participants should meet the following inclusion criteria: Work in Medicine or Paediatrics department, voluntarily consent.

A purposive sample was drawn in this study (Trost, 1986). A total of 32 nurses were selected, including eight people per health unit.

2.3. Procedures

Before the interview, each interviewer explained the study's purpose, method and content to the participants. Then, he ensured their understanding and requested informed consent by agreeing to sign the ad hoc form. In the end, he promised to keep their statements confidential. The interviews were held in a quiet place and at the agreed time. Each interview should last a maximum of one hour.

2.4. Data Collection

During the focus group, we collected data using a CDC interview guide covering the following themes: knowledge, attitudes and practices on seasonal flu and vaccination (Duque et al., 2017). Regarding perceptions, we designed questions from the theoretical constructs of the Health Belief Model (HBM). This theory explains and predicts an individual's health-related behaviours from perceived susceptibility to disease, perceived severity, perceived threat, perceived benefits and barriers to action to be carried out and the perception of the effectiveness of the recommended action (Trent et al., 2021).

For each focus group, the interviewer was supported by a note-taker. Answers were collected both through notes and records. The following questions were asked:

1) What is the name of flu in the local language?

2) What is the causative agent of the flu, and what factors favour its transmission?

3) Which age groups are most affected by the flu?

4) What are the outbreak period of influenza cases and the transmission modes of the flu?

5) What are the symptoms?

6) What are the preventive measures against the flu?

7) Can you catch the flu? If so, when was the last time?

8) Is the flu deadly?

9) Is the seasonal flu a threat to your health?

10) How do you perceive the effectiveness of the measures recommended? What are their benefits and obstacles?

11) Are you in favour or disfavouring the introduction of flu vaccination?

12) What steps do you take to treat the flu?

13) How do you appreciate the actions of the health authorities for fighting against the flu?

2.5. Data Analysis

The collected recordings were listened to several times by the research team. Then, data were transcribed into French on MS Word and completed with the notes taken by the note-taker.

Data were analysed following Colaizzi's thematic and phrenological approach (Li & Liu, 2012). It consisted of carefully and repetitively reading the recorded interviews, extracting statements of importance, coding repeated views, pooling coded views, writing a complete description, identifying similar or diverging views and seeking verification from interviewees (Zhang, 2012). The four focus groups were coded by letters ranging from A to D, while the participants took numbers between 1 and 8. A and B are Kinshasa focus groups, and C and D are Lubumbashi focus groups.

2.6. Ethical Considerations

The risk for the participants in our study is almost nil. We do not offend the

privacy of our interviewees with some of our questions. If so, they will have the choice not to respond. All the information collected was confidential and only used within this study's framework.

No direct moral or material benefit was expected from participating in this study, if only for the research itself, the results of which could benefit the general population.

Each participant in our study has freely signed a consent form which explains the study's objectives, the precautions taken for the rights and protection of the participants, potential benefits and risks, and confidentiality aspects. We read and explained the consent form t line by line in French to ensure that every individual well understood its content. Furthermore, data from interviewees were collected under the Declaration of Helsinki. The protocol of this study obtained approval from the Kinshasa School of Public Health IRB.

3. Results

We have grouped the results of our study according to the following themes:

3.1. Theme 1: Sociodemographic Characteristics

The Sociodemographic characteristics of the interviewees are shown in Table 1.
This table shows that approximately:

- One respondent out of ten was under 25, four out of 10 between 25 and 30, and five out of ten were over 30; Seven out of ten respondents were women, and three out of ten were men;
- About two in ten respondents were single, while eight in ten were married;
- Six out of ten respondents were from the technical secondary level A2, four out of ten were from the higher level (A1 and A0);
- One respondent out of ten had a seniority of fewer than five years, six out of ten between five and ten years, and three out of ten over ten years;
- Five out of ten respondents came from the Internal Medicine department, and another five out of ten from the paediatric department.

3.2. Theme 2: Knowledge of Seasonal Flu

3.2.1. Knowledge of Local Names for the Flu

Seasonal flu or flu appeared familiar to all the nurses interviewed. However, the designation of the disease in local languages differs depending on whether respondents were in Kinshasa or Lubumbashi. In Kinshasa, where the population mainly speaks "LINGALA", respondents were divided between the words "KOSUKUSU" (meaning cough in English) and "MIYOYO (meaning runny nose). On the other hand, in Lubumbashi, the population mainly speaks "SWAHILI" the flu has been designated by the word "HOMA" or sometimes by "KIKOHOZI", meaning fever and cough, respectively.

"This disease, we call it "KOSUKOSU", sometimes "MIYOYO."

"Here in Lubumbashi, I would say in Katanga in general, we the Flu 'HOMA', we can also name it 'KIHOHOZI' but it is not frequent."

Table 1. Distribution of respondents according to socio-demographics.

Respondent characteristics to FG (n = 32)	Frequency and percentage
Age	
<25 years old	3 (9)
25 - 30 years old	14 (44)
30 and over	15 (47)
Sex	
Male	11 (34)
Female	21 (66)
Marital status	
Single	6 (19)
Married	26 (81)
Educational level	
A2 Technical secondary A2	18 (56)
A1 college	12 (38)
A0 college	2 (6)
Seniority	
<5 years old	4 (12)
5 - 10 years old	18 (56)
>10 years old	10 (31)
Services	
Internal Medicine	16 (50)
Paediatrics	16 (50)

In Kinshasa, as in Lubumbashi, some respondents did not know the flu's name in Lingala or Swahili.

3.2.2. Knowledge of the Causative Agent and Factors that May Facilitate Transmission

About the causative agent of the flu, it appears from the results of most people interviewed that the causative agent of the flu was a virus, without specifying its name, types and subtypes. However, a few respondents mentioned the Influenza virus. Moreover, among the factors that can promote viral transmission, dust, cold, low age and old age have been mentioned indiscriminately.

"*When there is dust or cold, you can catch the flu, whether you do not protect yourself.*"

"*I think age has something to do with the flu. I am thinking especially of children and people of advanced age, such as the elderly, who often catch the flu*".

3.2.3. Knowledge of the Most Affected Groups

The nurses in this study revealed that children under five and the elderly are the

most affected, despite admitting that the flu affects all age groups. Apart from age groups, a few participants mentioned pregnant women as a group at risk.

3.2.4. Period of the Flu Outbreak and Mode of Transmission

All respondents singled out the dry season when cases flare up. Regarding transmission, respondents consistently distinguished direct transmission from direct contact with a person sick with Influenza from indirect transmission from contact with soiled objects.

"We must distinguish between two modes of transmission. Direct transmission from airborne droplets of people coughing or sneezing. Indirectly from objects touched by sick people. Some gestures infect like greetings, kissing, sleeping together, and keeping tight".

3.2.5. Knowledge about Flu Symptoms

As for flu symptoms, according to the order and frequency of mention, respondents cited cough (32 times), fever (29 times), runny nose (28 times), chills (22 times), headache (22 times), sneezing (20 times), body aches (18 times), tiredness (16 times), lack of appetite (12 times), itchy eyes (2 times).

In general, nurses' knowledge level is the same among their categories. However, Knowledge does not seem to be influenced by sociodemographic characteristics such as age, sex, seniority or department of origin.

3.2.6. Seasonal Flu Prevention Measures

Concerning the measures taken to prevent seasonal flu, most respondents mentioned washing hands with soap, rubbing hands with a hydro-alcoholic solution, and wearing masks. In addition, some respondents evoked measures such as wearing blouses, and gloves, keeping physical distancing, cleaning and disinfection equipment and surfaces and using garbage cans to collect waste. A few respondents added that to avoid spending the night outdoors and wrap up lightly when it is cold. Unanimously, the interviewees recognised that it was the occurrence of Covid-19 that reinforced hospital hygiene measures within their training.

"Prevention measures have been reinforced with Covid-19. Fortunately, this disease resuscitated the hygiene committee of our hospital, while it had existed long before. I received wall posters on standard universal precautions, soap, detergents, alcohol, and gloves. Hopefully, these measures will continue, even after covid-19".

For some respondents, these measures relate more to the prevention of Covid-19 than seasonal flu.

"If I say that these measures are taken against Covid-19, it is because we had never been alerted to the presence of the seasonal flu before Covid-19, nor received any training or even soap to wash our hands".

3.3. Theme 3: Perceptions of Influenza

3.3.1. Perception of Vulnerability

The nurses interviewed unanimously acknowledged being at risk of catching the

flu. However, the last flu period varied between one week and nine months.

3.3.2. Perception of Seriousness

Most nurses interviewed perceived the flu as a generally mild, transient disease that could heal spontaneously without treatment. Nevertheless, they recognised that it could sometimes be complicated in people such as children under five years' old, weakened older adults, and people suffering from chronic diseases. These complications are usually pneumonia-causing respiratory distress and death. They further stated that in case of death, the table of complications is brought up in the foreground. It is how respondents think the flu is not deadly by itself. Instead, it is its complications that kill.

"The flu, as such, is not deadly. However, it can become so in older adults with other health problems, pregnant women and children less than five years old. In addition, with my experience in the paediatric department, I have found that malnourished children or those with a history of chronic bronchitis pose problems if they catch the flu. They often have complications and can die from them."

A minority of respondents categorically stated that the flu is not deadly.

"The flu is not a severe illness. It comes, and it passes without problem. You can even heal without taking medication, nothing by taking hot drinks".

3.3.3. Perception of Threat

The nurses interviewed did not consider seasonal flu a threat to health, considering it less severe and rarely fatal. However, with the covid-19 event, they said that any flu became a threat because of its similarity to covid-19.

"Seasonal flu is not a threat because no one fears it. However, when the symptoms of seasonal flu are the same as those of Covid-19 that is when we are afraid, afraid of catching it and dying from it. So the flu becomes a health threat."

"It is because of Covid-19 that seasonal flu is now a real threat because the symptoms are the same; they all have the same modes of transmission. We are also learning in social networks that Covid-19 is also becoming seasonal. So it is confusing."

3.3.4. Perception of the Effectiveness of Required Measures

Regarding the effectiveness of barrier and physical distancing measures, the nurses interviewed expressed confidence in their effectiveness given their own experience and the fact that they are part of the standard universal precautions.

"I confirm that his measures are effective because they are not new. They are part of standard universal precautions, nothing else. Therefore, these measures have already proven effective, and we cannot question them because we apply them daily".

If we are asked to apply its measures, somewhere, it is because they are effective. Otherwise, they should have recommended it to only some of us.

3.3.5. Perception of Benefits and Obstacles to Applying the Measures

Compared to the benefits and obstacles related to preventive measures, all the participants recognised that the main benefit was the preservation of health. As for barriers, they cited the cost of supplies such as masks, gloves, sanitisers, hand-washing devices, availability of running water, and digital thermometers. A few participants also cited ignorance, lack of information, wrong beliefs, the circulation of false information, rumours and the feeling of suffocation associated with wearing a mask.

"I would say that preserving health is the major benefit that can be drawn from these preventive measures. Therefore, if I speak of health, it is about good health, without which it is difficult to carry out the projects of our lives".

"*When it comes to obstacles, I classify them into material and non-material. The first category includes the unavailability of masks, gloves, disinfectants, hand-washing* devices, running water availability, and infrastructure issues. So all that is material, including low income. The second category includes ignorance, per-ceptions and beliefs, lack of good information, circulation of false information and rumours".*

"As an obstacle, I would like to insist on wearing a mask commonly called a face mask. However, unfortunately, people wear them on their chin, evoking the feeling of suffocation instead of wearing them properly on their noses and mouths."

3.4. Theme 4: Attitude towards Vaccination

The majority of the nurses interviewed had an unfavourable attitude to vaccination against Influenza, believing that there were already too many vaccines in circulation and that Influenza was a mild disease for which one cannot risk the side effects of vaccination (Canning et al., 2005; Delforge, 2019; Sundaram et al., 2018; Tuckerman et al., 2016; Zayet et al., 2021).

"A new flu vaccine is too much, even too much. The vaccine has become a solution to every illness; the vaccine against this, the vaccine against that. No, the flu is a mild disease. It does not need a vaccine in our country".

"The flu is a mild illness; one's cannot risk dying from its side effects."

Those who favoured vaccination, although in the minority, suggested vaccina-tion to a category of people, particularly those under five, the elderly, pregnant women and travellers. They said:

"I am for vaccination because it saves lives. If we recognise complications due to the flu for vulnerable people, we should vaccinate them".

"We healthcare providers are responsible for protecting ourselves and our pa-tients and should benefit from vaccination. In addition, travellers who visit countries with seasonal flu epidemics also need to receive vaccines".

3.5. Measures Taken to Treat Seasonal Flu

Most respondents declared resorting to self-medication to treat the flu and con-suming hot drinks based on herbal teas. Paracetamol was the most widely used

drug combined with lemon juice, orange juice, or ginger tea. Nevertheless, only children suffering from the flu whose fever or cough was persistent have used health services.

"If I catch a cough, I buy paracetamol combined with lemon or orange juices; it goes away. If a child is sick, I also give him paracetamol and a cough suppressant. If there is no improvement, I take him to the health centre."

3.6. Theme 5: Evaluation of the Actions of Government Health Authorities and Formulation of Recommendations

All those interviewed admitted that the actions of the health authorities to fight the flu were unapparent. Despite that, they made recommendations, including raising public awareness, training health personnel, and providing free masks, gloves, disinfectant and running water in health facilities and the community. For some participants, the government should also provide vaccines for vulnerable groups.

"We do not see what the health authorities are doing to fight the seasonal flu. For covid-19, it is different; the population is made aware of getting vaccinated".

4. Discussion

4.1. Knowledge about the Flu

4.1.1. Knowledge of Local Names for the Flu

Our study showed that in local languages (Lingala and Swahili), influenza is referred to by symptoms such as fever, cough or runny nose, while other illnesses have the same symptoms This is, for example, the case of malaria with fever, the case of tuberculosis with cough or the cases of various rhinitis which have runny noses. This situation shows the limits of these languages to designate diseases specifically.

4.1.2. Knowledge of the Causative Agent and Factors that May Facilitate Transmission

Our study showed that most nurses interviewed did not cite the influenza virus as the causative agent of influenza. As some clearly expressed, the reason would be the lack of in-service training and information campaign on seasonal flu.

Regarding the factors favouring influenza infection, the nurses cited cold, dust and age. Without these assertions not being erroneous, WHO insists on the lack of personal hygiene and promiscuity. As for dust, it is more involved in rhinitis, chronic allergic and obstructive lung diseases (WHO, 2018).

4.1.3. Knowledge of the Most Affected Groups

The nurses in this study revealed that children under five and the elderly are the most affected, despite admitting that the flu affects all age groups. Apart from age groups, a few participants mentioned pregnant women as a group at risk.

For its part, WHO admits that the flu affects all ages indiscriminately. Still, the people at high risk of developing complications are children under five years old,

people over 65 years old, pregnant women, people with chronic infections and healthcare personnel. The results of our study, citing more children and the elderly, could be justified by the categories of people who attend health services in the event of influenza. Studies conducted in the DRC have shown that around 40% of influenza cases in healthcare settings are children under 5 years old (Muhemedi et al., 2022a).

4.1.4. Period of the Flu Outbreak and Mode of Transmission

Regarding the period of occurrence of outbreaks of influenza cases, the results of our study found that these outbreaks often occur during the dry season. These results are in contrast to those of studies carried out on the surveillance of seasonal influenza in the DRC, which located the outbreak period during the rainy season. These same studies showed that the outbreaks of cases occurring during the dry season were not caused by the influenza virus, but more associated with dust and other pathogens (Muhemedi et al., 2022b).

4.1.5. Knowledge about Mode of Transmission, Flu Symptoms and Prevention Measures

Our study found the following results:

- Regarding transmission, respondents consistently distinguished direct transmission from direct contact with a person sick with Influenza from indirect transmission from contact with soiled objects.
- The most common symptoms were: cough, fever, runny nose, chills, headache, sneezing, body aches, tiredness, lack of appetite and itchy eyes.
- The main measures to prevent seasonal flu were: washing hands with soap, rubbing hands with a hydro-alcoholic solution, and wearing masks. In addition, some respondents evoked measures such as wearing blouses, and gloves, keeping physical distancing, cleaning and disinfection equipment and surfaces and using garbage cans to collect waste.

Overall, nurses' knowledge of seasonal Influenza was modelled on covid-19, which was not the subject of our study. Although nurses transferred their knowledge of Covid-19 to the flu as these two diseases have similarities regarding mode of transmission, symptoms, and preventive measures (Zayet et al., 2021).

4.2. Perceptions of the Seasonal Flu

4.2.1. Perception of Vulnerability

This study showed that the nurses all felt vulnerable to catching the flu. These results differ from those found in other studies where healthcare workers, including nurses, said they could not get the flu because they had sufficient immunity (Clarke, 2007; Hwang & Lim, 2014; Lehmann et al., 2014).

4.2.2. Perceptions of Seriousness and Threat

The nurses interviewed did not perceive the flu as a severe illness or a threat. These results are similar to those of other researchers in warm regions (Tuckerman et al., 2016). These results are consistent with the HBM model, for

which the perception of threat is the sum of the perception of vulnerability and severity (Reuter & Renner, 2011). Since the severity of the flu was absent, this model would like the threat not to be. As soon as they sensed the seriousness of Covid-19, the nurses also perceived the threat because of the similarity of the signs between these two diseases (Clarke, 2007).

4.2.3. Perception of Benefits and Obstacles to Applying Control Measures

Our study showed that the preservation of health was the main benefit for the respondents. On the other hand, the cost of supplies such as masks, gloves, disinfectants, hand washing devices, the availability of running water and electronic thermometers. Nevertheless, ignorance, lack of information, wrong beliefs, fake news, rumours and the feeling of suffocation linked to wearing a mask have been obstacles to applying preventive measures. However, if they succeeded in applying its measures, according to HBM's theory, they considered them efficient and more advantageous than the obstacles (Durham et al., 2012; Reuter & Renner 2011). Therefore, their actions are attributed to covid-19 than seasonal flu.

4.2.4. Perception of Benefits and Obstacles for Applying Control Measures

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4.3. Attitude towards Seasonal Influenza Vaccination

Although influenza vaccination is not yet officially introduced in the DRC, the results of our study showed that the nurses interviewed, for the most part, had an unfavourable attitude to influenza vaccination. This attitude is explained by the absence of perception of the threat compared to seasonal Influenza, which is consecutive to the absence of perception of seriousness (Willis & Wortley, 2007; Leask et al., 2010). However, once some nurses perceived the seriousness of seasonal Influenza in certain groups of people, their attitudes were in favour of influenza vaccination for these groups. Moreover, the reluctance of their attitudes on the introduction of the flu vaccine can be explained by the innovation theory of Rogers, which states that only about 25% of people immediately accept an innovation, which in this specific case would be a new vaccine (Doyle et al., 2014).

4.4. Measures Taken to Treat Seasonal Flu

Our study showed that most respondents resorted to self-medication to treat the flu and consume hot drinks based on herbal teas. Paracetamol was the most

commonly used medicine in combination with lemon juice, orange juice or ginger tea. Children with influenza who had a persistent fever or cough sought health services. The results of our studies are contrary to those of Carrat et al. (2004) in France who found that self-medication is one of the ways to seek care alongside the advice of a pharmacist or the consultation of a doctor.

4.5. Evaluation of the Actions of Government Health Authorities and Formulation of Recommendation

The results of our study found that the actions of health authorities to fight Influenza were not apparent. This situation is explained by the fact that the flu is not considered by these authorities as a priority disease to be addressed. To date, there are no policies or programs for controlling seasonal Influenza. The government's actions are limited to epidemiological surveillance by four sentinel sites in Kinshasa (Muhemedi et al., 2022a).

5. Limits

Being a qualitative study with a reduced sample, the results of our study remain circumscribed in the locations where they were generous and do not be extrapolated across the country. In addition, this study was conducted in urban and peri-urban environments but not in rural areas. Furthermore, the occurrence of the Covid-19 pandemic shifted interviewees' answers towards this disease because of its similarity with seasonal Influenza.

6. Conclusion

Our study conducted in the two largest cities of the DRC allowed us to highlight the level of knowledge, perceptions, attitudes and practices vis-à-vis seasonal influenza vaccination. Given the similarity of Influenza to Covid-19, participants' level of knowledge was limited as their responses to the questions posed were geared more towards Covid-19 rather than seasonal Influenza. The majority of participants considered the flu to be a mild illness which rarely could get complicated. Therefore, it did not pose a threat to health. In addition, their attitudes were unfavourable to vaccination apart from a few respondents who felt that the latter would be committed for people at high risk of complications. Once sick, the respondents admitted to self-medication with antipyretics and hot herbal teas. However, children were conveyed to consult a care centre in the event of aggravation of the symptoms. Regarding evaluating the action of health authorities against Influenza, the participants had no information on their interventions to control seasonal Influenza. From the above, it is crucial to train nurses on seasonal flu, which is not Covid-19, and to make them aware of the risk of mortality, it presents to vulnerable people.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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