


What Affected Primary Care Patients' Decisions to Receive the Seasonal Influenza Vaccine in the 2020 to 2021 Season?

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Abstract

Introduction/objectives: A primary care patient's decision to undergo seasonal influenza vaccination may have been different during the global COVID-19 pandemic in the 2020 to 2021 season. The purpose of this study is to investigate what affected primary care patients' decisions to undergo seasonal influenza vaccination in the 2020 to 2021 season. **Methods:** Semi-structured interviews were conducted in a primary care clinic in Ibaraki, Japan. We used a purposive sampling strategy to reach individuals aged 20 years or older who underwent influenza vaccination. The transcripts were analyzed using thematic analysis. **Results:** Twenty-one patients completed the interview. Two main themes emerged: the desire to avoid risks to one's health and being a part a community in coexistence with others. The first theme included desire to avoid influenza and expectations that vaccination will prevent severe disease. The second theme included concerns about the consequences of one's own influenza infection on others in the community and necessity of vaccination based on the surroundings and others. **Conclusions:** Raising awareness of risk factors such as older age and comorbidities, and the expectations of community members might be effective in promoting influenza vaccination.

Keywords

influenza vaccine, primary care patient

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Introduction

On average, seasonal influenza causes an estimated 389 000 deaths from respiratory disease each year in the world.¹ In Japan, the seasonal influenza vaccine is recommended for persons aged 65 years or older and for persons aged 60 years or older who have underlying medical conditions like severe heart disease or respiratory disease. Influenza vaccination coverage in this population has been approximately 50% in recent years.²

In August 2020, the Japanese Association for Infectious Diseases stated that preparation for a seasonal influenza epidemic was needed during the global coronavirus disease 2019 (COVID-19) pandemic. They strongly recommended influenza vaccination, especially for elderly or high-risk patients.³ The government announced that the supply of seasonal influenza vaccines for the 2020 to 2021 season was expected to be higher than in the previous season. Given this context, influenza vaccination coverage in the 2020 to 2021 season might be higher in Japan compared with coverage in previous seasons.

Previous studies reported factors contributing to decisions about undergoing influenza vaccination.⁴ Individual perceptions about vaccine efficacy and susceptibility to influenza are associated with seasonal influenza vaccination. Recommendations from doctors or family members also promote influenza vaccination. Decisions to undergo seasonal influenza vaccination might be different given the global pandemic of COVID-19 in the 2020 to 2021 season.

Past influenza vaccination behavior strongly influences influenza vaccination in the following year.⁵ It also

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Table 1. Interview Content.

Category	Question
1. Basic characteristics	Do you visit doctors regularly? Do you have any medical conditions?
2. Influenza	Please tell me about your perception of influenza.
3. Reason for influenza vaccination	Have you ever received the influenza vaccine before this season? Why did you get the influenza vaccine this season? What influenced your decision to undergo influenza vaccination?
4. Willingness to get the influenza vaccine next season	Do you think you will receive the influenza vaccine next season?

predicts receipt of newly introduced vaccines such as the pandemic influenza vaccine⁶ and the pneumococcal vaccine.⁷ Therefore, it is important to understand why individuals decide to undergo influenza vaccination in order to maintain seasonal influenza vaccination coverage in subsequent seasons.

The purpose of this study is to investigate what affected primary care patients' decisions for receiving the seasonal influenza vaccine in the 2020 to 2021 season. Since there were no available studies during that time about individuals' influenza vaccination behaviors, we conducted an interview survey to learn about new perceptions and attitudes. Our study helps provide insight on how to promote influenza vaccination in the next season.

Methods

Study Setting

This study was conducted at a primary care clinic in Kitaibaraki City, Ibaraki, Japan, from October to December 2020. Kitaibaraki City is a small city with a population of approximately 41 000. It is 200 km away from Tokyo. In Kitaibaraki City, 35.8% of the population is over the age of 65, which is higher than 29.1% for Japan overall. Each day, approximately 80 to 100 patients of all ages visit the clinic. Influenza vaccination costs approximately 4000 yen (36 USD) in Japan. This cost is usually halved for people aged 65 years or older with a municipal subsidy. Only the inactivated quadrivalent vaccine is available in Japan. In principle, people aged 13 years and older get the influenza vaccine annually. Seasonal influenza vaccination was provided only in clinics or hospitals in Japan starting in October. The government recommends receiving an influenza vaccine by the middle of December.

Participants

We used a purposive sampling strategy to reach individuals aged 20 years or older who underwent influenza vaccination. Initially, we approached patients who had received the vaccine on the same day as the interview. After enrolling 13

participants, we also included individuals who had undergone influenza vaccination before the day of the interview because most patients had already undergone influenza vaccination near the end of study period. Patients were excluded if they were working as doctors or nurses. Patients were also excluded when their doctor judged that they lacked the ability to answer the interview questions because of their physical or cognitive status. At the end of the examination, doctors asked eligible patients whether they are interested in participating in the interview. If they answered yes, NK (first author) explained the study and obtained consent. The ethics committee of Kitaibaraki City Hospital approved this study (approval number 0204).

Interviewer

All interviews were conducted by NK. NK is a primary care physician who works at the clinic except on interview days. NK was trained in qualitative research after obtaining a doctoral degree.

Interviews

Semi-structured interviews were performed face-to-face in Japanese in a room separate from the consultation area in the clinic. They were performed every Friday during October to December in 2020. Interviews took 15 to 30 min. They were recorded with an audio recorder. There was no compensation for interviewees.

The interview guide was developed based on a previous study.⁸ We asked about basic characteristics, perceptions about influenza, reasons for undergoing influenza vaccination, and willingness to undergo influenza vaccination next season (Table 1). As needed, the interviewer changed the order of questions and added additional questions in order to clarify the meaning of the interviewee's responses. Interviews were conducted until no additional divergent cases were identified.

Data Analysis

Data collection and analysis were simultaneously performed throughout the study period. All interviews were

Table 2. Characteristics of the Study Participants.

Participant number	Sex	Age, years	Influenza vaccination in the 2019-2020 season	Regular medical visits
1	F	25	Yes	Yes
2	M	65	Yes	Yes
3	M	77	No, this is the first time	Yes
4	F	73	Yes	Yes
5	F	63	Yes	No
6	M	72	Yes	No
7	F	66	Yes	No
8	M	79	Yes	Yes
9	F	71	Yes	Yes
10	M	78	Yes	No
11	F	66	No, but has been vaccinated in other seasons	Yes
12	M	74	Yes	Yes
13	F	68	Yes	Yes
14	F	40	Yes	Yes
15	F	71	Yes	Yes
16	F	63	Yes	No
17	M	78	Yes	Yes
18	M	73	No, this is the first time	Yes
19	F	76	Yes	Yes
20	F	72	No, this is the first time	Yes
21	M	72	Yes	Yes

Abbreviations: F, female; M, male.

transcribed by NK in Japanese. The transcripts were analyzed using thematic analysis as introduced by Braun and Clarke.⁹ RG (second author) is a physical therapist. SY (third author) is a primary care physician who works at the clinic 3 days a week. RG and SY are both experienced qualitative researchers. First, NK generated initial codes. Next, NK and RG discussed unclear codes and themes. Finally, all authors discussed the codes and themes, and agreed about the final themes.

Results

We asked 29 patients to participate in this study. Eight patients declined to participate. Twenty-one patients completed the interview. All interviews were analyzed.

Of the 21 participants, 9 were men and 12 were women. Seventeen participants were aged 65 years or older; the median age was 72 years. Three participants reported that they had never received an influenza vaccine before the 2020 to 2021 season. One participant stated that she did not receive an influenza vaccine in the 2019 to 2020 season but had done so in previous years (Table 2).

Undergoing influenza vaccination in the 2020 to 2021 season was motivated by the desire to avoid risks to one's health and being a part a community in coexistence with others.

Theme 1: Desire to Avoid Risks to One's Health

Desire to prevent influenza. A history of influenza infection made participants realize that influenza causes uncomfortable symptoms, especially high fever. Participants who had a history of influenza wanted to prevent getting influenza again. Participants who never had influenza before also thought that influenza causes high fever and results in an uncomfortable experience based on their perceptions or the experience of those around them. These thoughts about influenza influenced the decision to undergo vaccination.

It's scary to have a high fever when you have [influenza]. . . In fact, I feel like I am no longer in my body when I have a fever that high. Yes, I have experienced it. (Participant 8)

I've never had influenza, but I've heard that it's really tough. I don't want to catch influenza. (Participant 2)

Participants' desire to prevent influenza was also derived from the context of the common cold, which was prevalent during the same season. Compared to the common cold, which was perceived to be a mild, self-limited disease, influenza was perceived differently. Participants preferred to avoid influenza more than the common cold because of its severity. Some participants were confused about the

efficacy of influenza vaccination and expected that the influenza vaccine would prevent them from catching the common cold:

I think one immediately recovers from [the common cold] with [over-the-counter drugs]. Well, even if you don't take any medicine, it would be cured by itself after the runny nose and cough go away naturally [. . .]. I think [influenza] causes pneumonia and becomes a severe disease, causing me to suffer me a lot, with a prolonged high fever. (Participant 13)

I think that [the influenza vaccine] makes the symptom of common cold milder. I feel there is a connection between the common cold and influenza [. . .], because we could catch the common cold by inhaling something in the air. (Participant 12)

During the COVID-19 pandemic, participants viewed influenza and COVID-19 as interconnected. Participants had vague fears about influenza and COVID-19 co-infection. Consequently, the desire to prevent co-infection and the availability of the influenza vaccine led to influenza vaccination; at the time, COVID-19 vaccines were not available. All participants who did not receive the influenza vaccine in the 2019 to 2020 season reported that their decision to be vaccinated in the 2020 to 2021 season was influenced by the COVID-19 pandemic:

Frankly, I feel somewhat scared by COVID-19. So, I decided. (Participant 11)

I think if I catch COVID-19 and influenza, my body would be severely damaged. I also think if I catch only one disease, it would turn out okay, somehow. So, if I get COVID-19 in the worst case scenario, I think influenza would have less influence if I prevent one disease with a vaccine. (Participant 14)

Expectations that influenza vaccination will prevent severe disease. Participants understood that the influenza vaccine does not completely prevent them from catching influenza. The realization of incomplete vaccine efficacy was based on their own experience or others' experience with influenza even after influenza vaccination. In addition to the vaccine's effectiveness in preventing influenza, participants expected the vaccine would be effective in preventing severe influenza. They developed this belief based on their experiences:

Even if you get the influenza [vaccine], you could get influenza when the type is different or incompatible. Because I expect the influenza vaccine would make influenza milder, which could make a difference, I decide to get the influenza vaccine annually. (Participant 13)

I have a lot of confidence in the influenza vaccine, and I feel safe if I take it. That's one of my reasons. (Participant 9)

Participants recognized that being older or having multiple medical conditions is associated with a higher risk of getting influenza resulting in severe disease or death. This possibility increased the perception of risk and made influenza vaccination an annual event:

I think it would be better to get the influenza vaccine because I have diabetes and I'm old. I'm already over 70, so I think there are many factors that could cause me to get influenza. (Participant 4)

When you get older, you are more likely to get [infectious] diseases. I've heard about this fact and I've also heard that a famous elderly comedian died from COVID-19. I think he had an underlying disease. Although I don't know if his death was due to the underlying disease, I actually think older people are more likely to get [infectious diseases] and die from them. (Participant 17)

I will get [the influenza vaccine next year]. After all, even if I don't consider anyone but myself, I am only getting older and older, so I will get the vaccine. (Participant 5)

Theme 2: Being a Part a Community in Coexistence With Others

Concerns about the consequences of one's own influenza infection on others in the community. Participants were concerned about infecting others with influenza, such as family members, acquaintances, and colleagues. Participants were also concerned about being absent from work or putting others at risk due to their infection. This concern led to vaccination behavior. Participants recognized the vaccine is needed in all community members, especially if a family member is at high risk. Their purpose in getting the vaccine was to reduce the risk of transmitting influenza to others directly as well as generally reducing influenza transmission within the community:

If I get infected with influenza, I make trouble for those around me. I think it is important to not cause trouble for everyone. (Participant 6)

If you get the influenza vaccine, it helps the people around you. When someone is infected with influenza, they can be out of work for a week. (Participant 13)

All members of our family get the influenza vaccine. If not, well, it's not meaningful. Although I'm unsure, I think our family would be in trouble if we don't get the vaccine together, if a member of our family who doesn't get it catches influenza. (Participant 13)

If everyone gets the influenza vaccine, even if you get infected, it won't be so bad and the epidemic will stop before it gets too bad. (Participant 7)

Necessity of vaccination based on the surroundings and other people. Participants who were working received the influenza vaccine regardless of age, history of influenza, or risk because their workplace recommended vaccination and sometimes provided the opportunity to receive the vaccine on-site. Elderly participants were motivated to receive the influenza vaccine when it was recommended by their family doctor or the clinic staff:

I've been working at a pharmacy for 15 years. Of course, I come into contact with patients with influenza, but I've never caught it. I don't know how many years it has been . . . about 5 years ago, that we were required to get the vaccine. (Participant 14)

In my company, a doctor and a nurse come to my workplace. All the staff at our company get the vaccine from them on that day. Some staff who were off on that day come to the workplace to get it. (Participant 1)

I didn't know about [the influenza vaccine] until [the clinic staff] asked me about vaccination. That's how I learned that I can get it today and I decided to get it. (Participant 18)

Discussion

Our study revealed 2 themes about what influenced participants' decisions to receive the influenza vaccine in the 2020 to 2021 season: desire to avoid risks to one's health and being a part a community in coexistence with others.

Participants were afraid of high fever caused by influenza regardless of whether they previously had influenza. They recognized that influenza with high fever is a serious experience. An interview survey of elderly British people reported that influenza was viewed as a systemic illness and strongly related to fever.¹⁰ Another study also reported that the general population thinks the key difference between influenza and the common cold is that high fever occurs in influenza.¹¹ High fever might be a key feature of influenza for them, and fear of high fever makes them get the influenza vaccine.

Participants were highly influenced by COVID-19. They were afraid of COVID-19 and influenza co-infection. The COVID-19 pandemic has impacted their intent to receive the influenza vaccine.^{12,13} COVID-19, perceived as an unknown threat, seemed to amplify the seriousness of influenza and increased the perceived necessity of influenza vaccination.

Participants in our study wanted to avoid serious disease and they perceived influenza to be severe. Perceived severity of influenza is high among vaccinated individuals, while unvaccinated individuals do not perceive that the severity of influenza is high for themselves.¹⁴ Their perceptions of

severity are partly derived from their situation. Older age and comorbidities were recognized as making one vulnerable to infectious diseases and more at risk of serious outcomes, consistent with previous reports.¹⁵ Participants who underwent influenza vaccination annually said they get vaccinated because they do so every year and they intend to continue getting vaccinated because the older they get, the more at risk they are. Therefore, it might be important to provide patients an opportunity for first-time vaccination by educating them about their level of risk for influenza.

The influenza vaccine was considered to not always prevent influenza. Participants believed the vaccine would be effective in preventing severe disease. Whether to get the vaccine was based on an assessment of susceptibility, influenza severity, and vaccine effectiveness.¹⁶ It has been reported that those who get vaccinated believed in vaccine effectiveness even though vaccines did not prevent them from getting influenza.¹⁷ There is sufficient belief in vaccine effectiveness and imperfect protection did not diminish the intention to get vaccinated.

Participants wanted to avoid transmitting influenza to others. Previous qualitative studies reported vaccination for the sake of significant others.¹⁷⁻¹⁹ In addition, some participants described transmitting or getting influenza as causing trouble, which is improper for community members. Japan, in part, still has a collectivistic culture which values social and individual ties.²⁰ Both protecting others and not causing trouble in the community are important to the decision to receive the influenza vaccine.

We also revealed the importance of others in the community. Participants were motivated by the expectations of community members. Our finding seems to be similar to "subjective norms," a component of the theory of planned behavior.²¹ Subjective norms are defined as the recognition of whether people who are important to you would support adopting the behavior. Subjective norms is associated with influenza vaccination.²² Enhancing subjective norms might be an effective way to increase the intention to get vaccinated.

Our study had several limitations. First, interviews were conducted at the clinic where the interviewer was working as a doctor. This might have led participants to provide socially desirable answers. Second, the first 13 participants were interviewed on the day of vaccination and the remaining 8 participants received the vaccine before the day of the interview. Although participants' thoughts might have changed after vaccination, we believe any such change would have had little influence on the results because the interview was performed within 60 days after vaccination. Despite these limitations, we believe that our study revealed new insights on patients' decisions to receive the influenza vaccine during an epidemic of a new infectious disease.

Conclusions

Our study revealed that the decision to undergo influenza vaccination in the 2020 to 2021 season was influenced by the desire to avoid risks to one's health and expectations about influenza vaccination preventing severe disease. Participants were afraid of COVID-19 and influenza co-infection. COVID-19 influenced decision-making in the 2020 to 2021 season. Their decision was also influenced by concerns about the consequences of one's own influenza infection on others in the community and the necessity of vaccination based on the surroundings and other people. Raising awareness of risk factors, such as older age and comorbidities, vaccine efficacy, and the expectations of community members might be effective in promoting influenza vaccination.

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