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Influenza Vaccinations: Older Adults' Decision-Making Process

Amanda McIntyre,¹ Aleksandra Zecevic,² and Laura Diachun^{3,4}

RÉSUMÉ

Le but de cette étude était d'explorer les influences auto-évaluatives parmi les personnes plus âgées en décidant de prendre ou non le vaccin contre la grippe saisonnière. Trente-et-un receveurs et six non-receveurs (âgés de 67–91 ans) ont participé à six groupes de discussion à London, Ontario. Les réunions des groupes de discussion ont duré environ 60 minutes, ont été enregistrées sur bande audio-magnétique et transcrites mot à mot. Les principaux animateurs de la prise du vaccin étaient les recommandations et la confiance dans les professionnels de la santé, et la croyance en l'efficacité du vaccin. Les principaux obstacles étaient la peur des réactions indésirables et la croyance en la capacité de résistance des personnes âgées. L'Agence de la santé publique du Canada et les membres de professions paramédicales devraient sensibiliser les personnes âgées à un diagnostic précis des symptômes de la grippe, l'efficacité des vaccins et les populations qui sont à risque de contracter la grippe. L'accent devrait être mis sur la correction des idées fausses au sujet des effets indésirables.

ABSTRACT

The purpose of this study was to explore the self-perceived influences among older adults in deciding whether to take or not take the seasonal influenza vaccine. Thirty-one receivers and six non-receivers (aged 67–91) participated in six focus groups in London, Ontario. The focus group meetings lasted approximately 60 minutes, were digitally audio-recorded, and transcribed verbatim. Inductive content analysis was performed to analyse the transcripts. The major facilitators of taking the vaccine were recommendations by, and trust in, health professionals, and a belief in vaccine efficacy. The major barriers were a fear of adverse reactions and the belief in resilience of an older adult. The Canadian Public Health Agency and allied health professionals should educate older adults in accurate influenza symptoms, vaccine efficacy, and populations at risk for contracting influenza. Focus should be given on correcting misconceptions about adverse events.

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Introduction

Seasonal influenza, more commonly known as the flu, is an infection of the airways caused by various influenza viral strains (Butler-Jones, 2008). Approximately

15–20 per cent of Canadians develop the infection each year (Statistics Canada, 2008). Despite its being preventable, between 4,000 and 8,000 Canadians die every year from influenza and its complications

(Canadian Coalition for Immunization Awareness and Promotion, 2009). The illness can be more harmful to high-risk individuals including adults over the age of 65 and people with weakened immune systems (World Health Organization [WHO], 2009). In industrialized countries, 90 per cent of deaths caused by influenza occur in older adults (Wilson, 1994). Statistics Canada (2008) reported that between 70,000 and 75,000 hospitalization admissions in 2008 were for influenza complications alone. Jefferson, Wegmuller, and Ward (1999) reported that the total cost of influenza in Canada is approximately one billion dollars per year accounting for both productivity loss and higher health care costs.

The most effective way to prevent contracting the disease is to receive the seasonal influenza vaccination (Centers for Disease Control and Prevention, 2011). The vaccine can prevent between 70 per cent and 90 per cent of influenza-specific illness at any age if the correct viral strains are chosen for inclusion in the vaccine (WHO, 2009). Specifically among older adults, the vaccine is highly effective in preventing severe influenza by up to 60 per cent and death by influenza-associated complications by up to 80 per cent (Dean et al., 2010). According to the Centers for Disease Control and Prevention (CDCP, 2011), side effects are possible and may include soreness, redness, or swelling at the vaccine site, a low-grade fever, or body aches. Life-threatening allergic reactions are rare but may include breathing problems, hives, paleness, or weakness (CDCP, 2011).

It is important to consider the consequences of influenza for elders since the Canadian population experiences yearly influenza epidemics. In an effort to prevent or slow such epidemics, the Public Health Agency of Canada (2012) recommends that all Canadians over the age of 65 receive the seasonal influenza vaccine. Despite strong evidence from research, on average, 35 per cent of elderly Canadians fail to receive their annual vaccination (Statistics Canada, 2008). Given the rapidly aging Canadian population, current vaccine coverage rates for older adults are a cause for concern. Although scientists in the United States (Santibanez et al., 2002) and Australia (Ridda, MacIntyre, & Lindley, 2009) have explored this important topic, contemporary research within a Canadian context is lacking. Consequently, we designed our study with the objective of exploring the self-perceived influences among older Canadian adults in deciding whether to take or not take the seasonal influenza vaccine.

Methods

A qualitative cross-sectional design was used with focus groups as the method of data collection. Ethical approval for this project was obtained from the Research Ethics Board of Western University. Eleven males and

26 females ($n = 37$) took part in six focus groups conducted at five locations (four retirement homes and one condominium building) between August and November 2010. The average age of participants was 82 years ($SD = 6.6$, range: 67–91 years). Support services such as housekeeping and laundry services, social programs, and in-house dining were offered at all sites except one. Four of the residences had paid staff (e.g., a registered nurse) working on-site, and the older adults were considered community-dwelling but living with assistance. Participants in one focus group lived entirely independently. All participants met the study inclusion criteria of (a) living in the community without extensive assistance with activities of daily living, (b) being over age 65, and (c) being fluent in English. The researchers had no previous contact and no relationship with participants.

Focus group meetings, conducted by the first author, lasted approximately 60 minutes and were digitally audio-recorded. One note taker was present, and when the conversation stalled, the author minimally probed participants for more discussion. A consent form and demographic questionnaire (with questions on age, gender, marital status, income, living situation, and current status of influenza vaccination receipt) were completed in advance. Focus group questions were guided by existing literature which indicated the most prominent barriers to and facilitators in receiving the vaccine (Andrew, McNeil, Merry, & Rockwood, 2004; Evans, Prout, Prior, Tapper-Jones, & Butler, 2006; Santibanez et al., 2002 – see Table 1 for a list of specific focus group questions). With simultaneous data collection and analysis, data saturation was reached after the sixth focus group when no new themes emerged.

Focus group sessions were transcribed verbatim and organized using QSR International's NVivo 8 software. Three research members coded one transcript independently and then compared transcript codes for consensus. The fully coded dataset was analysed using inductive content analysis, a process by which a set of codes are created from the data and then organized into patterns and themes (Elo & Kyngas, 2008). To ensure rigor, we used member checking, a process whereby data are shown to the individuals from whom they were originally obtained to ensure they were an accurate reflection of their thoughts and feelings. The researcher did her best to adhere to focus group protocol and to take detailed debriefing notes; participants were encouraged to ask questions about influenza or its vaccine during the debriefing session. Finally, data were triangulated to ensure an adequate mixing of data such that diverse viewpoints could validate the topic (Olsen, 2004). If there was any discrepancy in the identification of themes, it was resolved through discussion with all of the authors.

Table 1: Focus group questions and probes

Questions	Probes
What is your history of receiving the flu shot and do you plan to receive it in the future?	Do you always get it? Never? Ever?
What do you know about seasonal influenza and the seasonal influenza vaccine?	Who is most at risk? What kind of side effects can occur? Vaccine works well/doesn't work well Side effects are major/Side effects are minor
What types of things contributed to your decision to receive or not receive the influenza vaccination?	
What types of things made it easier to obtain the influenza vaccine?	
What types of things made it easier to obtain the influenza vaccine?	Family, friend, or other social pressures? Media – radio, television, advertisement, etc. Physician recommendation? On a priority list? Positive past experience? Personal experience involving adverse reactions? Negative past experience? Not on priority list? Past historical events? Access issues?
What types of barriers did you encounter that may have restricted your ability to receive the vaccine?	

Results

Participants' personal attributes from the demographic questionnaire are presented in Table 2. Overall, the study group was relatively homogeneous, particularly in terms of age and education. Regarding vaccine receipt, 6 participants were identified as those not receiving the vaccine (non-receivers), and 31 participants as those receiving the vaccine (receivers). All recruited participants remained in the study until its completion.

Participants provided rich information about their experiences and described factors that influenced their decision-making process regarding vaccine receipt. Content analysis produced 15 codes from which five overarching themes emerged (see Table 3). The five themes were moderators, beliefs, prevention, accessibility, and knowledge. Moderators and beliefs were the two most influential themes while prevention, accessibility, and knowledge played smaller roles in the decision-making process.

Table 2: Participant demographic information categorized by focus group designation

FG	Education		Age (years) Mean (SD)	(years) Mean (SD)	No. of Children Mean (SD)	Vaccine Receipt		
	Gender	Source of Income				R(n)	NR(n)	
								M
1 RH	2	4	84 (3.7)	12 (3.2)	1.0 (1.0)	SS & Pension	5	1
2 RH	2	2	79 (8.5)	12 (2.5)	3.0 (2.0)	SS & Pension	2	2
3 AB	0	8	81 (8.0)	15 (2.4)	3.0 (1.8)	Pension	7	1
4 RH	2	5	82 (7.0)	13 (2.2)	3.0 (1.0)	Pension	6	1
5 RH	1	4	86 (6.0)	14 (2.2)	3.0 (1.3)	Pension	4	1
6 RH	4	3	84 (4.4)	15 (2.0)	2.9 (3.0)	Pension	7	0
Mean	2	4	82 (6.6)	14 (2.6)	2.5 (2.0)		5.2	1.0

- AB = apartment building**
- F = females**
- FG = focus group**
- M = males**
- NR = non-receiver**
- R = receiver**
- RH = retirement home**
- SD = standard deviation**
- SS = social security**

Table 3: Major themes uncovered in the focus groups with their respective codes relating to why individuals choose to receive or not receive the seasonal influenza vaccination

<i>Moderators</i>	<i>Beliefs</i>	<i>Prevention</i>	<i>Accessibility</i>	<i>Knowledge</i>
General practitioner Intimate relationships Fear of adverse events	Choice Risk Vaccine efficacy	Health behaviours Protection	Cost Location Transportation Wait time Availability	Flu symptoms Vaccine attributes

Moderators

The three coded categories encompassed by the moderators theme were *general practitioners*, *intimate relationships*, and *fear of adverse events*. Overwhelming response from receivers indicated that their family doctors had the strongest influence on their decisions to receive the vaccine. Receivers made comments such as, “If the doctor recommends it, I just take his or her word for it,” and “I just trust my doctor; when he said I needed it, I took it.” Receivers expressed extensive trust in the health care system and the willingness to put the ownership of their health into their physicians’ hands. One participant said, “The doctor recommended [the vaccine], and we have full confidence in our doctor’s recommendation to follow his advice.”

Intimate relationships functioned as both a facilitator and barrier for influenza vaccine receipt, with spousal influence stronger than influences by children or friends. One woman said, “My husband always got the flu shot so I figured I better get it too.” The vast majority of the older adults’ children reportedly did not advise their older parents to get the influenza vaccine. However, one participant said: “If we’re all sitting around here and the person next to me is coughing their head off I think [...] oh geez maybe I’m going to get what she has,” and would then be reminded to take the vaccine. The influence of friends also acted as a barrier in receiving the vaccine; as one non-receiver said: “My friends got so sick [after getting the vaccine], I didn’t want any part of the vaccine.”

Adverse events were described as side effects that should not normally occur after receiving a vaccine. Nearly all of the study participants had heard of others (e.g., friends, family) who had experienced adverse events that were attributed to the influenza vaccine; however, only 4 of 37 participants had personally experienced an adverse event post-receipt. Half of the non-receivers indicated that adverse events were the primary reason that they did not take the influenza vaccine. One fearful non-receiver said, “That’s the reason I don’t take it, [...] I don’t want to get sick from someone giving me a needle.”

Beliefs

The three codes encompassed by the beliefs theme were *choice*, *risk*, and *vaccine efficacy*. Participants provided insight into their perceptions of the freedom they had in choosing to take or not take the influenza vaccine. About half of the individuals in this study verbally expressed their belief that they had the freedom to choose. Four individuals reported that their original decision may not have been their choice, or that their decision was strongly influenced by others.

Risk described how vulnerable participants believed they were in contracting seasonal influenza. All of the study participants agreed that older adults are more at risk. One older man said: “Because of our age, our immune systems are lower and if you catch a cold, before you know it you’re in the hospital: you got pneumonia.” Participants also believed that some people might be more vulnerable to contracting the illness than others. All of the non-receivers indicated that they were not in need of the vaccine because they were not vulnerable and not at risk of contracting the disease. One non-receiver said, “so far I’m okay, I never get any [influenza], I never get [it].”

Participants were asked how effective they believed the vaccine was in preventing influenza. All 37 participants indicated that they did not know for sure that the vaccine was effective but that they “believe in it.” All 31 receivers agreed that past positive experiences with the vaccine was all the proof that they needed. One participant said, “My wife does [believe], and she has never had the flu.” While non-receivers also believed that the vaccine was effective, this was not a sufficient motivator for them to take it.

Prevention

The two codes encompassed by the prevention theme were *health behaviours* and *protection*. Participants were asked to describe how they attempted to remain healthy in later life. Similarities and differences in health behaviours existed between receivers and non-receivers. All of the receivers said that taking the influenza vaccine was part of the way they tried to stay

healthy. One participant said, "I think it's just something you do as part of your health, just like you try to eat properly." Only two non-receivers specifically reported using preventive health behaviours.

For some participants, the primary reason for receiving the vaccine was for the protection of others. Many receivers reported that they took the influenza vaccine because they wanted to protect their spouse or "those with a compromised illness or who is elderly."

Accessibility

The five codes encompassed by the accessibility theme were *cost*, *location*, *transportation*, *wait time*, and *availability*. The accessibility theme described factors affecting older adults' decisions either prior to or during vaccination. Participants frequently indicated that they were grateful that they lived in Canada where the vaccine is free, always available, and relatively easy to get. One participant said, "You just go, give him your OHIP [Ontario Health Insurance Plan] card, and that's it." In the experiences of these participants, the location of the vaccine clinic, transportation to the clinic, wait time, and availability of the vaccine were not particularly influential in older adults' decisions to get vaccinated.

Knowledge

The two codes encompassed by the knowledge theme were *flu symptoms* and *vaccine* attributes. With the exception of two retired nurses, the study participants overall lacked even basic knowledge about seasonal influenza and the vaccine. Some participants said, "I really don't know anything about [vaccine] other than it helps you from the flu" and "I don't understand the flu shot, I don't know how they make [vaccine]." Their limited amount of knowledge was not related to the identity of a receiver or non-receiver.

Discussion

Similar to the findings of previous studies (Burns, Ring, & Carroll, 2005; Chi & Neuzil, 2004; Evans & Watson, 2003; Nexøe, 1998; Sengupta, Corbie-Smith, Thrasher, & Strauss, 2004; Ward & Draper, 2008), the most influential decision-making factor for receivers in this study was the recommendation by a general practitioner (GP). This suggests the crucial influence of GP prompts in the decision-making process. The patient-physician relationship ought to be built on trust, respect, and knowledge. The stronger the relationship, the more likely a patient would be willing to take a physician's advice on all health aspects including preventive health measures (Goldring, Taylor, Kemeny, & Anton (2002). As demonstrated by the current study and validated

by literature, familial relationships between spouses, children, other family members, and friends also influence older adults' decision to receive the influenza vaccine (Andrew et al., 2004; Evans et al., 2006; Santibanez et al., 2002; Burns et al., 2005).

Both receivers and non-receivers believed the vaccine was effective, contrary to the findings of Evans et al. (Evans et al., 2006) who found that a belief in vaccine efficacy was closely related to receipt only in those receiving the vaccine. Although non-receivers believed that the vaccine was effective, the fear of adverse events was sufficient to overcome the perceived benefits. In other studies (Burns et al., 2005; Chi & Neuzil, 2004; Cornford & Morgan, 1999; Evans et al., 2006; Harris, Chin, Fiscella, & Humiston, 2006; Mangtani et al., 2006; Sengupta et al., 2004), non-receivers were also fearful of contracting influenza or other diseases from the vaccine itself. While all participants in this study were aware that adults over age 65 should be vaccinated annually, the study's non-receivers thought that they personally were immune to influenza infection. Andrew et al. (2004) and Evans and Watson (2003) also found that a belief in having resilience by virtue of being an older adult plays a critical role in the decision-making process. Similar to studies conducted in Europe and North America where access issues did not impede individuals' receiving the vaccine (Santibanez et al., 2002; Mangtani et al., 2006), the cost of the vaccine, location of administration, transportation, and availability were not impediments in this study. Whereas most of the current study's participants were fairly well-educated (on average, 14 years of formal education), it is unclear why they had relatively little vaccine and influenza knowledge. However, similar findings were reported by Santibanez et al. (2002) and Raftopoulos (2007).

Clearly, a multitude of factors play a role in the decision-making process. It appears that these factors are time dependent and occur in a step-wise fashion. We used the study's findings to create an original chronological model for conceptualization of the decision-making process for the receipt of the influenza vaccine in older adults (see Figure 1). The horizontal arrow represents a time-continuum whereby factors influencing the decision-making process evolve over the lifetime. Through this time continuum, an individual develops a particular identity: that of a receiver or a non-receiver. Factors that may impact decision making are aligned above the arrow. Factors prevalent early in life are located towards the left side, and influences that affect one's decision shortly before vaccine administration are located towards the right side of the model.

The findings of this study should be considered in relation to its limitations. Participants were recruited from a regional centre and health care hub located in

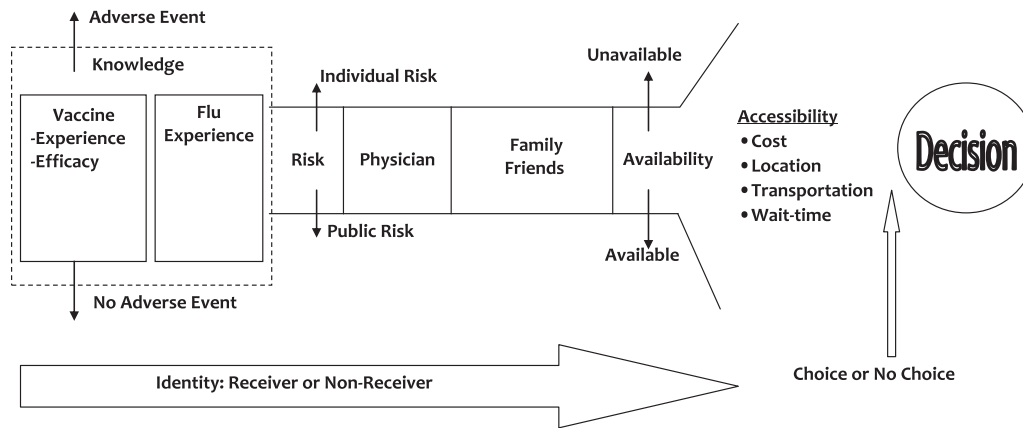


Figure 1: Model explaining time-dependent factors influencing the decision-making experience by older adults for the receipt of the influenza vaccine. Factors are (a) vaccine and influenza knowledge; (b) risk; and (c) direct and indirect influences by physician, family, friends, media, availability, accessibility, and choice

Southwestern Ontario, Canada, where everyone has free access to influenza vaccinations. Participants were recruited from both residents in retirement facilities and individuals living independently in the community. In Canada, influenza vaccines are frequently offered in retirement homes, which may have accounted for greater uptake of the vaccine in the study sample. It is unknown whether data from persons who are living entirely independently in the community would be different or similar. The authors did not intend to make broad generalizations regarding the transferability of the research findings; hence, the study findings are not meant to represent the experiences of the majority of community-dwelling older adults.

The individuals selected for this study were, on average, 82 years old; therefore, the opinions expressed were those from the middle-old sub-group of the elderly population. It is also possible that status as a receiver or non-receiver may have been culturally influenced; however, information on ethnicity was not gathered from participants, which we acknowledge is a limitation of our study. The ratio of receivers to non-receivers in the study was approximately five to one, which was an underrepresentation of non-receivers since in Canada this ratio is typically two to one. The small number of non-receivers may have prevented emergence of richer detail in experiences of non-receivers. Additionally, combining receivers and non-receivers in the same focus group may be a concern since there was an imbalance in numbers. Social desirability could have been an issue; since participants did not know one another, they may have felt pressured to conform. Finally, some caution is needed as participants self-reported their vaccination status.

Findings from this study have a potential to better inform public health policy makers about specific factors that

influence the decision-making process of older adults regarding preventive health behaviours: in particular, receipt of influenza vaccine. Future initiatives to improve vaccine intake should consider the powerful role of family physicians, a need for greater knowledge about influenza, how the vaccine works, and education about adverse events. We also propose a model that chronologically orders the factors that influence the decision-making process of older adults for the receipt of the influenza vaccine. Future research should be longitudinal in nature and should involve a larger number of participants.

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