Attitudes of nurses in Greece towards influenza vaccination


Abstract

Aim To explore the knowledge, attitudes and beliefs of nurses in Greece towards influenza vaccination.

Method Four focus groups were conducted with 30 nurses. Content analysis of the focus group interviews was undertaken.

Findings Participants were knowledgeable about influenza and the influenza vaccination. The main reasons given for not being vaccinated were: being in good health, not being susceptible to influenza, thinking it was not needed, concern about its effectiveness, delayed availability and distribution of influenza vaccines, fear of vaccine-induced illness, and lack of support regarding the provision of information on the benefits of influenza immunisation.

Conclusion Targeted health education programmes should be developed to overcome misconceptions about influenza vaccination.

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Keywords

Health education; Immunisation; Influenza; Vaccination

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INFLUENZA IS A SERIOUS, debilitating respiratory illness that can result in complications that increase morbidity and mortality, especially in high risk groups such as older people, immunocompromised patients, patients with diabetes, and residents of long-term care facilities. An influenza pandemic can occur at any time and have a severe impact on public health. Early vaccination against influenza viruses is essential in preventing influenza. All healthcare professionals should be vaccinated annually against influenza. Facilities that employ healthcare staff should be encouraged to provide vaccination to staff in ways that maximise uptake (Smith et al 2006).

In 2005 the Hellenic Center for Disease Control and Prevention and the Greek Ministry for Health and Social Solidarity published the National Influenza Pandemic Plan. The plan recommended vaccination of all healthcare staff, with priority given to those working in emergency departments, to prevent influenza transmission and outbreaks in hospitals. During 2005 and 2006 the percentage of influenza-vaccinated public healthcare staff in Greece increased substantially, from 1.72% to 16.36% (Maltezou et al 2007). However, coverage levels still remain too low given that the majority of these staff have direct or indirect contact with certain populations at high risk. In addition, vaccination coverage varied across geographic areas ranging from 30.2% in the South Aegean to 8.65% in the Ionian Islands (Maltezou et al 2007).

Despite recommendations by the World Health Organization (WHO 2005) and Centers for Disease Control and Prevention (CDC 2006) that have been endorsed by many European countries, and the documented benefits for healthcare staff, influenza vaccination coverage levels in healthcare staff remain unacceptably low (McArthur et al 1995, Smedley et al 2002, Kroneman et al 2003, Harper et al 2004, Qureshi et al 2004, King et al 2006, Walker et al 2006). Influenza vaccination has been shown to reduce morbidity, antibiotic use and absenteeism from work in healthy adults (Saxén and Virtanen 1999, Wilde et al 1999). It is an important health promotion strategy to reduce
the carriage and transmission of influenza in high-risk groups or other hospital patients (Burls et al. 2006, CDC 2006).

Many studies have examined why healthcare staff do not receive an annual influenza vaccination. Some of the reasons are fear of injections, fear of vaccine side effects and especially influenza-like symptoms, busy schedules, fear of developing influenza, perceived lack of vaccine efficacy, opposition to vaccination in general, low personal risk of illness, avoidance of medications, lack of time and forgetting to get the vaccine (Heimberger et al. 1995, Ong et al. 2000, Smedley et al. 2002, Lester et al. 2003, Goldstein et al. 2004, Sartor et al. 2004, Canning et al. 2005, Bautista et al. 2006).

Aim

The aim of the study was to explore the knowledge, attitudes and beliefs of nurses in Greece towards influenza vaccination. It was felt that exploration of the reasons for non-compliance with the recommended influenza guidelines could help increase influenza vaccination rates and so protect against a future epidemic. In addition it could help to redesign the content of health education programmes by emphasising the need for vaccination (Raftopoulos 2007). The main research questions were: what do nurses in Greece know and believe about influenza vaccination, and how do their beliefs influence their vaccination behaviour?

Method

The focus group approach was selected as it involves and uses group interaction to generate data (Kreuger and Casey 2000). For most participants, the focus group offered a unique opportunity to express their feelings, to provide distinctive types of data and to clarify their attitudes to influenza vaccination in a way that would be less easily accessible in a one-to-one interview. Four focus groups were conducted with nurses from the same healthcare settings. The interviews were held at their work site and participants from the same healthcare setting participated in the same focus group to overcome potential barriers of communication and to encourage participation in the interviews. Emphasis was placed on the interaction of participants.

Participants who met the following inclusion criteria were selected to participate in the study:

- Willing to participate.
- Able to speak and read Greek.
- Registered nurses.
- Working in a healthcare setting.

The primary sample consisted of 42 nurses. Thirty nurses agreed to participate in the study.

The convenience sample was recruited from two private hospitals, a public general hospital and a large public healthcare organisation. All types of patients are admitted and cared for in Greek public general and private hospitals. In the public healthcare organisation, public health specialists were responsible for the surveillance of infectious diseases and for the provision of guidelines for the prevention and management of infectious diseases.

To ensure that the sample was representative, nurses who worked in various healthcare settings such as hospitals, emergency departments, outpatient clinics, surgical and medical hospital departments in private and public healthcare facilities were approached, because most nurses in Greece work in these facilities. It was also decided to conduct a focus group with nurses who specialised in public health nursing.

Before beginning the focus group interviews a questionnaire was administered to gather information about socio-demographics, individual risk factors for contracting influenza, history of vaccination and details of past influenza experience. Four groups of questions were devised to achieve the maximum information regarding how healthcare workers perceived and used immunisation as a health promotion strategy: those based on influenza knowledge and experience from previous exposure to influenza; those based on influenza prevention; influenza vaccination; and necessity for and perceived effectiveness of influenza immunisation in older people.

The theoretical framework of the Health Belief Model was used to identify perceived barriers and facilitators related to influenza immunisation as determinants of a certain health-seeking behaviour. The Health Belief Model is a psychological model that attempts to explain and predict health behaviours based on perceived susceptibility, perceived benefits, perceived barriers, perceived severity and cues to action (Rosenstock 1974). In this study items were included that examined:

- Perceived susceptibility to influenza. For example, how susceptible are you to influenza? What kind of people are more susceptible to
influenza? Among them, who are the most susceptible? As a healthcare professional, how easily could you spread influenza to patients in your care?

- Perceived benefits of taking action. For example, why and who do you think would benefit from influenza vaccination and should therefore be recommended to have the vaccination?
- Perceived barriers to taking action. For example, why did you refuse to have an influenza vaccination?
- Perceived severity. For example, how serious do you consider influenza to be?
- Cues to action. For example, by whom or by what source of information were you prompted to get an influenza vaccination? What kinds of educational programme would you suggest to prepare nurses to promote influenza vaccination?
- Cultural practice and ethnic beliefs. For example, describe what influenza vaccination means to you.

Taking into consideration the need to guarantee validity and reliability in the collection of qualitative data, the focus group discussions were analysed in a continuous way, giving feedback to the participants for additional comments. The questions were open-ended, neutral, sensitive and well understood by participants. All focus group interviews were recorded and transcribed verbatim.

Content analysis is an effective research tool used to determine the presence of certain words or concepts within texts derived from recorded interviews (Mayring 2000). Content analysis of the interviews was primarily based on conceptual analysis of the two main concepts: knowledge and beliefs regarding influenza immunisation, and barriers to vaccination. To ensure agreement of content analysis, coding was conducted independently by two members of the research team, and any discrepancies were reviewed and documented.

The researcher did not interfere in the discussion except where clarification was required or if some members of the group were having difficulty entering the conversation. The research protocol included specific questions to allow international comparison between the different regions that participated in the research.

Ethical considerations The study protocol was approved by the Human Immunodeficiency Virus (HIV) Office Review Board of the Hellenic Center for Infectious Diseases Control.

**Findings**

The mean age of the nurses who participated in the focus groups was 30.60±4.26 years. The median age was 29 years. Mean experience as nurses or health visitors was 6.67±3.75 years and the median experience was six years. Table 1 outlines participants’ socio-demographic characteristics and influenza-related information. Participants were mostly female ($n=23$, 77%), reflecting the predominantly female composition of the nursing workforce. Focus groups ranged in size from seven to nine participants, with most groups having at least seven participants.

**Knowledge of influenza and influenza vaccine**

In general participants were knowledgeable about influenza and the influenza vaccine. About one-third indicated that they had had an influenza-like illness in the past, with almost half not seeking medical care. The majority reported influenza infection in the previous year. The main symptoms were high fever, cough and loss of appetite, sore throat, runny

Participants received an explanation of the purpose and aim of the study, and those who agreed to participate were asked to provide verbal consent. No personal identity information was documented and participants were informed that they had the right to withdraw from the study whenever they wished. The focus group interviews were completed between November 2005 and March 2006.

**TABLE 1**

Demographic characteristics of the sample and influenza status ($n=30$)

<table>
<thead>
<tr>
<th>Variable</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>7</td>
<td>23</td>
</tr>
<tr>
<td>Female</td>
<td>23</td>
<td>77</td>
</tr>
<tr>
<td>Highest level of education achieved</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secondary</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>High technological education</td>
<td>17</td>
<td>57</td>
</tr>
<tr>
<td>University</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Master of Science</td>
<td>6</td>
<td>20</td>
</tr>
<tr>
<td>Doctor of Philosophy</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>Influenza vaccination during 2005-2006</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>No</td>
<td>29</td>
<td>97</td>
</tr>
<tr>
<td>Have you ever been infected with influenza?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>24</td>
<td>80</td>
</tr>
<tr>
<td>No</td>
<td>6</td>
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nose, headache, myalgia and general fatigue. Two-thirds of participants reported mild symptoms. Most of them recovered fully within a week. They perceived that they had influenza at least once per year.

Participants were asked to report any differences between pandemic influenza and avian influenza. The majority answered that influenza is caused by various viruses that are spread through contact with other humans and can cause systemic disease. Respiratory infection is caused by bacteria and is located in the respiratory system. Nurses from the public healthcare organisation were more specific, commenting that influenza is an illness that can be caused by three antigenic types of the influenza virus:

‘...influenza is an acute respiratory infection caused by a virus and it cannot be differentially diagnosed from other acute respiratory infections based on clinical manifestations. Laboratory tests are needed to confirm the presence of influenza virus. Upper respiratory tract infections are caused by virus, bacteria or other pathogenic factors...’ (Participant 1).

‘...influenza is spread through inhaling germs transmitted by sneezing or coughing, shaking hands, or having close physical contact...’ (Participant 2).

Participants who worked in the public healthcare organisation emphasised the need for influenza virus confirmation to differentiate the diagnosis from acute respiratory infection. To evaluate in-depth understanding of pandemic influenza and avian influenza, participants were asked to describe the differences between these two conditions. The majority stressed that pandemic influenza is a virulent human influenza that, under certain circumstances, can cause a global outbreak of serious illness. The disease can spread easily from person to person through contact. The majority of participants believed that avian influenza is fatal for humans:

‘...in pandemic influenza the pathogenic strain of the virus is unknown, instead of an avian influenza pandemic in which the subtype is the H5N1...’ (Participant 3).

‘...avian influenza is caused by H5N1 variant and can be transmitted from birds to humans. In an avian influenza pandemic the pathogenic strain is unknown. No vaccine is available...’ (Participant 4).

Perceived susceptibility to influenza A large proportion of participants did not consider themselves to be susceptible to influenza. The main reasons cited were good health, age, physical fitness, the fact that they did not have a chronic disease, and their perceived low risk of contracting influenza because they did not have contact with patients. Those who considered themselves susceptible to influenza explained that they worked with other people or patients who could transmit the virus and that they performed a demanding job that made them feel fatigued, resulting in lowered immunity and increased susceptibility to infections.

Participants were asked whether the risk of a potential pandemic influenza in 2004/2005 influenced their influenza vaccination behaviour. Nearly two thirds stressed that it did not influence their influenza vaccination decision. For many participants the risk of pandemic influenza or avian influenza was low:

‘I believe that the media provoked the “crisis” of avian influenza, forcing the official European states to take measures such as influenza immunisation, resulting in loss of resources... I can recall in my mind anthrax panic and SARS [severe acute respiratory syndrome]...’ (Participant 5).

Two thirds of participants thought that people living in the same community as them were susceptible to influenza and for many of them the risk was moderate. Some of the participants were not able to answer this question. Their susceptibility was attributed to the state of their immune system, living conditions, age, medical history, profession and diet.

The more susceptible persons were: immunocompromised patients; those with diabetes, chronic and comorbid diseases; older patients; patients who were HIV positive; pregnant women; residents of long-term care facilities; those who provided informal care to older people; and had liver cirrhosis. All participants commented that these groups were susceptible to influenza and pneumonitis. The systematic promotion of vaccination for pneumococcal disease and influenza for these high-risk groups is important for the protection of the population from influenza complications in the event of a pandemic.

Perceived benefits of influenza vaccine

Participants were asked to outline the perceived benefits of vaccination. All participants reported that vaccination of healthcare workers could protect patients at risk. To explore nurses’ role in influenza transmission participants were...
asked: ‘As a healthcare professional, how easily would you consider that you could spread influenza to the patients in your care?’ Some of the answers were as follows:

‘As you know we belong to the high risk groups for influenza virus spread. So we might spread influenza to the patients unless we take all the needed precautions…’ (Participant 6).

‘If we take all the adequate preventive measures, the risk of influenza transmission to the patients is relatively low…’ (Participant 7).

‘…if you regularly wash your hands and wear gloves you decrease the risk of influenza transmission. Otherwise the spread of influenza is very easy…’ (Participant 2).

‘…it is relatively easy because of frequent contacts…’ (Participant 3).

‘I do not work with patients so I do not consider it easy to spread influenza to others…’ (Participant 8).

‘…it is very easy if you sneeze and cough…’ (Participant 5).

‘I think that healthcare professionals could spread influenza to their patients and also to their families…’ (Participant 9).

‘I believe that healthcare staff are protected against influenza as they have close contact with infected persons and as a result they have a lot of antibodies to protect themselves and elders. A nurse who has antibodies against influenza does not spread influenza…’ (Participant 2).

One participant believed that the influenza vaccine contained antibodies that helped vaccinated persons to recover from future contact with the influenza virus.

All participants agreed that influenza was a serious illness for high-risk groups such as older people, those with chronic illnesses and those who were immunosuppressed. However, although they were aware of the seriousness of the illness for these groups, they were not vaccinated. Their awareness had little or no impact on their decision to have the influenza vaccination. This was because they did not consider themselves as a high-risk group given that they avoided direct contact with people who had influenza symptoms and that they adopted preventive measures. Only one participant had received the influenza vaccine during 2005-2006.

For most participants, the most effective measures for influenza prevention were: avoiding social contact with many people in a closed space; maintenance of wellness and fitness; use of face masks; wearing gloves; vaccine uptake; hand washing; ensuring a balanced diet; and placement of patients with an influenza-like illness on droplet precautions. These measures were adopted by participants to protect themselves from becoming infected with the influenza virus.

**Barriers to nurses’ acceptance of influenza vaccine** Non-vaccinated participants were asked to explain why they had never been vaccinated. The most common reason was the belief that they were currently healthy or did not belong to a high-risk group for contracting the influenza virus. Many participants were concerned about the adverse effects of the vaccine, including fear of vaccine-induced illness. Others perceived that the vaccine lacked efficacy, as one nurse working in a public hospital commented:

‘…I believe that the vaccine is 40% effective…’ (Participant 10).

Other participants claimed they had busy schedules and could not find time to have the vaccine. In addition, healthy nurses often do not recognise their role in the transmission of influenza to patients, regarding themselves as low risk for influenza infection. Those participants who worked in private hospitals did not have the official guidelines from the Greek Ministry for Health and Social Solidarity regarding the mandatory uptake of influenza vaccine.

**Cues to action** Half of the participants supported free influenza vaccination provision to all health professionals. The remainder stated that priorities should be set to prevent a possible shortage of vaccines and ensure that the vaccine was given to those who really need it.

Participants were asked: ‘What kinds of educational programmes would you suggest might be helpful in preparing nurses to get the influenza vaccination?’ Some suggested having a national campaign and using educational brochures, while others were in favour of health education programmes:

‘…health education programmes and especially speeches from experts in influenza prevention…’ (Participant 11).

‘…to develop a national campaign to sensitise and educate healthcare providers towards influenza and pneumonia in order to increase the uptake of influenza and pneumococcal vaccination…’ (Participant 12).

‘…health education programmes that provide valuable information about the adequate
techniques that should be used to persuade someone to change his health behaviour…’ (Participant 5).

Despite their decision not to obtain the influenza vaccination all participants said they would persuade older people to have the influenza vaccine because they believed it was an adequate preventive measure for this age group. Many of them had recommended and administered the influenza vaccine to their older relatives in the past. Some participants thought that the provision of the influenza vaccine to older people diminished or eliminated the likelihood of being infected with the virus. Others said they would recommend the influenza vaccine after asking a physician for advice. For some of the participants the decision to motivate older people to get the vaccine depended on their medical history, their way of living and whether they lived alone or with a family. Their decision was a balance of the benefits and the potential adverse effects of influenza vaccine for older people.

Participants believed that the reasons for older people refusing to get the influenza vaccine were: fear of adverse events and especially influenza-like symptoms; dislike of vaccination; lack of knowledge about the vaccine; cost of the vaccine; and not considering themselves to be susceptible to influenza. Cultural practice and ethnic beliefs Some participants recommended traditional and non-traditional prophylaxes to avoid contracting the influenza virus. They usually took medicines for symptomatic relief such as antipyretics, bronchodilators, muscle relaxants, vitamin C, plus tea with honey, rest and a warm shower. A minority of participants stated that they had taken antibiotics. For those who provided direct patient care, handwashing with soap and the use of gloves and alcohol-based solutions after a nursing intervention were the measures used for influenza protection. Many of the participants said they had a ‘strong immune system’.

Discussion

This study involved a small, convenience sample and the selection of the data was made within a period of three months. Therefore the findings reflect the situation of influenza immunisation for a limited period in the settings in which the study was carried out. Factors such as errors in recall and social desirability response tendencies, for example saying ‘what sounds correct’, may make it difficult to generalise the findings of the study. Therefore the sample is not representative of attitudes to influenza immunisation among nurses in Greece. Nevertheless, this was the first study on nurses’ perceptions of influenza vaccination and as such it provides valuable insights into some aspects of what nurses know, think and feel about influenza immunisation and how they act and behave. The study is, to the author’s knowledge, the first published Greek study to investigate these factors using the Health Belief Model which involved identification and analysis of the components of the model.

In general, vaccination uptake in the sample was low indicating that compliance with vaccination among healthcare workers remains poor. It seems that the risk of an influenza epidemic did not change these nurses’ knowledge, attitudes and health behaviours toward influenza immunisation. Despite the recommendation by WHO (2005), endorsed by many European countries, uptake of influenza vaccination in healthcare workers remains low. The main reasons given for not being vaccinated were: thinking it was not needed; concern that the vaccine lacked effectiveness, as those who were not vaccinated usually felt that vaccination was ‘not a guarantee’ or ‘not 100% effective’; not having close contact with high-risk patients; concern about vaccine-induced illness and side effects; lacking time to attend for immunisation; and holding several misperceptions about influenza risks (Russell et al 1991, Smedley et al 2002, Martinello et al 2003, Goldstein et al 2004, Qureshi et al 2004, Hofmann et al 2006, King et al 2006). The main perceived benefit of vaccination was personal and patient protection against influenza (Steiner et al 2002, Canning et al 2005). The participant who had been vaccinated commented that she accepted vaccination because she was convinced that healthcare workers may transmit the virus to patients or to their families (Christini et al 2007).

Most participants perceived that they were at low risk of contracting influenza as they worked in non-hospital settings or they usually adopted preventive measures to protect themselves and patients from influenza transmission. This is a major barrier to vaccination and is reflected in the literature (Begue and Gee 1998, Harbarth et al 1998, Sartor et al 2004, Poland et al 2005). The findings suggest that participants did not often realise that the influenza virus can be transmitted to patients and other colleagues by both symptomatic and asymptomatic healthcare staff. As a result the current policy of voluntary vaccination of healthcare workers is not effective in achieving acceptable
immunisation rates. It is suggested that the current policy should be redirected to:

- Use friendly strategies that have been demonstrated to increase influenza vaccine acceptance, including vaccination clinics, mobile carts, vaccination access during all work shifts, and support by institutional leaders (Canning et al. 2005).

- Provide influenza vaccination to healthcare workers at work and at no cost, as a component of employee health promotion programmes (Qureshi et al. 2004), given that some of the nurses commented that they did not have time to attend for immunisation because of their busy daily schedule.

- Provide and discuss educational materials about the vaccine with those who live in the community.

- Educate healthcare workers about the benefits of influenza vaccination and the potential health consequences of influenza illness for them and for patients.

- Put up educational posters in prominent locations and conduct educational conferences.

Van den Hoven and Verweij (2003) stressed that healthcare workers perceived several reasons to accept influenza vaccination but these reasons did not necessarily imply that they had a moral duty to accept vaccination. Such a duty would depend on the balance of all reasons for and against vaccination. An ongoing educational programme should be developed to explore the miscellaneous factors that influence nurses’ attitudes towards influenza immunisation and provide evidence-based answers to their questions.

Some participants claimed that delayed availability and distribution of influenza vaccines was a major reason for not being vaccinated. This is supported in the literature (Canning et al. 2003, Pearson et al. 2006). According to the CDC (2006), influenza vaccines should continue to be offered in December and throughout the influenza season as long as vaccine supplies are available, even after influenza activity has been documented in the community. Health policy makers are prompted to provide an adequate number of influenza vaccines according to evidence-based projections. All nurses should have knowledge of the surveillance system in their country and the available epidemiological data to separate myth from fact and overcome mistrust and scepticism.

Participants who worked in the private sector expressed frustration at the lack of support from administrators regarding the provision of information on the benefits of influenza immunisation. It is clear that unvaccinated healthcare workers require a vaccination programme to emphasise the benefits of influenza vaccine (Manuel et al. 2002). Influenza vaccination campaigns should raise employee awareness and emphasise the reasons healthcare professionals usually give for non-compliance with influenza vaccination. Vaccination coverage and refusal should be monitored and feedback provided on the vaccination rate of each hospital, ward, unit and specialty with a record of the number of healthcare professionals who refuse to receive vaccination. It is important to obtain a signed form from healthcare professionals who refuse influenza vaccination explaining their reasons. Analysis of the data obtained could be useful in the reorientation of educational programmes.

**Conclusion**

The findings support the view that some healthcare professionals are willing to change their attitude towards influenza immunisation if they are convinced of its effectiveness. It appears to be a challenge for public and private hospitals to promote and deliver an influenza campaign for healthcare professionals. If vaccine uptake is to increase significantly, sustained efforts are required to overcome mistrust, scepticism and lack of knowledge in this area. NS

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**Implications for Practice**

- Nurses should have access to clear and unambiguous data showing that influenza vaccination is safe and effective, reduces absenteeism from work and benefits patients’ morbidity and mortality.

- Lectures on influenza and influenza vaccination should be given to persuade nurses to be vaccinated.

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