

A Review of Knowledge, Attitude and Prevalence of Flu Vaccination and Its Effect among Elderly

Sarah Musaed Alluheibi¹, Ahmad Hameed Allehaiby², Thekra Ali Aseeri³, Abdullah Saeed A Alqahtani⁴, Jawaher Awaad Althumali⁵, Omamah Abdu Abudaia⁶, Rawabi Samah Alanezi⁷, Amor Abdullah Al Mehdar⁴, Fatimah Hussain Abu Qurain⁸, Basem Abdullah Alghamdi⁹, Faisal Ahmad A Alokasi⁴, Saeed Ali S Aldamkh¹⁰, Duaa Khalid M Alalawi⁸, Abdulrahman Mohammed Aleidan¹¹, Moatasem Mohammed Modhish¹²

Department of Family Medicine

¹ Primary Health Care, Mecca, ²Primary Health Care, Jeddah, ³Umm al-Qura University, Mecca, ⁴ Ministry of Interior, Riyadh, ⁵Taif University, Taif, ⁶Asir Hospital, Abha, ⁷ Hail University, Hail, Saudi Arabia, ⁸Medical University of Warsaw, Poland, ⁹ Najran University Hospital, Najran, Saudi Arabia. ¹⁰Imam Muhammad ibn Saud Islamic University, Riyadh, Saudi Arabia. ¹¹ King Saud University, Riyadh, Saudi Arabia. ¹² Soliman Fakeeh Hospital, Jeddah, Saudi Arabia.
Corresponding Author: Sarah Musaed Alluheibi, email: sara.alluheibi@gmail.com ,mobile: +966555007759

ABSTRACT

Elderly individuals are very vulnerable to influenza infection, and more prone to influenza-related morbidity and mortality. However, the prevalence of elderly persons receiving influenza vaccine remains low. Many factors have been proposed as the cause beyond this low prevalence, with knowledge and misconceptions about the vaccine on the top of the list. **Objectives:** the aim of this review is to assess the knowledge, attitude, and prevalence of flu vaccine and its effect among elderly. **Methods:** To achieve this aim, online database search was conducted to review articles stating knowledge, attitude, and incidence of flu vaccine and its effects among elderly. PubMed was searched for appropriately-related studies that address the studied parameters. PubMed search yielded 19 results, we quickly inspected the abstracts of these results to select those with most relevant data. Of 19 articles, 8 were chosen for review. **Results:** The prevalence of influenza vaccine ranged from 58% to 73%. Inadequate or lack of knowledge about the vaccine were common in over half of the elderly patients not receiving vaccine. The vast majority (>90%) of those received the vaccine did so after a clear recommendation by their physicians. **Discussion:** Inadequate knowledge and false beliefs about the influenza vaccines were the main cause of low vaccination rate among elderly. Physicians advice and health education were the most potent influencer on raising the prevalence of elderly immunization.

Keywords: Flu vaccine, elderly, prevalence, knowledge, attitude, effect.

INTRODUCTION

Elderly are very vulnerable to influenza infection. They constitute the vast majority of influenza-related morbidity as well as mortality^(1,2). Through influenza vaccine was found to provide up to 100% protection to the vaccinated young adult, this level is much less among individuals ≥ 65 years. However, it provided a considerable protection against morbidity and mortality of the disease⁽³⁾. Researchers stated that influenza vaccine had significantly decreased hospital admission and deaths among elderly patients^(4,5). The 2016–2017 recommendations of the Advisory Committee on Immunization Practices (ACIP) recommend the use of seasonal influenza vaccines to all

individuals above the age of 6 months as long as they do not have a contraindication⁽⁶⁾. However, less than two-thirds of elderly individuals receive influenza vaccine⁽⁷⁾. Seeking vaccination is thought to be affected by many factors including the general knowledge and misperception about the efficacy, side effects, benefits or harms of the vaccine, and previous experience⁽⁸⁻¹⁰⁾.

Study rationale and objectives: This research aimed at reviewing the literature to explore the prevalence of influenza vaccine among the elderly in different countries, and at assessing the impact of knowledge on elderly vaccination and the attitude towards it.

METHODS

To conduct this review, online database search was conducted to review articles stating knowledge, attitude, and incidence of flu vaccine and its effects among elderly. PubMed was searched for appropriately-related studies that address the studied parameters. Studies concerned about exploring the prevalence of influenza vaccination among elderly were specifically selected for review. Similarly, articles studying the factors affecting vaccination among this age group and the general knowledge and attitude towards influenza vaccine were also reviewed. Overall, PubMed search yielded 19 results, we quickly inspected the abstracts of these results to select those with most relevant data. Of 19 articles, 8 were chosen for review.

The study was done after approval of ethical board of Umm al-Qura university.

RESULTS

Eight studies had reported the prevalence, knowledge, and attitude towards elderly immunization with influenza vaccine (Table. 1). A cross-sectional study, conducted in Columbia University, USA in May-June 2016 on 200 Hispanic elderly patients ≥65 years, aimed at exploring the impact of vaccination behavior on influenza vaccine. The study was conducted via a questionnaire evaluating their knowledge about influenza vaccine. Three-quarters of the recruited participants had influenza vaccine during the preceding year. However, less than half of the participants believed that the vaccine was effective or safe, with values of 46.5% and 47% for efficacy and safety, respectively. Furthermore, the belief that flu vaccine had serious side effects, ineffective, or even harmful was encountered among many participants⁽²⁾.

Table (1): Saudi studies assessing the knowledge, attitude, and behavior of diabetic Saudi towards their illness

No.	Author	Year	Patients	Type of study	Aim	Comments
1	Rikin et al. ⁽²⁾	2011	200	Cross section	Study relationship between knowledge and attitude and vaccine effect	75% received vaccine 46.5% believed vaccine is not effective 47% believed vaccine is not safe
2	Brown JR et al. ⁽¹¹⁾	2009	555	Cohort	Explore barriers of not receiving H1N1 vaccine	72% did not receive vaccine 39% did not refused when offered 22% did not know they should take it.
3	Zimmerman RK et al. ⁽⁸⁾	2000	1007	Survey	explore the factors that affect the influenza vaccine among elderly	100% of vaccinated received a clear recommendation from physician 63% of non-vaccinated received recommendation
4	O'Connor LK et al. ⁽¹²⁾	2015	155 facilities	Survey	Study barriers against elderly vaccination in primary health care facilities	>75% received vaccine Main barriers were client anxiety and consent issues
5	Kipkori C et al. ⁽¹³⁾	2008-2015	4073	Survey	Study knowledge and attitude about vaccine and its effects	62-73% received vaccine Knowledge was the main barrier

6	Schneeberg A <i>et al.</i> ⁽¹⁴⁾	2014	863	Survey	Explore knowledge, beliefs, and behaviors about pneumococci vaccine	58% received the vaccine Main cause of reception was physician advice (AOR 23), followed by hearing about the vaccine and being convinced with its importance.
7	Pavia M <i>et al.</i> ⁽¹⁵⁾	2004	148 General practitioners	Survey	assess knowledge, attitudes, and behaviors towards influenza and pneumococcal vaccination in the elderly among physicians	
8	Mckinney WP <i>et al.</i> ⁽¹⁶⁾	1989	847 elderly individuals 95 physicians	Retrospective record review	Examine knowledge and attitude about elderly immunization	Up to 90% of patients were offered vaccination by physicians, however, physicians were not aware about the importance

Brown JR *et al.*⁽¹¹⁾ explored the barriers against H₁N₁ vaccine among 555 elderly patients in 2009, and reported that only 18% had received the vaccine. Upon interviewing those who did not receive the vaccine, 39% did not refuse to take it when offered and 22% stated that they did not know they should take it. Similarly, **O'Connor L *et al.***⁽¹²⁾ stated that the main barriers against elderly vaccination among the 155 facilities surveyed were client anxiety about the vaccine and consent issues. Furthermore, **Christopher Kipkorri**⁽¹³⁾ surveying 4073 over the years 2008-2015 stated that the range of vaccination among elderly ranged from one year to another, with a range of 62-73%. He attributed these low rates to poor knowledge of nurses as well as elderly persons about the vaccine.

A Canadian survey, conducted on 863 elderly patients ≥65 years in 2014 to explore the attitude, knowledge, beliefs, and behaviors towards pneumococci vaccine, stated similar results. Only 58% of recruited individuals had received the vaccine. Upon inquiry about the causes of administration, recommendation by a health care provider was the most potent etiology

(AOR 23.4). Came next were hearing about the vaccine (AOR 10.1) and being convinced with the vaccine importance (AOR 3.3)⁽¹⁴⁾.

In Italy, **Pavia *et al.***⁽¹⁵⁾ evaluated the general practitioners knowledge and attitude about the elderly vaccination with influenza and pneumococci vaccine. Researchers reported that 84.5% of general practitioners knew that influenza vaccine should be administered to the elderly, whereas 65.5% only knew that about the pneumococcal vaccine. Elder general practitioners were more aware than newly-graduated ones. The vast majority of surveyed physicians administered influenza vaccine (95.2%), whereas fewer than their half gave pneumococcal vaccine (46.9%). Most of the recruited general practitioners were aware about complications of influenza.

In **Paul Mckinney *et al.***⁽¹⁶⁾ retrospective record review study exploring primary care physicians knowledge and attitude about elderly immunization, researchers reported that up to 90% of patients were offered the vaccinations by physicians. However, it seemed that the physicians were not properly aware with the vaccine importance, benefits, and side effects.

DISCUSSION

In the United States, the prevalence of influenza vaccination among elderly individuals ≥ 65 years during the 2015-2016 season was only 63.4%⁽⁷⁾. This figure remains low with the clearly stated 2016–2017 recommendations of the Advisory Committee on Immunization Practices (ACIP) which advised the use of seasonal influenza vaccines to all individuals above the age of 6 months as long as they do not have a contraindication⁽⁶⁾.

Reviewed studies indicated variable prevalence of influenza vaccine among the elderly ranging from 58% to 75%^{(2,8),(11–16)}. Almost all studies reported agreed that knowledge and beliefs about influenza vaccine had a considerable impact on seeking vaccination. Knowledge among primary health physicians^(15,16) as well as nurses⁽¹³⁾ seemed also to be accused. Most of the individuals who did not receive the vaccine thought that it may be harmful or ineffective. However, a considerable percentage did not know they should take it⁽²⁾.

On the other side, many examined elderly persons did not refuse the vaccine. It seemed that the cause behind not seeking immunization was related to inadequate knowledge about the importance of the vaccine. **Zimmerman RK et al.**⁽⁸⁾ tried to explore the factors that affect the influenza vaccine among elderly. Their results showed that almost all elderly patients who received that vaccine had a clear recommendation message from their physicians in comparison to only 63% of those who did not receive the vaccine ($P < 0.001$). Personal beliefs and fear of acquiring an influenza infection after vaccination were significantly higher among non-vaccinated individuals (38%) compared to vaccinated persons (6%) ($P < 0.001$). Furthermore, vaccinated individuals were more convinced that they would acquire an infection if not vaccinated ($P < 0.001$). It was apparent that elderly individuals were notably influenced by their physician recommendation which, if was not available, would let them follow myths and misconceptions about vaccination.

Emphasizing these results, another controlled intervention single-blinded study with randomized distribution was held to determine whether personalized appointments with elderly individuals who refused vaccination would let

them change their opinion and take the vaccine or not. Researchers reported a significant number of them had received the vaccine within two weeks after appointments⁽¹⁷⁾.

Both results would confirm the importance of health education of elderly individual about the efficacy, safety as well as the necessity of receiving influenza vaccine. Simple health education techniques might cause a considerable increase in the prevalence of influenza vaccine among the elderly. This review, thus, emphasizes great need for efforts to be done to improve knowledge of influenza vaccines among elderly patients, physician, nurses, and the community in general.

CONCLUSIONS

The prevalence of influenza vaccination among elderly is far below the recommended figure. The main factors contributing to this low vaccination rate are inadequate knowledge about the importance of the vaccine, the false beliefs about the side effects and harmful influence of influenza vaccines, and the ignorance about the necessity of vaccine intake. Physicians advice and health education were the most potent influencer on raising the prevalence of elderly immunization.

REFERENCES

1. **Thompson WW, Shay DK, Weintraub E, Brammer L, Cox N, Anderson LJ et al. (2003):** Mortality Associated with Influenza and Respiratory Syncytial Virus in the United States. *JAMA*, 289(2):179–86.
2. **Rikin S, Scott V, Shea S, LaRussa P, Stockwell MS et al. (2017):** Influenza Vaccination Beliefs and Practices in Elderly Primary Care Patients. *Journal of Community Health*, 1-6.
3. **Carrat F, Valleron AJ (1994):** Anti-influenza vaccine. Bibliographic review. *Rev Mal Respir.*, 11(3):239–55.
4. **López Hernández B, Vázquez J, Fernández E, Martínez B, Romero J, Arribas L et al. (1994):** Effectiveness of anti-flu vaccine in the elderly. *Aten primaria*, 14(1):532–6.
5. **American Society of Health-System Pharmacists (1995):** Flu vaccine well worth the price in elderly patients. *Official Journal of the American Society of Health-System Pharmacists.*, 52(2):136.
6. **Grohskopf LA, Sokolow LZ, Broder KR, Walter EB, Bresee JS, Fry AM et al. (2017):** Prevention and Control of Seasonal Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices — United States, 2017–18

- Influenza Season. MMWR Recomm Reports, 66(2):1–20.
7. **Vaccinated WW (2008):** Flu Vaccination Coverage, United States, 2013-14 Influenza Season. Health Care, 2007, 2006-2007. Available at: <https://www.cdc.gov/flu/fluview/coverage-1516estimates.htm>
 8. **Zimmerman RK, Santibanez TA, Janosky JE, Fine MJ, Raymund M, Wilson SA *et al.*(2003):** What affects influenza vaccination rates among older patients? An analysis from inner-city, suburban, rural, and Veterans Affairs practices. *Am J Med.*,114(1):31–8.
 9. **Nowalk MP, Zimmerman RK, Shen S, Jewell IK, Raymund M *et al.*(2004):**Barriers to Pneumococcal and Influenza Vaccination in Older Community-Dwelling Adults (2000-2001). *Journal of the American Geriatrics Society*, 52(1):25-30.
 10. **Salmon DA, Dudley MZ, Glanz JM, Omer SB *et al.*(2015):**Vaccine Hesitancy: Causes, Consequences, and a Call to Action. *Am J Prev Med.*,49(6):S391–8.
 11. **Brown JR, Goebel LJ, Neitch SM, Mufson MA, Tweel HK *et al.*(2011):** Barriers to Vaccinating the Elderly With H1N1 Vaccine. *Am J Med Sci.*,342(1):24–6.
 12. **O'Connor L, Boland M, Murphy H *et al.*(2015):** Preparedness of elderly long-term care facilities in HSE East for influenza outbreaks. *Ir Med J.*,108(1):6–8.
 13. **Kipkorir C (2017):** Assessing influenza vaccine coverage among the elderly receiving long-term care services and nurses' knowledge and attitudes towards influenza vaccination. University of Tampere, school of health science. Available from: <https://tampub.uta.fi/bitstream/handle/10024/101464/GRADU-1497256437.pdf?sequence=1>
 14. **Schneeberg A, Bettinger JA, McNeil S, Ward BJ, Dionne M, Cooper C *et al.*(2014):** Knowledge, attitudes, beliefs and behaviours of older adults about pneumococcal immunization, a Public Health Agency of Canada/Canadian Institutes of Health Research Influenza Research Network (PCIRN) investigation. *BMC Public Health*,14(1):442.
 15. **Pavia M, Foresta MR, Carbone V, Angelillo IF *et al.*(2003):** Influenza and pneumococcal immunization in the elderly: knowledge, attitudes, and practices among general practitioners in Italy. *Public Health*,117(3):202–7.
 16. **McKinney WP, Barnas GP(1989):** Influenza immunization in the elderly: Knowledge and attitudes do not explain physician behavior. *Am J Public Health*,79(10):1422–4.
 17. **Díaz Grávalos GJ, Palmeiro Fernández G, Vázquez Fernández LA, Casado Górriz I, Fernández Bernárdez MA, Sobrado Palomares JR *et al.*(1999):** Personalized appointments as a recruitment method for anti-flu vaccination in the elderly. *Aten primaria*,24(4):220–3.