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Medicine Advantages of Conducting Research in Nursing Patients

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Abstract:

Influenza, a highly contagious virus, presents a significant global health challenge, particularly during winter. It primarily spreads through respiratory droplets and affects both the upper and lower respiratory tracts. While most recover, vulnerable populations such as the elderly and immunocompromised individuals face severe complications, including pneumonia, which is a leading cause of morbidity and mortality, especially among older adults. Diagnosis in elderly patients is often complex due to atypical presentations, and comorbid conditions like chronic heart and respiratory diseases influence their prognosis. Prevention through vaccination, particularly for flu and pneumonia, is crucial, although vaccine efficacy varies. Additionally, medication adherence is vital for managing chronic diseases among the elderly. Non-adherence is prevalent due to multiple factors, including complex regimens, cognitive decline, and physical limitations, often exacerbating health outcomes. Nursing care plays a vital role in ensuring strict medication adherence, particularly in populations like those in nursing homes. Thus, the nursing population allows for close supervision, essential for ensuring research findings' accuracy and reliability.

Keywords: Elderly, influenza, Medication adherence, Nursing population, Research

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Introduction

The global demographic shift toward an aging population presents unprecedented challenges for healthcare systems worldwide. As the proportion of elderly individuals continues to grow, healthcare providers face increasing complexity in managing age-related conditions, medication regimens, and preventive care strategies. Among the most vulnerable populations within this demographic are elderly residents of nursing homes and long-term care facilities, who often present with multiple comorbidities, compromised immune systems, and complex medication needs that require careful management and monitoring.

The intersection of aging physiology, chronic disease management, and institutional care creates a unique environment that offers both challenges and opportunities for medical research. Elderly populations, particularly those in nursing facilities, are disproportionately affected by infectious diseases such as influenza and pneumonia, which remain leading causes of morbidity and mortality in this demographic. Simultaneously, medication adherence—a critical factor in successful treatment outcomes—becomes increasingly complex due to cognitive decline, physical limitations, and the prevalence of polypharmacy among elderly patients.

These challenges, while significant, also present a compelling case for conducting targeted research within nursing populations. The controlled environment of institutional care, combined with professional oversight and standardized care protocols, creates conditions that may enhance research reliability and clinical relevance. Unlike community-dwelling elderly populations, nursing home residents benefit from supervised medication administration, structured care routines, and continuous monitoring by healthcare professionals—factors that can significantly impact research outcomes and their translation to clinical practice.

This paper examines the advantages of conducting medical research within nursing populations, with particular emphasis on elderly patients. We explore the epidemiological significance of influenza and related respiratory infections in this population, analyze the critical role of medication adherence in geriatric care, and present evidence for why nursing facilities provide optimal settings for conducting clinically meaningful research. Through this analysis, we aim to demonstrate how research conducted in nursing populations can bridge the gap between controlled clinical trials and real-world clinical outcomes, ultimately contributing to improved care strategies for one of our most vulnerable patient populations.

The following sections will first establish the clinical context by examining influenza morbidity and prevention strategies in elderly populations, followed by an analysis of medication adherence challenges and their implications for treatment outcomes. We then present the case for nursing populations as ideal research settings, highlighting both the methodological advantages and practical considerations that make such research both feasible and essential for advancing geriatric care.

Literature Review

Influenza

Influenza Morbidity

Influenza is a highly contagious viral infection that ranks among the most severe illnesses of the winter season. It spreads easily from person to person, typically through the droplets released when an infected individual coughs or sneezes. Influenza viruses target both the upper and lower respiratory tracts. While most people recover from the flu within a couple of weeks, those with compromised immune systems—such as the elderly and young children—are at a higher risk of developing serious complications, including pneumonia (Gaitonde et al., 2019).

Diagnosis of Pneumonia.

Pneumonia is a serious infection or inflammation of the lungs and is a leading cause of illness and death among elderly patients due to infection. Influenza is a frequent trigger of pneumonia, particularly among young children, the elderly, pregnant women, individuals with chronic health conditions, and those residing in nursing homes. While most flu cases do not progress to pneumonia, the instances that do are often more severe and potentially fatal. Flu and pneumonia are still one of the leading causes of death worldwide (Calle et al., 2019).

The diagnosis of pneumonia is typically based on respiratory symptoms such as cough, shortness of breath, and fever, along with a new infiltrate visible on a chest X-ray. However, in elderly patients, diagnosis can be more challenging due to atypical age-related symptoms, such as a reduced fever response, which complicates the detection of the illness (*ibid.*).

The prognosis of pneumonia is largely influenced by comorbidities, including chronic heart failure, and chronic respiratory and neurological diseases, as well as the patient's level of dependence, nutritional status, and cognitive functioning. Moreover, mortality rates increase not only during the initial months following a pneumonia diagnosis but also in the subsequent years, partly due to a heightened risk of cardiovascular events (*ibid.*).

Morbidity prevention.

Given the high mortality rate associated with pneumonia, its prevention is especially crucial for elderly patients; Vaccination is the most effective preventive measure. There are protective vaccines available for both influenza and certain types of pneumonia, though none provide complete protection. Because flu strains vary annually, it is important to receive a flu vaccination each season to ensure protection against the most current strains. Pneumonia vaccinations typically need to be administered only once, although a booster may be recommended for some individuals (Cavallazzi & Ramirez, 2024).

Medication Adherence

Background

Medication adherence, defined as the extent to which patients take medication as prescribed by their healthcare professionals, is an important aspect of treatment efficacy, healthcare costs and patients. Patient reluctance to take medications that have proven beneficial is widespread and an important barrier to implementing clinical practice guidelines across many different conditions. Thus, understanding the factors that underlie patients' decisions is critical to improving uptake and adherence to medical therapies. Although patients' decision-making is complex and influenced by a myriad of factors (e.g., patient-physician relationships, patients' beliefs and/or values, risk tolerance, mood, as well as social/contextual factors such as insurance). Inadequate medication adherence is prevalent among half of patients with a chronic disease and represents a significant problem that leads to increased morbidity and mortality, as well as increased healthcare costs (Oliveira, 2024).

Medication Adherence among Elderly.

Elderly individuals often suffer from chronic conditions such as hypertension, diabetes mellitus, dyslipidemia, coronary artery disease, and osteoarthritis, all of which require long-term treatment. Therefore, adherence to medication regimens is crucial for improving therapeutic outcomes in this population. Compliance with medication is adversely affected by complicated regimes, ignorance about the disease and complications, purposeful omission of drugs, loss of memory, physical, economic and logistic problems and fear of adverse drug effects (Punnapurath, 2021). Geriatric patients especially tend to stop taking drugs off their own when they consider their symptoms have been ameliorated. They are, therefore, at high risk of poor adherence, such as missing doses, discontinuing medication, altering schedules and doses, or overuse. This complexity is heightened for patients who can no longer manage their medication and rely on family caregivers for assistance (Alsaeed et al., 2016). Non-adherence can lead to worsening clinical outcomes, including rehospitalization, exacerbation of chronic medical conditions, and increased healthcare costs. Up to 10% of hospital readmissions have been attributed to non-adherence. Discharged older adult patients are often prescribed numerous medications but typically take only about half of them, with many stopping treatments entirely. Nurse interventions could significantly improve medication adherence among this population (Perrie, 2012).

Difficulties in Swallowing and Dysphagia among Elderly.

Difficulty in swallowing, or dysphagia, may seem like a minor issue when considering the acute and chronic diseases many elderly patients face. However, it is far from negligible. Dysphagia is particularly common in the elderly due to age-related deterioration of the oral, pharyngeal, and oesophagal phases of swallowing, which can be exacerbated by reduced saliva production. This swallowing impairment can lead to malnutrition, weight loss, dehydration, and respiratory infections caused by food or liquid entering the airways (Logrippo et al., 2012). In individuals over 65, dysphagia affects 7% to 13%, with prevalence increasing with age, especially in those suffering from stroke, postoperative cognitive dysfunction, or neurodegenerative conditions like Parkinson's disease and dementia. Alarmingly, about 50% of nursing home residents report swallowing difficulties. [9].

Elderly patients with dysphagia face a significant challenge: while they often require multiple medications like other geriatric patients, their swallowing difficulties limit or even prevent them from taking solid oral forms, such as tablets and capsules, which are the most common drug formulations. This issue could be mitigated if all active pharmaceutical ingredients were available in alternative formulations, such as liquids or dissolvable forms. However, the dominance of solid oral dosage forms remains a major concern for these patients. In clinical settings, this problem is often addressed by crushing tablets or opening capsules to ease administration, but this practice can compromise medication efficacy and safety, making it a less-than-ideal solution (Schiele et al., 2019).

Benefits of Nursing Care for the Elderly. Maintaining an adequate stock of medication at home is another challenge that highlights the benefits of nursing care for the elderly. In a nursing setting, residents are relieved of the responsibility of purchasing all the medications they need. Proper drug administration involves not only obtaining the correct medication but also timing and organizing the medication schedule.

The timing of medications can be particularly challenging, as it often involves considering not just the time of day but also whether the medication should be taken before, with, or after food. Decreased adherence is commonly associated with an increased number of medications to be taken simultaneously, multiple daily doses, and the need for precise timing of intake.

Reading and understanding the instructions for use may lead to another barrier to adequate adherence. The leaflet might be written in too small letters impeding the process of reading and/or the written content might be too complex to understand.

Preparation before use is another obstacle that needs to be addressed since use of inhalers, splitting of tablets, and liquid oral dosage forms should be considered as additional complexity factors.

Conducting Research Among the Elderly Nursing Population

Advantages

The advantage of conducting research among a nursing elderly population lies in the fact that due to their condition, they are subject to a strict medication regimen managed by the medical staff, with nurses making sure to give them all the medication they need, at the right time. Thus, a strict regimen is followed, without missing one medicine or another. This is especially important for elderly people with dementia, who cannot manage it on their own anyway. This ensures that the medications that need to be taken are indeed taken. Hence, we assume that upon examining the efficiency of vaccines and medication on the elderly population, the nursing population offers an advantage in the form of a strict and tight regimen of medication adherence. Bearing in mind that poor medication adherence is the most common reason for disparities observed between results obtained in randomized clinical trials (RCTs) and real-world outcomes (Carls et al., 2017), it highlights the value of working with the nursing population.

A case of pandemic emphasizes it even more clearly: during the COVID-19 pandemic, only a small fraction of U.S. nursing homes participated in RCTs relating to it, though it accounts for much higher rates of COVID-19 deaths in the United States. A clinical trial conducted at both the staff and patient population levels showed that bamlanivimab monotherapy significantly reduced the incidence of COVID-19 in the prevention population compared with placebo (Cohen et al., 2021). Hence, this vulnerable population stands to gain significantly from research focused on relevant medications addressing the pandemic.

Another area which impacts mainly on the elderly population is osteoporosis, for example. Frail elderly individuals with hip fractures experience a mortality rate as high as 24% within the first year, and many survivors may never regain full function. Despite these concerning outcomes, most osteoporosis trials have focused on younger postmenopausal women and seldom included long-term care residents. However, clinical research on osteoporosis has successfully been conducted with frail residents in long-term care facilities, overcoming various barriers in the process (Greenspan et al., 2012).

In the context of conducting research in nursing homes, the quasi-organic society framework provides valuable insights into understanding how these microcosms operate, especially in healthcare. Nursing homes or retirement homes consist of elderly residents with varying needs and health conditions, medical staff, caregivers, and administrative personnel, all contributing to the daily functions of the facility. Research in such environments requires sensitivity to this interdependence, ensuring that studies do not disrupt the delicate balance of care and well-being.

Findings

There are several practical aspects of conducting research in nursing homes:

1. Ethical considerations: research in nursing homes involves vulnerable populations, such as the elderly and the frail. Ethical guidelines must be strictly adhered to, particularly regarding informed consent, ensuring that participants fully understand the research objectives, potential risks, and benefits. If residents are cognitively impaired, guardians or family members must be involved in the consent process.

2. Tailored study design: research in nursing homes often requires adaptations to standard study designs to accommodate the health status of residents. For example, randomized controlled trials in this setting may need to focus on practical interventions that directly benefit residents, such as medication adherence strategies, fall prevention programs, or dietary improvements, while accounting for the complexity of comorbid conditions.

3. Collaborative engagement: successful research in nursing homes requires collaboration between healthcare providers, administrators, residents, and researchers. Staff involvement is crucial for collecting data, implementing interventions, and ensuring continuity of care during the research process. This collaboration also helps to mitigate potential disruptions to routine care.

4. Data collection challenges: nursing home residents often have multiple chronic conditions, which may complicate data collection and analysis. Researchers must account for variations in medication, mobility, cognitive function, and other health factors that may affect study outcomes. Additionally, the frequent reliance on proxy respondents (caregivers or family members) to provide data on behalf of residents can introduce reporting biases.

5. Longitudinal research opportunities: nursing homes provide unique opportunities for longitudinal studies due to the stable, long-term residency of many individuals. Researchers can study the long-term effects of interventions, such as vaccine efficacy, nutritional programs, or rehabilitation strategies, over extended periods, providing valuable insights into ageing and healthcare delivery.

6. Cultural sensitivity: nursing home populations often represent diverse cultural backgrounds. Research designs should consider differences in cultural attitudes towards healthcare, ageing, and end-of-life care. This ensures that interventions are culturally appropriate and respectful of individual resident values.

Conclusions

Medicine faces the significant challenge of managing an ever-growing elderly population, and geriatric care is and will remain central in addressing this shift. Older patients present unique characteristics that complicate the daily work of healthcare providers, including clinicians, pharmacists, and nurses. The ageing process alters pharmacokinetics and pharmacodynamics compared to younger adults, and multiple coexisting medical conditions (comorbidities) often necessitate the prescription of numerous medications, leading to polypharmacy.

In nursing homes, patients receive proper care from staff who ensure strict adherence to clinical protocols, which helps maintain their health balance and treatment efficacy. By applying the quasi-organic society framework to research in nursing homes, researchers can appreciate the interconnectedness of residents, staff, and broader societal structures, leading to more effective and ethically responsible studies that improve the quality of life for elderly populations.

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