Literature review

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**Introduction**

Falls are the foremost reason for injury among older individuals, and the danger of falls and following fall-associated damage rises with age. The whole plausible health budget attributable to these injuries will probably increase threefold by the year 2050. Academic researches establish the strengths of additional methodologies to see the extent of this burden. This specifies that the struggles of clinicians, care workers, and nurses can progress a maintainable arrangement of interferences to decline hospital-associated fall damages in high-risk individuals (Sherrington & Tiedemann, 2015). Falls are directly connected with the mortality and morbidity in the elder persons (Crandall et al., 2016). Falls are also connected with the risk of immovability, reduced quality of life, and prolonged stays at hospitals (Crandall et al., 2016). In the United States, every year, more than one-third of the older people aged 65 and above fall (Shier, Trieu, & Ganz, 2016). Recognizing older people at a bigger risk of damage due to falls and operational fall anticipation interferences have the probability of decreasing fall threat between older persons, as well as fall-linked infirmity and can reduce medical expenditures.

**PICOT Question**

A clinical query required to be openly applicable to the patient or issue to ease researchers recognize the precisely relevant studies to discover the answers. This study question is a PICOT question, which is cause-effect related, and it evidence-based question (Crandall et al., 2016).

How does the evidence-based practice of physical exercise interventions can reduce the possibility of falls compared to the number of falls previously among elderly people prone to fall over an extended period?

Elderly population in the country P

Introduction of physical exercise interventions I

Number of falls previously C

Reduction in falls risk O

Extended period T

Keywords: falls prevention, patient safety, patient falls, nursing interventions, falls risk.

**Methodology**

Six applicable and recent five year methodical reviews based on evidence-based practices specifically focused on fall prevention interferences aided as a source for the examination (Sherrington & Tiedemann, 2015), (Shier et al., 2016), (Hamed, Bohm, Mersmann, & Arampatzis, 2018), (Crandall et al., 2016). All latent researches comprised of the methodical reviews, henceforth stated to as source objects, were evaluated to conclude whether they encountered the inclusion criteria, that is, registered independently-living individuals having age ≥ 65 years. The participants received an organized exercise as the essential element of the interference. All the participants were enlisted from a health care location, and the study plan was a randomized controlled trial (RCT). The participants of the control group did not obtain any exercise (Sherrington & Tiedemann, 2015). Studies described a number of falls by the individuals, and previously falls were counted (Hamed, Bohm, Mersmann, & Arampatzis, 2018). The research was limited to RCT to get data from the studies that have evidence-based practices and have informed guidelines to the individuals (Hamed et al., 2018). Studies were chosen based on available skilled staff for the evidence-based practice of exercise to deliver to patients, and the quality was assessed using a physiotherapy evidence database (PEDro), (Shier et al., 2016). Exercise constituents include gait and stability training, movement, and strength training along with resistance, Qi Gong, and jazz.

**Review of Literature**

Accidental falls are the joint healthcare worker as well as an older individual problem. It is a security incident in hospice and is predominantly probable in older individuals (Hamed et al., 2018). Though, there appear to be countless disparities in fall proportions when a patient managed with care. It is because various falls are expectable or avoidable. However, some are inevitable and intolerable. Utilizing exercise therapies and rehabilitation strategies can help prevent falls risk.

**Community-based exercise programs**

Using an appropriate qualitative strategy, a study was conducted to see the literature determining the efficacy of exercise programs in the prevention of falls in the elderly population (Shier et al., 2016). It was a systematic review, and data was collected from reviewing literature. This study was based on existing available data to evaluate these reviews. This research proposes that there is a significant link between exercise programs interventions in reducing the number of falls in patients (Shier et al., 2016). With cumulative consideration to individual-based health administration in the United States, physicians, therapists, and health organization leaders require a deeper knowledge to link the elderly population in the adaptation of appropriate exercise programs at community levels (Shier et al., 2016). Constructing robust evidence that fall anticipation plans concentrated on exercise can assist reduce falls. This study has delivered additional detailed approaches to support medical and health organization leaders to assimilate fall anticipation approaches with monotonous care (Shier et al., 2016). These programs and strategies, though, need appropriate infrastructure, skilled therapists, trained nursing staff, dedicated efforts, and regular follow-ups. These programs can identify individuals who can take advantage of exercise therapies.

**Multiple interventions using PICOT questions**

In the United States, fall-associated injuries between elderly people are the reason for approximately 750,000 admissions in clinics and 25,000 expiries per year; however, intervention studies are lagging. An interventional study based on PICO analysis was conducted for this purpose in 2016 (Crandall et al., 2016). This study specifically compares the outcomes and the efficacy of prevention strategies using PICO questions. The first question was to identify the bone enhancing elements in reducing falls-associated injuries; the second was to check the efficacy of hip protectors in the prevention of falls-associated injuries (Crandall et al., 2016). The third question was related to the intervention of exercise in reducing fall-linked injuries. The fourth question was to observe the environmental association and modification in the reduction of fall-linked injuries. The fifth question was to check the risk element screening in the prevention of falls-associated injuries. The last question was associated with multiple interventional strategies in controlling fall-linked injuries. Data were collected from 50 different articles of relevant studies (Crandall et al., 2016). Results of the study were mixed, the use of supplements such as vitamin D and calcium intake can reduce falls-linked injuries, recommended hip protectors to protect elderly individuals from falls. These studies showed evidence-based practices for the recommendations of exercises and therapies related to the movements to avoid falls in elderly people (Crandall et al., 2016). Environmental modifications and multiple anticipation strategies can also reduce the number of falls in the elderly population.

**Evidence-based physiotherapy**

Falls in the elderly population is a public and significant issue to be discussed because it can have overwhelming consequences with age 65 and above. Falls are a significant issue for health organizations because of the burden it places on health facilities. Physiotherapists are skilled to play an important and vital role in anticipation of falls (Sherrington & Tiedemann, 2015). These assessment summaries the impact and evidence-based practices in terms of physical therapy for the prevention of falls. This review suggested that group exercises, physical therapy, and individual-based exercises can significantly reduce the number of falls in elderly people (Sherrington & Tiedemann, 2015). Regular follow-ups, along with routine exercise in clinics and at homes, can have a strong impact on the reduction of falls (Sherrington & Tiedemann, 2015). However, physical therapy training, including strength and balance exercises in individuals prone to fall. Interventional studies to reduce the number of falls, including a better understanding of patients and their training in movements and balancing themselves, should be implemented at community levels to prevent several falls in the high-risk population.

**Integration of Theory**

Humanistic theory supports the research PICOT question. This Theory was projected by Josephine Paterson and Loretta Zderad (Carvalho & Cordeiro, 2018). This classical approach highlights the all-inclusive methodology of nursing to classify the psychological and emotional health of individuals as connected with an individual's physical signs. This theory states that the patient acquired any physical illness grows a recurring inescapable sense of doubt about the well-being in the future. This sense of smoldering desperateness interrupts the retrieval unfavorably, and all behavior managements and interferences believe to be distorted (Carvalho & Cordeiro, 2018). In the elderly population, individuals are above age 65 and more, already have developed a sense of hopelessness. The motivation, energies to retrieve, and seek training is already lost. In this theory, a nurse plays a very vital role in the development of progress towards improvement (Carvalho & Cordeiro, 2018). This implicates five steps.

A nurse with an open mind approaches an unknown and eagerly prepared to accept the decision. Nurses will flexibly listen to the patients considerately and successfully form an association with the individual (Carvalho & Cordeiro, 2018). The next phase would be to progress in knowledge and evidence-based literature familiarity, which will enable nurses to understand the psychological, emotional, and communal requirements of the patient. After getting this knowledge and training, nurses will handle and implement interventions according to the psychological and emotional thinking of the patient to get better health outcomes. Individuals will be treated according to their minds. In this theory, it revolves around personalized patient coordination and experiences (Carvalho & Cordeiro, 2018). Once the sense of smoldering hopelessness is recovered and changed into delighting hope, the patient would seek and learn about his treatment and will progress towards improvement. This theory is well-matched with the PICOT question as the research is on the elderly population (Carvalho & Cordeiro, 2018). However, patients that are above 65 years of age would need additional efforts and struggles to meet the criteria of the theory; once achieved, retrieval would be easy.

**Conclusion**

The evidence-based practice of physical therapy and exercise interferences can significantly reduce the possibility of falls compared with the total falls previously among elderly people prone to fall over an extended period. From the methodical review and evaluation of six research articles, it has been strongly recommended that exercises and physical therapy interferences meaningfully reduce fall proportion and fall danger in older people subject to post interference follow-up regularly (Shier et al., 2016). This designates that older individuals can take advantage of physical therapy and exercises that mark age-linked strength scarcities and reduced stability regulation (Hamed et al., 2018). Though, comprehensive evidence on other effective management and prevention strategies remains sparse. Based on these research consequences and additional evidence from other literature, a conceivable endorsement could be to embrace stimulating balance training and agitations in exercise interferences to decrease the fall danger and threats in older individuals.

**Implications to Practice**

Fall-linked injuries and damages are noteworthy public health issues among the aged people. It has been observed that around 95% of the lower limb fractures occur due to falls. Every year, approximately 258,000 fall-tempted fractures are recorded. It has also been observed that the proportion of women is nearly twice the proportion for men. Lower limb fractures in specific are linked with amplified mortality, and in most cases, after amending for established factors. For this particular reason, this study specifically conducted to evaluate the prevention strategies implemented in falls-linked injuries (Shier et al., 2016). From literature, it has been identified that there is a considerable knowledge gap between the utilization of the preventive strategies, and implementation of these methodologies. The knowledge gap is also observed in accountability and follow ups in many areas (Carvalho & Cordeiro, 2018).

Quality care, as well as a patient-centered approach, is not implemented in the organizations delivering healthcare facilities. To decrease the probabilities of several falls in the elderly population, it is necessary to take certain actions including the delivery of patient-centered care, exercise therapies, follow-ups, home-based and community-based interventions specifically for the motivation, enthusiasm, and inspiration of the elderly population (Sherrington & Tiedemann, 2015). At first, exercises and physical therapy can decrease the falls risk, but for better health outcomes, it is obligatory to take care of the general health of the patient along with the preventive measures (Sherrington & Tiedemann, 2015). Nurses can play an important role in the improvement of the health status of the patient by strengthening and supporting and taking care of the psychological and emotional health of the patient side by side with the preventive therapies. Preventive methodologies in terms of physical therapy include training and education of individuals regarding gait, balance, and exercises for mobility and flexibility.

Healthcare facilities delivering services need to focus on patient-centered care. From nurse to head, it involves all level policies and accountability to implement such preventive measures that result in better health outcomes (Shier et al., 2016). Nurses and family contributions, along with community positive attitude, can significantly improve the results of prevention and management strategies taken for reducing falls in the elderly population (Hamed et al., 2018). It is also evident that there is a need for tools that can evaluate which appropriate exercise can treat which patient. To encourage patients, motivational and success stories should be displayed prominently in the healthcare facilities.

**Critique of Literature with AACN’s Levels of Evidence**

Evidence-based hospital care is knowledgeable, and it is obtained by study results and clinical proficiency, and it is utilized to progress health consequences. Research evidence in medical administration is a predictable standard of preparation of workers and healthcare administrations, to seek for better health outcomes for patients. Various barriers are existing that generate a gap among novel knowledge and application of that knowledge for the improvement. In the current study, it has been evident that randomized control trials are labeled as B in the level of evidence, as per AACN's levels (Peterson et al., 2014). This study has the strength that it evaluated randomized control trials of literature available. This research is based on evidence and the data is collected by blinding, researcher did not have any clue to observe which patient has been given which intervention or interference. A robust study design that scrutinizes cause and result of interference with condensed bias (Peterson et al., 2014). This study strongly suggested concrete application into superlative practices to reduce falls in the elderly population by implementing physical therapy and exercises as prevention.

This study was based on the recognition of the evidence constructed measures and present the finest practice strategies related to the better-quality of health (Peterson et al., 2014). After recognizing, the execution of training with the healthcare facility members is prepared. The debate on the possible efficacy and disadvantages of the exercises therapy interferences in the elderly population was also made. The execution and the debate were completed to reduce falls risk and to have a declined number of falls in elderly population. Modifying the interference to familiarize the values, strategies, and procedures to meet the objectives of the study (Sherrington & Tiedemann, 2015). Communication and facilitation with the relevant authorities to implement the adopted and suggested study intervention for the patients. And in last, implementing the newly introduced intervention or interference in the community to believe improved consequences.

**Appendix Synthesis Table**

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| **Author** | **Title** | **Year** | **Database Searched** | **Research Type** | **AACN levels of Evidence** | **Findings related to PICOT** |
| (Carvalho & Cordeiro, 2018) | Theories of the Interpersonal Relationships, Transitions and Humanistic Theories | 2018 |  |  | Integration to theory  | Integration to theory  |
| (Crandall et al., 2016) | Prevention of fall-related injuries in the elderly: An Eastern Association for the Surgery of Trauma practice management guideline | 2016 | Medline | Meta-Analysis  | B (RCT) | Positive  |
| (Hamed, Bohm, Mersmann, & Arampatzis, 2018) | Follow-up efficacy of physical exercise interventions on fall incidence and fall risk in healthy older adults: A systematic review and meta-analysis | 2018 | Medline | Systematic Review and Meta-analysis | B (RCT) | Positive  |
| (Peterson, 2014)  | Choosing the best evidence to guide clinical practice: Application of AACN levels of evidence | 2014 | Google Scholar  |  | AACN’s Levels |  |
| (Sherrington & Tiedemann, 2015) | Physiotherapy in the prevention of falls in older people. | 2015 | Google Scholar  | Systematic review  | B (RCT) | Positive  |
| (Shier et al., 2016) | Implementing exercise programs to prevent falls: Systematic descriptive review. | 2016 | (PEDro), Google Scholar | Systematic review  | B (RCT) | Positive  |

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