POPULATION- SPECIFIC FALL RISK ASSESSMENT TOOLS FOR ADULT IN-PATIENTS: A SYSTEMISED LITERATURE REVIEW

Nursing

Priya Padmanabhan*

Nursing Quality Coordinator, Tawam Hospital, Al Ain, United Arab Emirates.
*Corresponding Author

Salumon Chandrasekaran

Risk Officer, Tawam Hospital, Al Ain, United Arab Emirates.

ABSTRACT

Fall is one of the most commonly reported adverse events from the hospitals and around one-third of them result in injury. A carefully tailored fall reduction program begins with the identification of the "at-risk" population. Commonly used adult fall risk assessment tools do not take into consideration the risk factors of some of the vulnerable patient populations. This paper provides a systemised literature review of the need and availability of population-specific risk assessment tools. One of the most commonly used tools - Morse Fall Scale- does not assess the effect of certain medications and population-specific risk factors. The Cleveland Clinic – Capone- Albert (CC-CA) Fall Risk Score is a tool that is specifically developed for cancer patients. Similarly, Obstetric Fall Risk Assessment Tool (OFRAS) helps in identifying the fall risk factors in perinatal women. Usage of such population-specific tools help in focused identification of risks, distinct implementation of interventions and thus, results in reducing the incidents of falls and injuries thereof.

KEYWORDS

Fall, Fall Risk Assessment Tools, Population-specific

INTRODUCTION

Fall among hospitalised patients is a major patient safety concern. Two in every five hospital adverse events are related to falls (Urbanetto et al., 2017). Fall is a situation when a patient suddenly and unexpectedly comes in contact with the floor (Flimban et al., 2016; Kisacik, & Cigerci, 2019; Rheume & Fruh, 2015). According to a retrospective review conducted by (Flimban et al., 2016) in Makkah, Saudi Arabia, the fall rate may range between 1.4 to 17.9 per 1000 patient days depending on the complexity and acuity of patients. Rheume & Fruh (2015) from the United States of America, provide a range from zero to seven falls per 1000 patient days. Although different papers show different ranges of fall rates among hospitalised patients, all of them unanimously agree that falls are the most commonly reported preventable adverse events in the hospitals (Flimban et al., 2016; Kisacik, & Cigerci, 2019; Rheume & Fruh, 2015). Around one-third of hospital falls result in injury that may vary from minor to moderate or severe injuries including fracture (Fields et al., 2015; Flimban et al., 2016). Literature shows that around 0.2% of them may even cause death (Kisacik, & Cigerci, 2019). Besides, fall injuries increase the length of stay and thus, the healthcare expenditure. On average around \$ 14,000 are spent to treat a fall injury in the US (Kisacik, & Cigerci, 2019). All the studies mentioned above conclude that falls jeopardise patient safety and quality of care delivered and hence, need to be dealt with scientifically to reduce its occurrences. Identifying the 'at risk' patients is the first step towards an effective fall prevention program. In this paper, the author is trying to analyse the need for population-specific tools to accurately identify the at-risk patients as outlined in the literature.

METHODOLOGY

A systematised review (Grant & Booth, 2009) was conducted to review articles related to falls and population-specific risk assessment tools. The search terms used were *reducing falls in hospital and fall risk assessment tools*. Boolean operators such as 'AND' and 'OR' were used appropriately to widen the search. Electronic databases such as PubMed, Medline, CINAHL Plus, and Health Business Elite were used of which the last three were accessed using EBSCO Host combined database. The writer also used google scholar to capture any published literature on falls in specific populations such as perinatal mothers. The date parameter for the search was set between 2009 and 2019. The initial search yielded 69 and 876 articles from PubMed and EBSCO Host combined database respectively. With the application of filters for peer-reviewed full-text articles, the number and removal of non-relevant studies, the number came down to 87 from both databases combined. Google scholar yielded 12 articles. After the removal of duplicates and non- English articles, the number further came down to 67. The abstracts of these studies were reviewed by the writer and inclusion and exclusion criteria were applied. Studies directly related to fall and fall prevention strategies in adult inpatient settings were

included. Studies on the same subject conducted in community settings and non-hospital settings were excluded from the review. This streamlining helped to identify the eligible 27 articles which were included for the final review. Figure-1 summarises the literature review process.

Figure 1 Literature search flow diagram (Adapted from: Moher, Liberati, Tetzlaff, & Altman, The PRISMA Group (2009).

RESULTS

The fall risk assessment is generally carried out by nurses during the initial assessment (Majkusová & Jarošová, 2017; Yazdani & Hall, 2017). Accurate identification of risk factors and risk status enables the care providers to implement targeted prevention strategies. Adopting the right tool for the healthcare setting also helps in reducing the cost (Bóriková, Tomagová, Miertová, & Žiaková, 2017). Bóriková et al., (2016) also state that an ideal tool should be easy to use, not require any specialised skills or technology, and yield consistent scores. They also quote several other papers and recommend that accurate assessment of clinical specialisations and patient populations are necessary while choosing a risk assessment tool. However, it is also worth mentioning that, despite the aforementioned advantages, these numerical tools have limitations. For example, a patient who was scored as not at risk of fall might fall accidentally (Bóriková et al., 2017).

Morse Fall Scale (MFS) is by far one of the most commonly used tools across the world. The tool was developed by Janice M. Morse in 1989

by testing the tool among a defined population group comprising of medical surgical acute, long term, and rehabilitative care (Bóriková et al., 2017). History of fall in the last three months, secondary diagnosis, IV therapy, ambulatory aid, gait, and mental status were identified as the six elements of MFS as these increase the risk of fall in hospitalised patients (as cited by Yazdani & Hall, 2017). Although MFS is a widely accepted and tested tool, researchers pointed out its shortcomings too. Firstly, it did not assess the impact of certain medications like narcotics, tranquilisers on falls. Due to this, some of the hospitals used a separate tool to identify the medication-related fall risk in conjunction with MFS (Yazdani & Hall, 2017). Secondly, MFS was tested and validated among medical-surgical patients and therefore its applicability in other clinical settings was questionable (Majkusová & Jarošová, 2017; Murray, Vess, & Edlund, 2016). In medical-surgical settings, IV therapy and presence of secondary diagnosis are common among patients. Hence majority of the patients are identified as at risk of fall which in turn causes increased cost to implement prevention strategies (Bóriková et al., 2017).

Lockwood & Anderson (2013) states that John Hopkins Fall Assessment Tool, a commonly used tool in the US, does not consider the perinatal population-specific risk factors. Moreover, the tool was validated among the medical-surgical population. They recommended more research for developing a population-specific risk assessment tool for perinatal women. According to McKechnie, Pryor & Fisher (2017), predicting the fall risk status is a complex process and clinicians should be aware of the limitations of the tools they use. They claim that the risk factors of different patient populations differ and a general tool cannot be considered effective in identifying the at-risk population (McKechnie et al., 2017).

Cleveland Clinic in the United States had developed a cancer-specific seven-item falls predictor and it had been tested for validity (Weed-Pfaff et al., 2016). The authors state that clinical settings and diagnosis may affect the predictability of falls when using different fall risk assessment tools. They have compared the predictive value of MFS and the Cleveland Clinic – Capone- Albert (CC-CA) Fall Risk Score. The latter assesses the fall risk factors specific to cancer patients. This prospective, comparative study revealed that the cancer-specific risk score has higher accuracy of the predictive score when compared with MFS. This study reiterates the importance of having risk assessment tools that are specific to patient populations and settings.

Considering the limited literature available on falls among the obstetrics population, Heafner et al., (2013) developed a population-specific tool to improve the safety of women admitted to the maternity unit. During the literature review, the authors found that since the women in Obstetric units are generally young and healthy, they are not identified as at higher risk for falls by the commonly used tools. Although several falls are reported from these units, the fall risk assessment criteria applied for medical, surgical, or geriatrics patients would score them as at low risk. The authors developed a new tool based on MFS and the tool was named as Obstetric falls Risk Assessment System – OFRAS (Heafner et al., 2013). OFRAS assesses the unique risk factors of perinatal women such as pre-eclampsia, orthostatic hypotension, amount of blood loss, narcotics within 30 minutes, and anesthesia or neuro function status. These clinical assessments are focused on the expected risk factors in the obstetric population (Lockwood & Anderson, 2013). For example, dizziness and orthostatic hypotension are common during the initial ambulatory efforts by post-natal women. These factors are identified as predictors of falls; however, these are not considered by the commonly used risk assessment tools. In addition to these specific factors, general risk factors like history of fall and mobility status are also included in OFRAS which makes it a comprehensive tool.

Post Epidural Fall Risk Assessment Score (PEFRAS) was developed in 2009 when the use of epidural anesthesia became popular in obstetrics (Frank et al., 2009). It focuses on fall risk factors that are unique to women recovering from epidural anesthesia in Labour and Delivery settings (Frank et al., 2009). Thompson, Haddad, & Smith (2014) validated the 8-item PEFRAS in a maternity unit and it was found to be reliable. However, the authors recommended modifications to enhance face validity.

DISCUSSION

Identification of patients at risk of falls is the cornerstone of a successful fall prevention program. MFS and John Hopkins Fall

Assessment Tools are some of the commonly used tools. It is important to note that these tools were tested and validated among medical-surgical patients, yet these are used for the adult inpatient population in general. Literature supports the need to have tools that are tailored to capture the population-specific fall risk factors. There are shreds of evidence of successful attempts in the development of risk assessment tools focusing on a specific population. For example, CC-CA is developed specifically for oncology patients and the OFRAS for the perinatal population. A carefully tailored prevention program can reduce fall rates and improve the safety of hospitalised patients.

REFERENCES:

1. Bóriková, I., Tomagová, M., Miertová, M., & Žiaková, K. (2017). Predictive value of the Morse Fall Scale. *Central European Journal of Nursing and Midwifery*, 8(1), 588–595. <https://doi.org/10.15452/CEJNM.2017.08.0006>
2. Fields, J., Alturkistani, T., Kumar, N., Kanuri, A., Salem, D. N., Munn, S., & Blazey-Martin, D. (2015). Prevalence and cost of imaging in inpatient falls: The rising cost of falling. *ClinicoEconomics and Outcomes Research*, 7, 281–286. <https://doi.org/10.2147/CEOR.S80104>
3. Flimban, M. A., Abduljabar, D. F., Dhafar, K. O., Deiab, B. A., Gazzaz, Z. J., Bansuan, A. U., ... Suliman, M. I. (2016a). Analysis of patient falls among hospitalised patients in Makkah region. *Journal of the Pakistan Medical Association*, 66(8), 994–998.
4. Frank, B. J., Lane, C., & Hokanson, H. (2009). Designing a postepidural fall risk assessment score for the obstetric patient. *Journal of Nursing Care Quality*, 24(1), 50–54. <https://doi.org/10.1097/01.NCQ.0000342937.99036.7b>
5. Gettens, S., & Fulbrook, P. (2015). Fear of falling: Association between the Modified Falls Efficacy Scale, in-hospital falls and hospital length of stay. *Journal of Evaluation in Clinical Practice*, 21(1), 43–50. <https://doi.org/10.1111/jep.12226>
6. Grant, M., & Booth, A. (2009). A typology of reviews: an analysis of 14 review types and associated methodologies. *Health Information & Libraries Journal*, 26(2), 91–108. doi: 10.1111/j.1471-1842.2009.00848.x
7. Heafner, L., Suda, D., Casaleanuovo, N., Leach, L. S., Erickson, V., & Gawlinski, A. (2013). Development of a tool to assess risk for falls in women in hospital obstetric units. *Nursing for Women's Health*, 17(2), 98–107. <https://doi.org/10.1111/1751-486X.12018>
8. Kısacık, O., & Cigerci, Y. (2019). Characteristics of Inpatient Falls in a Hospital Setting: A Retrospective Study from Turkey. *International Journal of Caring Sciences*, 12(2), 2. Retrieved from www.internationaljournalofcaringsciences.org
9. Lockwood, S., & Anderson, K. (2013). Postpartum Safety. MCN, *The American Journal of Maternal/Child Nursing*, 38(1), 15–18. doi: 10.1097/nmc.0b013e31826bae4b
10. Majkusová, K., & Jarošová, D. (2017). Validity of tools for assessing the risk of falls in patients. *Central European Journal of Nursing and Midwifery*, 8(3), 697–705. <https://doi.org/10.15452/CEJNM.2017.08.0021>
11. McKechnie, D., Pryor, J., & Fisher, M. J. (2017). Predicting falls in the inpatient setting. *Journal of the Australasian Rehabilitation Nurses' Association (JARNA)*, 20(3), 14–19. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=ccm&AN=127234307&site=ehost-live&scope=site&custid=ns206789>
12. Murray, E., Vess, J., & Edlund, B. J. (2016). Implementing a pediatric fall prevention policy and program. *Pediatric Nursing*, 42(5), 256–259.
13. Rheume, J., & Fruh, S. (2015). Retrospective case reviews of adult inpatient falls in the acute care setting. *MEDSURG Nursing*, 24(5), 318–324.
14. Urbanetto, J. de S., Pasa, T. S., Bittencout, H. R., Franz, F., Rosa, V. P. P., & Magnago, T. S. B. de S. (2017). Analysis of risk prediction capability and validity of Morse Fall Scale Brazilian version. *Revista Gaucha de Enfermagem*, 37(4), e62200. <https://doi.org/10.1590/1983-1447.2016.04.62200>
15. Weed-Pfaff, S. H., Nutter, B., Bena, J. F., Forney, J., Field, R., Szoka, L., ... Albert, N. M. (2016). Validation of predictors of fall events in hospitalized patients with cancer. *Clinical Journal of Oncology Nursing*, 20(5), E126–E131. <https://doi.org/10.1188/16.CJON.E126-E131>
16. Yazdani, C., & Hall, S. (2017). Evaluation of the “medication fall risk score.” *American Journal of Health-System Pharmacy*, 74(1), e32–e39. <https://doi.org/10.2146/ajhp150745>