RESEARCH ARTICLE

Correlation of fall efficacy scale and Hendrich fall risk model in elder population of Rawalpindi-Islamabad

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Abstract

Objective: To determine the correlation of fall efficacy scale and Hendrich fall risk model in elderly population.

Method: The correlational study was conducted from February to July 2018 in the twin cities of Islamabad and Rawalpindi, Pakistan, and comprised subjects of either gender aged >65 years from Railway General Hospital, Rawalpindi Eye Donors Organisation Eye Hospital, Water and Power Development Authority General Hospital, as well as Baghban and Mukhtar Ghulam Qadir(MGQ)old people's homes. A pre-designed semi-structured questionnaire consisting of Fall Efficacy Scale-International, Hendrich fall risk model along with the necessary demographic information was used for data collection. Data was analysed using SPSS 21.

Results: Of the 336 subjects, 270(80.35%) were males. The overall mean age was 70.03±4.52 years. The mean fall risk total score was 5.77±3.43. Mean fall efficacy score was 35.64±16.40. The correlation coefficient for both scales (r=0.420) indicated a direct/intermediate correlation.

Conclusion: There was a positive intermediate relationship between apprehension and risk of fall among the elderly population.

Keywords: Apprehension, Elderly, Fall, Hendrich, Risk of fall.

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Introduction

There is no definite figure at which someone is categorised as an older adult but age >65 years is generally categorised as such in various cultures worldwide. Across Asia this population is expected to rise by 314 percent from 207 million in 2000 to 857 million in 2050.[1] Numerous health-related conditions can result in the confinement of the elderly to their house settings and limiting their independence and mobility.[2] The most common one among such reasons is a fall.[3] Fall is a sudden, unexpected and mostly uncontrolled change of position of a person from a higher ground to a lower ground.[4] On yearly basis, every third individual of ages 65 years and older experience a fall.[5] Fall may be an unnoticeable event for young adults, but for the elderly, it may result in fractures, activity limitations and above all, emotional setbacks and apprehension of falling again.[6] This unchanging rate requires an understanding of the factors effecting falls in greater depths to make effective and practical tools to screen the risk factors and recognise new intervention goals.[7] Apprehension is the fear of an unkind event to reoccur and is a primary factor in cutting the elderly off from their household activities and societal roles.[8] The elderly population is psychologically affected by falls. Among the elderly who have sustained a fall already, the fear of falling again rises by 30-73%.[5]. A study done to check the validity of various tests for the risk assessment of fall showed that compared to the Morse Fall Scale, only the Hendrich II Fall Risk Model (HFRM) had a more acceptable level of specificity.[9] Another study showed that individuals with high fear were more likely to report a fall within a span of 3 months compared to individuals with low fear of fall.[10] While studies have been conducted on the prevalence of apprehension of fall in Asian countries, no specific study was found related to Pakistan. The current study was planned to determine the relationship of apprehension of fall with the risk of fall.

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Subjects and Methods

The correlational study was conducted from February to July 2018 in the twin cities of Islamabad and Rawalpindi, Pakistan, and comprised subjects of either gender aged >65 years from Railway General Hospital, Rawalpindi Eye Donors Organisation (REDO) Eye Hospital, Water and Power Development Authority General Hospital, as well as Baghban and Mukhtar Ghulam Qadir (MGQ) old people's homes. After approval from the ethical review board of Riphah International University, Islamabad, the sample size was calculated using Epi calculator with proportion 0.58 with a confidence interval (CI) of 95%.[11]

The sample was raised using non-probability purposive sampling technique from among those aged 65 years and above, able to walk 10m without the assistance of another person, and able to understand the instructions. Those diagnosed with neurological, cardiovascular or

musculoskeletal disorders affecting physical balance were excluded.

Data was collected using a pre-designed semi-structured questionnaire which was developed consisting of necessary demographic information, the 16-item Fall Efficacy Scale-International (FES-I) and the HFRM. The efficacy scale provides information about the level of falling during social and physical activities inside and outside the home. Scoring was done by adding scores for each item to generate ranges from minimum 16 'no concern about falling' to maximum 64 'severe concern about falling'.[12] Hendrich fall risk model provides information about risk of fall comprising known categories of medications increasing risk, gender, mental and emotional status and symptoms of dizziness. The individual score is added to calculate the final score, with 5 or more indicating high risk.[13] Data was collected after taking informed written consent from all the subjects who were allowed to leave at any point they found themselves in discomfort. Data was analysed using SPSS 21. Non-parametric test Spearman's rho correlation coefficient was applied. Variables were bivariate and not normally distributed. P<0.05 was considered significant.

Results

Out of the 400 questionnaires distributed, 336(84%) subjects completed the study; 270(80.35%) of them being males. The overall mean age was 70.03±4.52 years. Of the total, 5(1.5%) had <6 duty hours, 22(6.5%) had <8, 20(6%) had <12 and 289(86%) had no work hours. Also, 227(67.6%) subjects were retired, 15(4.5%) were labourers, 29(8.6%) were businessmen and 65(19.3%) were housewives. Mean body mass index (BMI) was 25.18±4.74 kg/m^2.

The mean HFRM score was 5.77±3.43. Those at risk of high fall were 174(51.8%) and those at low risk were 162(48.2%).

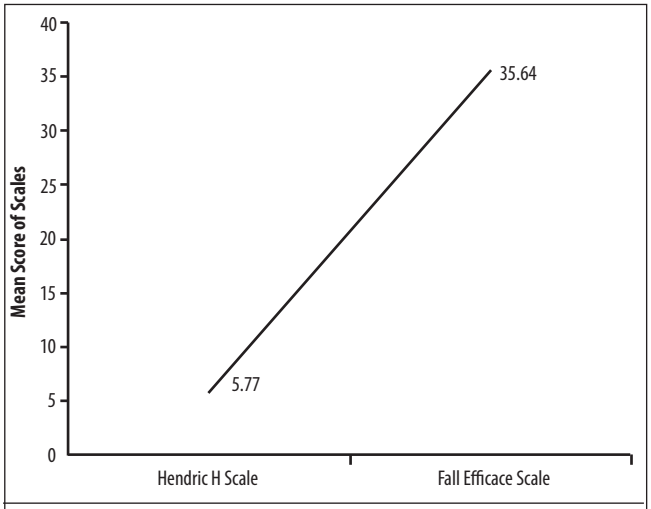

Figure: Line graph showing correlation of fall efficacy scale and Hendrich fall risk among the elderly population.

Mean FES-I score was 35.64±16.40. Those with high concern of fall risk were 196(58.3%), moderate concern 59(17.6%) and low concern of fall risk was found in 81(24.1%).

Correlation between apprehension and risk of fall was significant (p=0.001). The correlation coefficient for both FES-I and HFRM was intermediate positive (r=0.420) and line graph showed the influence of risk on apprehension (Figure).

Discussion

The study was conducted to find out the relationship of fall and apprehension of fall in the elderly population of twin cities Islamabad and Rawalpindi. According to the findings, the apprehension of fall in the elderly increased with the risk of fall. The results are supported by literature, indicating that apprehension of fall is a grave health problem, which is a major cause of fall in the elderly.[14] A study reported similar results that fear of fall is strongly related with the risk of fall and injuries in older population.[15] Mean FES-I score reported was 38.02±14.75 which is higher than that noted in the current study 35.64±16.40. Possible reason for the difference could be the mean age, as in our study it was 70.03±4.52 and in the other study it was 77±8.79. Studies have reported that the risk of fall is increased with the fear of falling in older community women.[15,16]

In 2011 Thomas Hadjistavropoulos et al. presented a model that fear of fall-related anxiety causes reduction in balance performances.[17] However, the mechanism for this association was not strongly articulated. The fear of fall and its related anxiety also cause reduction in internal focus of attention, visual-spatial information, balance safety, and retention of necessary sensory information that is required in the prevention of fall.[18]

The psychological aspect of the fear of fall and the risk of fall has been called the Stiffening Strategy. It is consistently shown that people adopting this strategy reduce their range of motion and alteration in the centre of gravity that causes postural sway, leading to fall.[19,20]

In terms of limitations, our sample size was lower than the 375 that was calculated for enough power. Though we approached 400 subjects to cover for probable shortfall, only 336(84%) completed the study. However, literature has cited a study using similar scales with an even lower sample size.[21]

Conclusion

Apprehension of fall and the risk of fall were found to be positively correlated. Physiotherapists can adapt their

strategy while dealing with the elderly accordingly.

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