Frailty among the elderly rural people of Bangladesh

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Abstract:

Background: Frailty is a multidimensional geriatric syndrome resulted as the loss of reserves that gives rise to vulnerability. Measurement of frailty is useful at a health care policy level as well as clinically. **Objective:** To estimate the prevalence of frailty among the elderly population in a rural community of Bangladesh. **Methods:** This was a cross-sectional type of descriptive study carried out in a rural area of Bangladesh. All the people aged ≥65 years of the village constituted the study population. A total of 174 elderly people available at their houses during data collection were included in this study. Data were collected by face to face interview with the help of a semi-structured questionnaire. The questionnaire was designed to record the age, gender and frailty status of the participants. Frailty status was measured by a valid and reliable Frailty scale. Descriptive analytical techniques involving frequency distribution, computation of percentage etc. were applied. Chi-square test was applied to find out the association of frailty status with age and gender of the participants. **Results:** Out of 174 elderly people, 161 (92.53%) people were found to be frail. Women had significantly higher occurrence of frailty (97.59%) than men (87.91%). Advancement of age showed no significant change in the result. **Conclusion:** A detailed and extensive study should be planned in the national level to reveal the actual situation of the elderly people and specific policy should be taken by the government to take proper care of this population group. All the concerning agencies should also be aware of the situation.

Key words: frailty, elderly rural people, Bangladesh.

Introduction

Frailty is a term widely used to denote a multidimensional geriatric syndrome resulted as the loss of reserves (energy, physical ability, cognition, health) that gives rise to vulnerability.[1] It seems to be a valid construct, but the exact definition is still not so clear. According to Rockwood et al. there are many operational definitions, which typically are rules-based[2]; for example, a person may be considered as frail if three or more symptoms (of unintentional weight loss, feeling exhausted, weak grip strength, slow walking speed and low physical activity) are present.[3] Rules-based definitions often are derived from multiple regression analysis and cannot be reliable cent per cent, for example: in requiring combinations of factors that might not apply to an individual case. Summing the number of impairments is another way to define frailty. Thus there are so many different scales to measure frailty and it means only the situation that the term 'frailty' is still an obscure one and also its components are not yet clear and unanimous to all. A reliable operational definition and classification of frailty was suggested by Canadian Study on Health and Aging which was used in this study, that depends upon clinical judgment to interpret the results of history-taking and clinical examination.[4]

The ability to measure frailty is useful at a health care policy level as well as clinically: information about frailty helps program planners by identifying the range of services that might be required and the anticipated need for them. The frailty stratification clinically helps for planning and management of the patients' risk of death and need for institutional care. As the scales are mainly intended to stratify risk, the ability to predict adverse outcomes serves a common goal. In the Canadian Study on Health and Aging three approaches were worked there. First, like other groups, they developed a rules-based definition of frailty. Later, they developed a method of counting a patient's clinical deficits (identified by the clinical symptoms and signs, but mainly by the assessment of the old person him/herself or by the care-giver of the person). And finally, they described their third approach which has been used here in this paper: the derivation and validation of the Clinical Frailty Scale, a measure of frailty based on clinical judgment.[4] Rockwood et al. also carried out their study in the same way.[2] This approach is valid and reliable as seen in their studies.

As the size of the geriatric population is increasing in course of time, the burden of the national economy is also increasing. Hypothetically the elderly people in our country are largely devoid of any work that affects to the economic growth of our country. But there is lack of information regarding the frailty status of the elderly people in our country. So no proper planning is possible yet to be designed to take proper care of them. In this study the researcher attempted to explore the frailty status of the elderly people in a rural community of Bangladesh.

Methods

This was a cross sectional descriptive type of study conducted in a village, Kendra-Guchchha Gram of Puthia Upazilla, Rajshahi, Bangladesh. All the people aged ≥65 years of the village constituted the study population. A total of 174 elderly people available at their houses during data collection were included in this study. Data were collected by face to face interview with the help of a semi-structured questionnaire. Frailty was measured by a valid and reliable Frailty scale.[4] The interpretation has been simplified in the way that the frailty positive and negative persons were categorised only by 'Frail' and 'Normal' or 'Not Frail' groups, not doing the minute

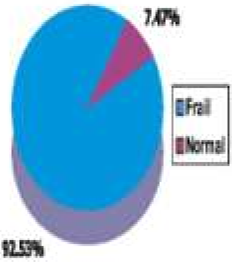

Figure: 1 Frailty status of the elderly people.

scaling of them, as the sample size was not very large. Data were entered in the computer and processed using SPSS for windows. Descriptive analytical techniques involving frequency distribution, computation of percentage etc. were applied. Chi-square and Fisher's exact test were applied to find out the association of frailty status with age and gender of the participants.

Result

More than 92% of the elderly people were found as frail (Figure 1). Out of 174 elderly people, 91 (52.30%) were male and 83 (47.70%) were female. The proportions of frail among males and females were 87.91% and 97.59% respectively. The females were significantly more frail than the males ($p < 0.05$) (Table 1).

Table 1 : Gender differentiation of frailty among the elderly people

Frailty conditions	Male N (%)	Female N (%)	Total N (%)
Frail	80 (49.69)	81 (50.31)	161 (92.53)
Not Frail (Normal)	11 (84.62)	2 (15.38)	13 (7.47)
Total	**91 (52.30)**	**83 (47.70)**	**174 (100.00)**

X^2=5.88, df = 1, p<0.05.

Of the total 174 elderly people, 146 (83.91%) people were in the age-group of 65 to 74 years and the rest 28 (16.09%) were in the age-group of 75 years and above. Of the 146 elderly people in the age-group of 65 to 74 years, 135 (92.47%) were found to be frail and the rest 11 (7.53%) were not frail or normal. In the age-group of 75 years and above, out of 28 elderly people, 26 (92.86%) were frail and the rest 2 (7.14%) were not frail or normal. Frailty was not significantly associated with age (Table 2).

Table 2 : Frailty among different age-groups

Age Group (In Years)	Frail N (%)	Not frail N (%)	Total N (%)
65-74	135 (92.47)	11 (7.53)	146 (83.91)
75 and above	26 (92.86)	2 (7.14)	28 (16.09)
Total	**161 (92.53)**	**13 (7.47)**	**174 (100.00)**

Fisher's exact test value = 0.942, df=1, p>0.05

Discussion

The occurrence of frailty among the elderly people was found very high in this study (92.53%). This result differs a lot from the study by Fried et al. where the prevalence of frailty was found to be 7-16%, reported in community-dwelling older adults of African American origin. It was found to be 14.1 % in a Mexican study by Cassle-Martý´nez et al. Collard et al. stated that reported prevalence of frailty varies enormously in different communities (range 4.0-59.1%). In other studies, the prevalence of frailty among the community-dwelling people was seen as 6.9% by Fried et al. and 5.3% by Steinman et al. in USA. In the Japanese community, Kobayashi et al. found prevalence of frailty among the Japanese old women to be 23%. Rochat et al. showed in their study that in the community of Sydney in Australia, 50% of the subjects were robust, the rest were not (9.4% were frail and 40.6% were pre-frail). None of these results was as high as that in this study.

Santos-Eggimann et al. found in the population of 10 European countries, frail (4.1%) and prefrail (37.4%) were in total 41.5%. In the Nepalese community, Chalise found the functional limitation of the elderly 65 plus population to be 12.8 per cent. In Rotterdam study of the Netherlands, Lahousse et al. showed out of 2,833 respondents, 163 (5.8%) elderly people were frail, and 1,454 (51.3%) were intermediate frail. Summing up the frail and intermediate frail, the total percentage goes up to 57.1%, much higher than the other European countries but still very less than the present study.

Curcio and his colleagues' study showed in a rural area in the Andes Mountains, the prevalence of frailty was only 12.2% and they demanded it was similar to that reported in other populations in the Latin American region. Result of this study differs a lot with the result of Runzer-Colmenares et al who conducted their study in the Peruvian community and found that out of 311 participants, only 78 (25.1%) were not frail, i.e. the rest 74.9% fell in the groups of frail and pre-frail. A similar result was found in a southern state of Brazil by Oliveira, who studied upon 99 subjects aged 65 or older in Rio Grande do Sul state and there were only 4% people classified as non-frail. Result of this study is very much similar to the present study. But Duarte et al. found prevalence of pre-frail was 45.9% and frailty was 12.9% in the Brazilian urban community. Comparing the prevalence of frailty in the different communities of the world, it is clear that the prevalence of frailty is much more higher in this country.

Result of this study is very much similar to all other studies in case of gender distribution of frailty. This study showed that occurrence of frailty was higher in female (97.59%) than in male (87.91%). This fact of higher prevalence of frailty among the women was also supported by Fried et al. Gu et al also stated that women are frailer than men at all ages.

Regarding age-distribution of frailty, this study showed no difference in the occurrence of frailty with the advancement of age. The studies by Lahousse et al.[13] Gu et al.[18] Saum et al.[19] and Nishi et al.[20] showed the fact that occurrence of frailty increased with the advancement of age, contrary to this study. This disagreement of the present study findings with the others might be due to small number of respondents in the present study. A well designed study with a large sample size is necessary for further evaluation.

Conclusion

The occurrence of frailty among the elderly rural population of our country is very much high. This condition is not hopeful for the development of a country. If proper medical and social care would be taken, this group of population can contribute to the economic growth of the country. They can also lead a socially and economically productive healthy life. Unfortunately, special and specific care for the elderly people has not yet been established in our society. So a detailed and extensive study should be planned in the national level to reveal the actual situation of the elderly people and specific policy should be taken by the government to take proper care of this population group. All the concerning agencies should also be aware of the situation.

Reference

1. Bauer JM, Sieber CC. Sarcopenia and frailty: a clinician's controversial point of view. Exp Gerontol 2008; 43(7): 6748.
2. Rockwood K, Song X, MacKnight C, et al. A global clinical measure of fitness and frailty in elderly people. CMAJ; 2005; 173:489-95.
3. Lucas RW, Kennedy-Malone L. Frailty in the older adult: Will you recognize the signs? Nurse Practitioner 2014; 39(3): 28-34.
4. Canadian Study on Health & Aging, Revised 2008.
5. Fried LP, Tangen CM, Walston J, et al. Frailty in older adults: evidence for a phenotype. J Gerontol A BiolSci Med Sci. 2001; 56 (3): 146-56.
6. Casale-Martý´nez RI, Navarrete-Reyes AP, Avila-Funes JA. Social determinants of frailty in elderly mexican community-dwelling adults. JAGS. 2012; 60(4):800-02.
7. Collard RM, Boter H, Schoevers RA, Oude Voshaar RC. Prevalence of Frailty in Community-Dwelling Older Persons: A Systematic Review. J Am GeriatrSoc. 2012; 60:1487-92.
8. Steinman MA, Lee SJ, John Boscardin W, et al. Patterns of Multimorbidity in Elderly Veterans. J Am GeriatrSoc. 2012; 60:1872-80.
9. Kobayashi S, Asakura K, Suga H, Sasaki S. Three-generation Study of Women on Diets and Health Study Group. High protein intake is associated with low prevalence of frailty among old Japanese women: a multicenter cross-sectional study. Nutrition Journal 2013; 12:164.
10. Rochat S, Cumming RG, Blyth F, et al. Frailty and use of health and community services by community-dwelling older men: the Concord Health and Ageing in Men Project. Age Ageing. 2010 Mar; 39(2):228-33.
11. Santos-Eggimann B, Cuénoud P, Spagnoli J, Junod J. Prevalence of Frailty in Middle-Aged and Older Community-Dwelling Europeans Living in 10 Countries. J Gerontol A BiolSci Med Sci. Jun 2009; 64A (6): 675-81.
12. Chalise HN. Socio-Demographic and Health Status of Nepalese Elderly. Indian Journal of Gerontology. 2012; 2(2): 151-160
13. Lahousse L, Maes B, Ziere G, et al. Adverse outcomes of frailty in the elderly: the Rotterdam Study. Eur J Epidemiol. 2014 Jun; 29(6):419-27.
14. Curcio CL, Henao GM, Gomez F. Frailty among rural elderly adults. BMC Geriatr. 2014 Jan 10; 14:2. Available also at http://www.biomedcentral.com/1471-2318/14/2. Last accessed on July 8, 2014.
15. Runzer-Colmenares FM, Samper-Ternent R, Snih SA, Ottenbacher KJ, Parodi JF, Wong R. Prevalence and factors associated with frailty among Peruvian older adults. Arch GerontolGeriatr. 2014; 58(1):69-73.
16. Oliveira DR, Bettinelli LA, Pasqualotti A, Corso D, Brock F, Erdmann AL. Prevalence of frailty syndrome in old people in a hospital institution. Rev Lat Am Enfermagem. 2013; 21(4): 891-8.
17. Duarte Y, Lebrão ML, Corona LP, Nunes DP, Santos JL, Alexandre TS. Frailty syndrome in Brazilian older adults. J Epidemiol Community Health 2011; 65:105.
18. Gu D, Dupre ME, Sautter J, Zhu H, Liu Y, Yi Z. Frailty and Mortality Among Chinese at Advanced Ages. J Gerontol B PsycholSciSoc Sci. 2009; 64B(2): 279-89.
19. Saum KU, Dieffenbach AK, Müller H, Holleczek B, Hauer K, Brenner H. Frailty prevalence and 10-year survival in community-dwelling older adults: results from the ESTHER cohort study. Eur J Epidemiol. 2014; 29(3):171-9.
20. Nishi M, Shinkai S, Yoshida H, et al. Prevalence and characteristics of frailty among community-dwelling older people in Japan. Nihon Ronen IgakkaiZasshi 2012; 49(3): 344-54.