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Psycho social determinants of functional competence in the senior citizens: An index for rehabilitation needs

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ABSTRACT
Decline of functional competence is one of the markers of old age. Low functional competence imposes not only restrictions in mobility and increases dependency during old age. This study is an attempt to assess the patterns of functional competence in a sample of 300 elderly living in semi urban areas of Chittoor District. Patterns of functional competence were measured through ADL, IADL, PBADL and SFPC. Findings suggest a differential pattern of functional competence across physical and mental activities, social supports, health practices, age, gender and economic groups etc. The outcome of the study highlights the need for rehabilitation services for the need based vulnerable elderly.

INTRODUCTION
A critical aspect of functional competence is the maintenance of independent living in old age. Functional competence generally defined as the ability to care for oneself, to manage one’s affairs, and to live independently in the community. Elderly persons’ competence to live independently is a concern not only of those who are old, but of society as a whole (Siegel & Taeuber, 1988).

A major challenge for those involved in assessment and judgment of competence is to define the critical domains of functional abilities associated with living independently. Prior research on the instrumental activities of daily living (IADLs) may be particularly useful. Elderly persons’ performance on the measure of everyday cognition relate to behavioral observations of those subjects performing similar activities in their home and to self and spousal IADL ratings (Willis, 1996).

The prevalence’s of functional disability in general sample for ADL, IADL and mobility were equivalents to the rates detected by Millán-Calenti, Tubio, Pita-Fernández, Gonzalez, Lorenzo & Fernández-Arruty (2010) and by Parahyba, Simões, & Simôes (2006) and it was observed that the highest prevalence occurred for IADL, followed by ADL and mobility. This fact is justified by the hierarchy of losses in which more complex activities (IADLs) are impaired in initial stages, and simpler activities (ADL) are affected in later stages of the disability process. Mobility loss is considered as an intermediate loss. On an opposite direction, the elevated percentage of independent elderly is highlighted in the general sample for ADL (38.0%), IADL (45.0%) and mobility (75.0%), which also corroborates with previous studies (Den, Schuiman, Mueller-Schotte, van der Schouw, 2013) and confirms the necessity of preventing functional disability and its adverse effects.

The number of elderly people needing care is increasing rapidly in the home setting in many countries, despite of family size and ability to provide them is declining. Emiko, Shousoh, Nobufumi, Sachiko Yamazaki and Seiji (2014) identified the risk factors of functional disability by household composition among community-dwelling elderly people. According to household group, the risk factors for functional disability varied. In Japan the numbers of vulnerable households with senior citizens in require of care has increased gradually over the years. Appropriately identifying the risks associated to functional incompetence requires resources of assessment that takes the household composition into consideration. Given the increasing frailty and disability with age, social networks and social support play cardinal role in the quality of life of older people in societies where formal support and social protection programs are not available (Emiko et. al., 2014). Khalil (2011) evaluated the social networks and the support accessible for the older people who suffered from a variety of chronic conditions across diverse socio-economic neighborhoods of urban Lahore, Pakistan. Results of univariate analysis revealed that senior citizens social support had significant effect on their level of functional incompetence. Though elderly people were embedded in close networks, a significant proportion of them received rare instrumental and emotional support from their closed ones, particularly family members. Small sizes of families and increased nucleated families may reduce availability of social support for the older people in the future. It underscores the necessity of developing prospective strategies to enhance social protection programs for older people in Pakistan.

Giving a broad and interdisciplinary approach to health status, functional competence is considered, as the basis of an effective geriatric evaluation (Marenghi, Von Strauss, Rizzuto, Winblad & Fratiglioni 2009). Thus, the different dimensions that influence the lives of the elderly people are included, as their health status, social relationships, socioeconomic, physical environment, demographic, cultural and psychological conditions. These persons are included in a framework in which public health is progressively understood in a holistic and interdisciplinary approach (Maciel & Guerra, 2007). The assessment of functional capability in the elderly persons should still regard as the steady deteriorate with age (Millán-Calenti, 2010).

Findings preceding studies show that old age, being female, poor health, and being alone are the key risk factors connected with functional disability among older adults in China. Even though urban elderly people are more likely to be functional incompetence, the overall functional incompetence risk is high among rural older adults. No matter whether functional incompetence rates remain constant, increase or decline in the future, the sheer number of disabled elderly and the ratio of disabled older adults to...
potential caregivers will increase rapidly, particularly in rural areas. Both the quality and quantity of social support considerably influence the development of old-age functional incompetence (Mendes de Leon, 1998; Everard, 2000; Koukouli, 2002). A low incidence of social contact was related to poor or worse physical functioning, since people with strong social relations are more likely to recover from functional incompetence and to stay alive than those with weak social relationships (Berkman, 2000). As a measure of social support, marital status was found to be another significant factor connected with disability in western countries, with the odds of functional incompetence higher for those who are unmarried. Apart from marital status, existing studies also recommend some additional measures of social support, such as living with family members and participating in social activities (James, 2011).

Our knowledge on the determinants of functional status vis-à-vis health status of Indian elderly is limited. It is necessary to determine the factors that affect the functional competence to promote active and healthy ageing by maintaining independence and reducing disability. However, increased human longevity has been one of the greatest scientific achievements of this century, yet, similar achievements in quality of life in this lengthened period have not been achieved (Ramamurti & Jamuna, 2007). In view of the above, the following objectives were framed.

**OBJECTIVE**

- To determine the contribution of psychological and socio-demographic variables to functional competence in a sample of community dwelling elderly.

**METHOD**

**Participants of the study**

A sample of 300 community dwelling elderly men and women of rural and urban areas of Rayalaseema region from the age groups of 50-59, 60-69, and 70-79 years were drawn by using a multi-stage random sampling technique. The subjects were identified on the basis of census reports and also by house-to-house survey. The subjects without chronic illness and those cognitively intact were included in the study. The subjects in the study were individually contacted and tests were administered in one session after taking willingness to participate.

**Measures Used.**

For the present study, the subtests of disability scale (Ramamurti & Jamuna 1996) were used to assess different facets of functional capability viz., Functional capability (ADL & IADL) performance based capability (PBADL) and self-perception of functional capability (SPFPC). The Test-retest reliability for these subtests was 0.88, 0.86, 0.76, and 0.89 respectively. Extent of physical and mental activities of elderly was assessed by physical and mental activity scale (Ramamurti & Jamuna, 1996). The test–retest reliability of this scale was 0.88 and 0.81. Social supports scale was used to assess perception of social supports in the elderly. The test–retest reliability for this scale was 0.91. To seek information on relevant socio-demographic characteristics (age, gender, education, family, location, and marital status) of the participant, a Personal Data Form (PDF) was used.

**RESULTS AND DISCUSSION**

The output of MRA (step-wise) indicate (vide Table - I) that to predict the performance in ADLs and IADLs (physical competence), two variables entered the final regression equation by explaining 60 per cent of the total variance of physical competence in basic ADLs and IADLs. The variables entered in the equation were physical and mental activity by contributing 46 per cent, social supports with an additional contribution of 14 per cent, respectively.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Variables Entered</th>
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<th>Increase in ( R^2 )</th>
<th>( F )</th>
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<td>1.</td>
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<td>.46</td>
<td>145.27</td>
</tr>
<tr>
<td>2.</td>
<td>Social supports</td>
<td>.60</td>
<td>.14</td>
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</table>

**Table I: Contributions of Psychological Variables to the Measures of Dependent Variables**

**The regression equation to predict performance based functional competence in certain basic motor tasks (Table - I) contained two variables viz., physical and mental activity and social supports. Together these variables accounted for 6.9 per cent of variance in the outcome variable, performance based functional competence in some motor tasks. In this total variance, 4.5 percent was contributed by physical and mental activity and 2.4 per cent was contributed by social supports.**

The summary of multiple regression analysis for self perception of functional competence (Table - I) shows that to predict self-perception of functional competence, three variables entered the regression equation viz., physical and mental activity (16.4%), social supports (3%) and health practices (2.4%). Together, these variables contributed 21.8 per cent of variance to the total variance of self-perception of functional competence.

The contribution of psychological variables to the functional competence need to draw some more insights from other studies for further research. For eg., from the developmental study by Haga et al., (1997) on 678 elderly people at base line and 524 elderly in a follow-up survey carried out for 5 years, aims at showing changes and factors affecting changes in three levels of competence in instrumental self maintenance, intellectual activity and social roles.

**Table II: Contribution of Socio-Demographic Variables like Activities of Daily Living (ADL) Instrumental Activities Daily Living (IADL) Performance Based Functional Competence (PBFC) and Self Perception of Functional Competence (SPFPC).**

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Variables Entered</th>
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<th>Increase in ( R^2 )</th>
<th>( F )</th>
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<td>Marital status</td>
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<td>3.</td>
<td>Gender</td>
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<td>.009</td>
<td>82.02</td>
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**Performance Based Functional Competence (PBFC)**

<table>
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<th>Variables Entered</th>
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<th>Increase in ( R^2 )</th>
<th>( F )</th>
</tr>
</thead>
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<tr>
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<td>.379</td>
<td>181.59</td>
</tr>
<tr>
<td>2.</td>
<td>Gender</td>
<td>.393</td>
<td>.014</td>
<td>96.02</td>
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**Self - Perception of Functional Competence (SPFPC)**

<table>
<thead>
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<th>Sl. No.</th>
<th>Variables Entered</th>
<th>( R^2 )</th>
<th>Increase in ( R^2 )</th>
<th>( F )</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
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<td>.060</td>
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<td>2.</td>
<td>Financial status</td>
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<td>.015</td>
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<td>3.</td>
<td>Living arrangement</td>
<td>.087</td>
<td>.012</td>
<td>9.60</td>
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</table>
Hubert et al., 1993; Kalplan et al., 1993; Lammi et al., 1989; (Verbrugge & Jette, 1994). Lower socioeconomic status is (individual and environmental) affect trajectories of disability. It is clear from some researches that non-physical factors indicating that it is one of the less significant contributors to increased the multiple R and added 1.5 per cent to the variance in the dependent variable. The addition of second variable viz., financial status significantly for 6 per cent to the variance in the dependent variable. (Table - II) explained the contribution of set demographic variables to the experience of functional competence (PBFC) (vide Table - II), indicates that it is one of the minor predictors of IADL competence, while marital status has a small contribution to physical competence (IADL). The next variable, living arrangements which were entered into the regression equation made a minimal addition of 1.1 per cent. The last variable spiritual activities also made a minimum addition. The increase in the multiple R and percentage of explained variance was around 1 per cent indicating that spiritual activities are likely to influence functional competence in IADLs, to a small extent. Thus from the above, it may be concluded that the extent of experience of IADL functional competence is determined significantly by age, marital status, living arrangements and spiritual activities.

The contribution of demographic variables to the other measures of physical competence viz., performance based functional competence (PBFC) (vide Table - II), indicates that two variables get significance in the regression equation and together accounted for 39 per cent of the variance (R2=39) in the dependent variable, PBFC. The variables entered were, age 37.9 per cent and gender 1.4 per cent. From these results we may conclude that age is the key determinant of physical competence and the following variables are less likely to be diminished by old age and poor health and more likely to be enhanced by religiosity. Age, sex, and residual status, for instance, are associated with basic personal activities, people in advanced old age, women and nursing home residents have lower functional performance levels in terms of ADLs and IADLs than that of their counterparts (Guralnik & Simonsick, 1993; Verbrugge, 1989). Education, income, and marital status are expected to have their influence (e.g., work, leisure, and social activity engagement) on the performance of basic activities of daily life (Altergott, 1990; Clark, 1998). The present study results are similar to the above Observations, in some aspects of functional competence.

CONCLUSION

In the above analysis, the more effective contributions made were physical and mental activity, social supports, age, marital status, financial status and gender which accounted significantly for the dependent variable measures of functional competence. This underscores the importance of physical and mental activity, social supports, age, marital status, financial status and gender in contributing to the variance in the experience of functional competence. This, highlights the fact that by manipulating these critical variables one can enhance better quality of life in the elderly through functional competence in daily life.


