CHAPTER - 6

Summary & Conclusions
SUMMARY & CONCLUSIONS

6.1 Summary

Community mobility or mobility of individuals in the home and environment has been considered as an important goal in the rehabilitation of patients with mobility deficits. The earlier studies have suggested that mobility disability in community dwelling individuals need to be assessed under certain dimensions. Currently there was no scale to measure the mobility disability for community dwelling individuals under these dimensions. Existing scales measure the mobility in the settings that are far from ideal to community.

Review of literature suggests the need for a mobility disability assessment tool for community dwelling individuals, which need to be rigorously examined for its psychometric properties. Thus the aim of the study was to develop and validate the mobility disability scale for community dwelling individuals.

Development of the scale was done by generating domains and items using literature search and patient interviews. Thorough literature search was done to identify the existing scales and questionnaire which measures mobility in community. Fourteen domains and thirty items related to community mobility were extracted from these scales and questionnaire. Twenty patients with mobility disabilities were interviewed to identify sixty nine more items which they consider relevant to be included in the scale. All the generated ninety nine items were grouped under the fourteen domains identified by literature search accordingly.

The domain and the items generated were content validated by the ten experts in the field of rehabilitation of patients with mobility disability living in
community. Fifty five items and nine domains with more than 70% level of agreement by experts were included. Modification of items and domains was done as per the suggestion of experts and the scoring criterion was formed in such a way that each item was graded on a five point scale. The scoring options ranged from 0 to 4 with 0 being no disability and 4 being complete disability.

With the scoring criteria, the scale draft was formed with 55 items and 9 domains. Pilot testing was done on 35 patients using this scale draft to evaluate the content, comprehensibility, applicability and scoring criteria of the items in the scale. Modifications were done on the items, domains and scoring criteria of the scale based on the results of pilot study. The new scale was formed with 50 items grouped under nine domains, which was subjected to other psychometric testing.

The new scale was evaluated for reliability in terms of internal consistency and test retest reliability. The high Cronbach’s alpha values suggest that items under the domains of new scale had good internal consistency. Sixty patients with mobility disability were evaluated on two occasions within the period of one week to determine the test retest reliability. The ICC values suggested that the domain and total scores of new scale were consistent on two occasions and hence possess excellent test retest reliability. These findings indicate that the items in the scale were homogeneous and had good temporal stability to measure the construct i.e. mobility disability.

The new scale was tested for the concurrent validity using the FIM FAM scale. Fifty eight patients with mobility disability were evaluated using new scale and FIM FAM scale at the same time. A statistically significant linear but negative correlation was found between the domain and total scores of these scales. These
results suggest that new scale possesses good concurrent validity with the FIM FAM scale in measuring mobility disability of community dwelling individuals.

One of the primary objectives of using the scale was to test the effect of intervention. The ability of scale to detect the change following treatment is determined by responsiveness. In this study, the responsiveness of the new scale was determined by applying the scale before and after treatment in stroke patients with mobility disability. The statistically significant change of domain and total scores post treatment suggests that the new scale was responsive to change following treatment.

The quantity of change measured by the scale before and after treatment was compared with the global rating of change scale score measured by the patient perception to calculate the minimal clinical important difference (MCID) for the new scale. The MCID of 32 points in the new scale is the minimal change required in the treatment group to consider that the intervention is effective. The MCID was also calculated for individual domains which ranged from 2 to 7 points.

The negligible floor and ceiling effect for the total and individual domains scores of the new scale suggested that the scale could be applied in patients with extremes of mobility impairments.

6.1.1 Strengths of the study

This is the first scale which measures mobility under various proposed environmental domains. The strength of the study lies in the qualitative development process of items and meetings with the experts representing various disciplines of community rehabilitation. The method used to generate items from
patients in the study was considered appropriate, as the perception of disability is very important to plan rehabilitation goals for community dwelling individuals.

The sample size represented patients with different mobility impairments and varied duration of conditions, which were considered appropriate to evaluate the psychometric properties of the scale. The responsiveness, which is considered an important property of scale, for its effective use was determined and MCID of the scale was also established for treatment of patients with stroke.

6.1.2 Advantages of the scale

The comprehensiveness of the scale ensures that it can be applied to all adult patients with mobility disability irrespective of the conditions. The items in the scale ranged from simple to most challenging in community which is a prerequisite for a scale to discriminate the patients with mild to severe mobility disability. The quantification of disability in the items related to environmental components of mobility including weather, traffic, terrains, riding vehicles, floor sitting, etc are not included in any of the existing scales but for this scale.

The psychosocial items which may have major influence in mobility status of individuals living in community are evaluated in this scale which very few other scales do. The self-perception of disability related to mobility problems in turn will help the rehabilitation therapists to set the appropriate goals to meet patients’ need in individualistic conditions. The inclusion of psychosocial domain which influences the mobility disability and its exclusive scoring options also ensures that the mobility disability was measured in the patient related horizon without compromising the comprehensiveness of the scale.
6.1.3 Implications of the study:

Apart from the advantages of scales to the patient and rehabilitation professionals, the measurement of mobility status in community will enable the public to become aware of mobility problems in community. This, we assume may facilitate them to bring out changes in community environment. This can also act as a tool to assist policy makers in targeting future investments and determine performance changes within a community.

6.1.4 Limitations of the study

All the measurements were done by the same rater, which could have resulted in assessor bias. We did not use the disease specific scales, which otherwise would have made us to compare the new scale with those for concurrent validity. All of our patients had mobility impairments with more than one month duration. Had we included patients with impairments other than mobility, we could have tested the divergent validity of the scale. Though we had included patients from both rural and urban community, we did not document it because of which we could not analyze the influence of different community environments on the items of scale. We did not perform the confirmatory factor analysis, due to which we could not evaluate the fit of items under generated domains statistically.

6.1.5 Future recommendations

The scale could be subjected to confirmatory factor analysis for further reduction of items thus making the tool more feasible. Rasch analysis could be done to convert the scale into interval scale which will provide relevance to the total score. Concurrent validity could be tested with more objective performance
rating scales. The MCID for the scale in patients with different conditions could be determined. The other psychometric properties like inter rater reliability and divergent validity could be tested by applying the scale in patients with non-mobility related impairments. The applicability of scale in large sample of patients living in different community environments could be tested as a part of funded project.

6.2 Conclusion

In conclusion, a valid scale has been developed to evaluate mobility disability in community dwelling individuals. This scale is the first instrument of its kind to assess the mobility disability in community dwelling individuals. The psychometric testing demonstrated acceptable content and concurrent validity. The scale is adequately responsive to test the effect of intervention and possess strong internal consistency and test retest reliability.

It is recommended to use this new scale to screen and quantify the mobility disability of patients living in community. This in turn will help the rehabilitation therapists to set the appropriate goals to meet patients’ need in individualistic conditions.