The correlated factors of communication impairment and its relationships between depressive symptoms and quality of life among elders in long-term care facilities in Taipei, Taiwan

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Background

- **Prevalence of communication impairment**
  - The prevalence of mild hearing impairment was 25% between 50-65 years, with an increasing trend in people aged 65+ years.
  - Over 50% of 85 years and older had problem of hearing (Wang *et al.* 2006).
- **Influence of communication impairment**
  - The resident's physical, emotional, and social situation may also complicate communication problems (RAI 2005).

Background

- **Factors of communication impairment**
  - Communication is extremely important in daily life because hearing impairment could reduce social engagement and quality of life (QOL).
  - Cacciatore and associates (1999) reported a relationship between hearing impairment and scores on a depression scale in a large sample of older participants.
  - Brink and Stones (2007) found that impaired linguistic communication is related to lower levels of mood and social engagement.

- Report based on Chinese population also identified hearing impairment as a contributing factor to mood disorder and social engagement (Shiao, 2005).

Study Aim

- This study aimed to explore related factors of communication impairment and its relationships between depressive symptoms and QOL among LTC residents in Taiwan.

Methods

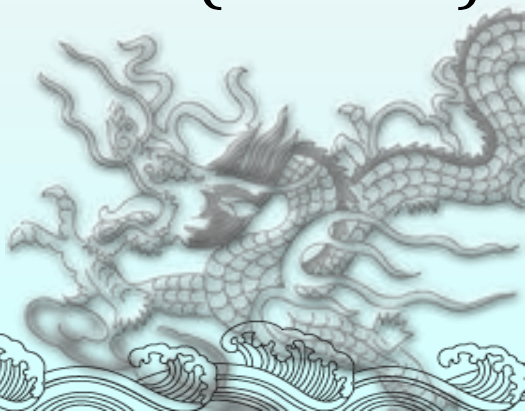
- A cross-sectional and correlational design was used in this study.
- The protocol for this research was approved and supervised by Institutional Review Board (IRB) at the National Yang-Ming University at Taipei, Taiwan.
- Confidentiality during the entire study was maintained using numerical identifiers on recorded data.

Methods -Participants

- For the list of community-based LTCFs from Department of Social Affairs in 2009.
- 12 registered facilities were generated and 311 residents were successfully screened for eligibility.
- Inclusion criteria for the sample were as follows :
  - (1) aged over 65;
  - (2) verbal communication;
  - (3) clearly (25-30 points) or mild cognitive impairment (21-24 points) as verified by Mini-Mental State Examination (MMSE).

Methods -Instruments

- All participants completed the questionnaires.
- It included three main scales:
  - Communication and hearing patterns (Trigger 4) / Minimum Data Set (MDS)
    - *Hearing Impairment*
    - *Making Self Understood*
    - *Ability to Understand Others*
  - Geriatric Depression Scale-Short Form (GDS-SF)
  - SF-12
    - *Physical component summary score (PCS)*
    - *Mental component summary score (MCS)*



Data collection

- The subjects had undergone interview and assessment by a well-trained nurse research assistant using the questionnaires.
- Data were collected between March and August 2009 using structural instruments of MDS, GDS-SF, and Health-related QOL with the SF-12.
- It took approximately 30-40 minutes to complete assessments.

Analysis

- SPSS 17.0 (SPSS Inc., Chicago, IL, USA) for Windows was used to analyze data.
- Descriptive analyses were carried out to understand the respondents' demographic characteristics, communication impairment, depressive symptoms, and QOL.
- Logistic regression analyses were used to evaluate the association between communication and hearing impairment and depressive syndrome estimating Odds ratio and 95% confidence interval.

Results- Demographics of the study participants

- A sample of 311 residents participated form 12 long-term care facilities in the study.
- The average age of the study subjects was 78.9 years. (SD= 8.3; range 65.0-99.3 years)
- The percentage of male residents was 72.0% (n=224).
- The length of stay in the facility varied widely (range 0.02- 25 years) with a mean of 4.8 years (SD 4.7).
- 30.6 % of the study subjects had graduated from elementary school and 20.0% had finished junior or senior/vocational high school.
- Under 6 years of education or illiterate made up 40.7% (n = 125) of the study population.

Results

- **Communication impairment of the residents**
  - The prevalence of communication impairment was 24.8% (n=77).
- **Barthel Index assessment**
  - The mean ADL score was 89.9 (SD 19.0), with a range of 5 to 100.
  - Seventy-eight (25.4%) of the subjects were moderately functionally dependent, with scores of 61 to 90.
  - 52.4% of the subjects were considered functionally independent.

Results- Depressive symptom of the residents

- The mean GDS-SF score was 1.9 (SD 2.3, range = 0-13).
- There were 10.0% subjects who scored over 5 points and had depressive symptoms.

Results- Quality of life of the residents

- The mean number of PCS and MCS of QOL was 45.5 (SD 8.1) and 45.8 (SD 6.7), respectively.
- Among the different QOL domains, BP yielded the highest score (mean 90.9, SD 14.7) meaning subjects less experienced bodily pain than other domains of QOL, while general health (mean 35.9, SD 22.3) yielded the lowest one.

Results

- Compared with residents without communication impairment, subjects with communication impairment had poorer physical and mental QOL ($t = 2.3$, $p = 0.02$; $t = 2.0$, $p = 0.047$, respectively) and more depressive symptoms ($t = 3.0$, $p = 0.003$).

Risk factors of communication impairment

- By using logistic regression, we found that age (OR = 1.07, 95% CI = 1.04-1.11, p = 0.001) and ADLs score (OR = 0.98, 95% CI = 0.97-0.99, p < 0.001) were two significant risk factors for communication impairment.

Table 2 Predictive factors of communication impairment in LTCFs residents (n = 311)

Variables	Odd ratio	95 % confidence interval	p
Age (continuous variable)	1.07	1.04-1.11	0.001
GDS score	1.21	1.00-1.26	0.057
ADLs score	0.98	0.97-0.99	0.002
Gender (female vs. male)	0.74	0.35-1.55	0.423

Model fitting criteria: -2 log likelihood=244.51, Multivariate logistic regression model: r^2 = 0.18

Discussion

- The results of our study supported the hypothesis that the communication impairment residents had influences their depressive symptoms and QOL.
- The results of this study confirmed those of previous study that shown impaired linguistic communication is related to lower levels of mood (Brink & Stones 2007), and PCS and MCS of QOL (Dalton et al. 2003).

Discussion

- ADLs and age were independent predictive factors for communication impairment.
- The age advanced was the strongest factor for participants in this study, and these results were consistent with Deepthi and Kasthuri's study (2011).
- The need to assist in communication between caregivers and older residents, especially for those oldest is important because the degeneration of hearing function and reduction of understand ability are serious for this age group.

Discussion

- ADLs appeared to be the important independent factor associated with communication impairment.
- According to Dalton et al. (2003), individuals with moderate to severe hearing loss were more likely than individuals without hearing loss to have impaired ADLs.
- Poor physical function was significantly related to communication function.

Discussion

- The percentage of male residents in our population was higher compared to previous studies in our countries for nursing home or LTCF residents (male: 51.1-54.5%) (Chan *et al.* 2002, Li *et al.* 2011).
- The possible reason may be because some participated subjects in this study were from assisted-living facilities who were single male and having low socioeconomic status.

Discussion

- The methods may be available to aid with communication, listened carefully to the resident's need and used non-verbal communicative abilities (facial expression, body language, etc.).
- Appropriate and alternative equipment can be made to minimize the effects of communication impairment of residents in LTCFs.

Discussion

- For example, signals, word cards, pictures (means eat, drink, toilet, etc.) and communicative board or notebook to promote communication between residents and others, especially useful to hearing impairment residents.
- According to the finding of this study, care staffs should to be aware the need of communication and provide alternative equipment and skill to the communication impairment elderly residents in mood, and QOL for better care.

Study limitations

- Limitations of this study included the cross-sectional nature of the data, with inferred causation determined by correlations and issues about the generality of the findings beyond the confines of LTCFs in Taipei, Taiwan.

Conclusion

- Communication impairment of residents had lower QOL and more depressive symptoms. The significant risk factors for communication impairment among residents in LTCFs were poorer physical function and older age.

Conclusion

- According to results of this study, we suggest that to assess risk factors of communication impairment and provide appropriate equipments to enhance communication quality among LTCF residents are effective ways to improve their QOL and decrease their depressive symptoms.

Thanks for Your Attention