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<td><strong>Author(s)</strong></td>
<td>Chan, Ka-nam; 陳嘉楠</td>
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Prevalence of dysphagia and adequacy of related care for elderly receiving residential care services in Hong Kong

Chan, Ka-Nam

A dissertation submitted in partial fulfilment of the requirements for the Bachelor of Science (Speech and Hearing Sciences), The University of Hong Kong, June 30, 2013.
The current study was divided into two phases. Phase 1 of the study aimed to investigate the prevalence rate of dysphagia in the geriatric population receiving residential care services in Hong Kong, while phase 2 aimed to evaluate the adequacy of the current care services provided to these elderly to overcome dysphagia. In phase 1 of the study, 3609 residents from 30 government-subsidized residential homes were included. A prevalence rate of 62.2% was found in the current study by chart review, which was consistent with previous studies. In phase 2 of the study, 282 residents from 12 government-subsidized residential homes were included. The participants were required to complete assessments for cognitive, swallowing and oral-motor functions. Dysphagic participants as identified from clinical swallowing examination were also required to complete a self-developed questionnaire on swallowing-related service. The passing rate of the swallowing-related service questionnaire was 19.3%. The mean score was 6.18 ± 5.54 out of 24. Recommendations to increase public funding for speech therapy services and education about the speech therapy profession for the targeted population were made.
Prevalence of dysphagia and adequacy of related care for elderly receiving residential care services in Hong Kong

According to the Social Welfare Department (2012), 30726 elderly in the geriatric population of Hong Kong live in residential care homes (as at 31/12/2012). As revealed by previous studies across the globe, dysphagia, which refers to the difficulty in transporting food from the oral cavity to the stomach (Logemann, 1998), is a major health issue threatening more than half of this population. Studies in Western countries consistently reported above 50% prevalence rate of dysphagia among the elderly receiving different types of residential care services (Fleming & Weaver, 1987; Kayser-Jones & Pengilly, 1999; Layne, Losinski, Zenner & Ament, 1989; Steele, Greenwood, Ens, Robertson & Seidman-Carlson, 1997). More recently, similar studies have been carried out in Asia. Taiwan researchers have examined 1221 local nursing home residents from nine skilled-nursing facilities and nine intermediate facilities, and found that 51% of them had swallowing impairment (Lin, Wu, Chen, Wang & Chen, 2002). Among 234 residents in three care and attention homes in Hong Kong, 51.7% was found to have dysphagia by a chart review of diet modification (Ho, 2012).

While elderly with various neurological, neuromuscular and structural illnesses may have dysphagia (Forster, Samaras, Gold, & Samaras, 2011), healthy elderly without these medical complications are also vulnerable to dysphagia because of the reduction in oral,
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Pharyngeal and esophageal functions along with normal aging (Schindler & Kelly, 2002).

Dysphagia can result in numerous physiological and psychosocial consequences.

Physiological implications of dysphagia including malnutrition, dehydration, aspiration pneumonia and suffocation resulting from upper-airway obstruction can lead to increased mortality (Logemann, 1998). Unpleasant experiences during meals such as drooling and choking can further create mealtime anxiety and social withdrawal, and hence affecting the quality of life (Tibbling & Gustafsson, 1991). Due to the adverse physiological and psychosocial consequences of dysphagia, adequate and timely dysphagia management services, including swallowing assessment, treatment and mealtime assistance should be provided to the dysphagic residents.

In order to make recommendations for improving swallowing-related service delivery, evaluation of the current services is necessary. Updated prevalence data of dysphagic elderly residents is also needed for estimating service demands. However, research on the quality and adequacy of swallowing-related services in residential care homes has never been done in Hong Kong or any other countries. Therefore, the current study aimed to 1) investigate the prevalence rate of dysphagia in the geriatric population receiving residential care services in Hong Kong and 2) evaluate the adequacy of the current care services provided to these elderly to overcome dysphagia. Recommendations to improve the adequacy and quality of dysphagia-related services were made according to the research.
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findings.

Method

This study was divided into two phases. Phase one of the study focused on the prevalence rate of dysphagia in residential care homes, while phase two of the study focused on the adequacy of dysphagia-related services.

Phase 1: Prevalence of dysphagia in geriatric population receiving residential care services in Hong Kong

Participants

The sample consisted of 3609 residents from a total of 30 government-subsidized residential care homes. These residential care homes were divided into hostels for the elderly, homes for the aged, care and attention homes and nursing homes by the Social Welfare Department according to increasing living dependency of the residents and increasing level of care provided (Social Welfare Department, 2012).

Procedures

All government-subsidized residential care homes (n = 151) were invited to join this study through telephone invitation. An overall profile of information about the total number of residents, distribution of their age and gender, and the number of residents with various types of diet arrangements was collected from the residential care home staff through
fax. Information regarding the number of different staff members working in the residential care homes was also collected. Information about any specific individual was not included in the profile to ensure participants’ anonymity. Residents with modified diet arrangement, including modified food and/or liquid consistency or non-oral feeding, were considered dysphagic in this phase of the study.

Phase 2: Adequacy of dysphagia-related services for elderly receiving residential care services in Hong Kong

Participants

The data collection of this study took place from February to March of 2013. A total of 282 residents from 12 residential care homes were recruited according to the following inclusion criteria: 1) Age 65 years or above; 2) signed consent either by the participants or by guardians.

Procedures

The procedures consisted of four parts, including collection of demographic information, assessment for cognitive functions, assessment for swallowing and oral-motor functions and questionnaire on swallowing-related services. Participants who were unable to follow task instructions due to cognitive and/or communication difficulties were exempted from the tasks.
I. Demographic information

Information related to the participants’ age, gender, family background, education level, general health and medical history was collected from the participants, their family members or care workers in the residential care homes.

II. Assessment for cognitive functions

Participants’ cognitive functions including orientation to time and place, registration, recall, calculation and attention, naming, repetition, comprehension, reading and drawing were assessed by the Cantonese Mini-Mental State Examination (MMSE) (Chiu, 1994). The total score of the test was 30, and higher score represented better cognitive functions.

III. Assessment for swallowing and oral-motor functions

Self-report questionnaires. Participants were required to complete the Swallowing Activity and Participation Profile (SAPP) and the Eating Assessment Tool (EAT-10). SAPP is a dysphagic quality of life questionnaire based on the World Health Organization’s International Classification of Functioning, Disability and Health framework (Ho, 2012). The questionnaire consists of 34 items, which are divided into four subscales: swallowing impairment, personal, social and emotional subscales. A rating scale from 0 to ten is used for each item, of which higher score represents more severe problem. EAT-10 is a symptom-specific outcome instrument.
consisting of ten items, which can be used to screen for dysphagia and to document self-perceived severity of dysphagia (Belafsky et al., 2008). A rating scale from 0 to four is used for each item, of which higher score represents more severe problem.

Clinical swallowing examination. Participants’ swallowing abilities were assessed by clinical swallowing examination carried out by the supervising speech therapist or student speech therapists. During the examination, participants were required to swallow fluids with different consistencies and solid. Signs of dysphagia such as chewing difficulty, voice changes, choking and throat-clearing were noted. The participants would be considered dysphagic if they exhibited signs of dysphagia. Severity ratings were given by the examiner upon subjective judgment.

In order to establish inter-rater reliability of the clinical swallowing examination, 13.5% of the examinations done by student speech therapists were rated by the supervising speech therapist simultaneously.

Oral motor examinations. Tongue pressure under voluntary control was measured using the Iowa Oral Performance Instrument (IOPI) (Youmans & Stierwalt, 2006). The maximal tongue pressure were recorded. Traditional oral motor examination was also administered to assess the range, strength and coordination of movements and the appearance of oral musculatures. Overall severity ratings of oral motor impairment were given by the examiner upon subjective judgment.
IV. Swallowing-related service questionnaire

Dysphagic participants as identified from the clinical swallowing examination were required to complete a questionnaire concerning the adequacy of swallowing-related services received. This self-developed questionnaire included six items concerning swallowing assessment and treatment provided by speech therapists and other health professionals, and mealtime feeding assistance by care workers. A rating scale from 0 to four was used, of which higher score represented better service satisfaction. In addition, medical history of swallowing-related services was also collected. The content validity of the questionnaire developed for this study was validated by two qualified speech therapists specializing in dysphagia management. The questionnaire is shown in the appendix.

Data analysis

Independent t-tests were used to validate statistical differences between dysphagic and non-dysphagic participants, including the total scores of SAPP and MMSE. The Spearman’s rank order correlation coefficient (Spearman’s rho) was performed to determine the correlation between the severity of dysphagia and various findings including the total scores of swallowing-related service questionnaire, SAPP, EAT-10 and MMSE. All statistical analyses were executed using SPSS, version 17.0. A p value < .01 was considered statistically significant.
Results

Phase 1: Prevalence of dysphagia in geriatric population receiving residential care services in Hong Kong

Prevalence rate

Among 151 residential care homes, 30 had agreed to participate in the study. The response rate was 20.0%. Among the 3690 participants, 2297 (62.2%) were identified to be dysphagic due to modified diet arrangements, of which 416 participants (11.3% of all) relied on tube-feeding.

Table 1: Distribution of age of all participants in Phase 1

<table>
<thead>
<tr>
<th>Age range</th>
<th>Number of participants</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>55 – 64</td>
<td>20</td>
<td>0.5%</td>
</tr>
<tr>
<td>65 – 74</td>
<td>265</td>
<td>7.2%</td>
</tr>
<tr>
<td>75 – 84</td>
<td>1182</td>
<td>32.0%</td>
</tr>
<tr>
<td>≥ 85</td>
<td>2230</td>
<td>60.3%</td>
</tr>
</tbody>
</table>

Discrepancy existed between the total number of participants (n = 3690, as calculated by the summation of the number of dysphagic and non-dysphagic participants) and the number of participants of both genders and all ages (n = 3697). Such discrepancy was the result from error in profile input by the residential home staff. Among the participants, 931 (25.2%) were male while 2766 (74.8%) were female. Table one shows the distribution
of the participants’ age.

**Staffing**

Among the 30 residential care homes involved, 29 (96.7%) did not employ any speech therapist or purchase any private speech therapy outreach service. Only one of the 30 residential care homes purchased three hours of private speech therapy outreach service per month. The rest of the homes reported that their staff members were responsible for screening and referring dysphagic residents to physicians. The physicians would make further referral to speech therapists in public hospitals if they found it necessary.

**Phase 2: Adequacy of dysphagia-related services for elderly receiving residential care services in Hong Kong**

**Demographics**

A total number of 282 residents were recruited from 12 elderly residential care homes in Hong Kong. The mean age of the participants was 86.3 years ± 7.5 years, ranging from 65 to 105 years. Of the sample, 73 participants (25.9%) were men and 209 (74.1%) were women. One hundred and twenty one participants (42.9%) had never received any education; 78 (27.7%) had received primary level education; 23 (8.2%) had received secondary level education; and six (2.1%) had received tertiary level education. Information regarding education level could not be obtained from the rest of the participants (n = 54;
19.1%).

**Swallowing and oral motor functions**

*Clinical swallowing examination.* As judged by clinical swallowing examination, 190 (67.4%) participants were classified as dysphagic. Among the 282 participants, 135 (47.9%) were classified to have mild dysphagia; 36 (12.8%) were classified to have moderate dysphagia; and 19 (6.7%) were classified to have severe dysphagia.

Excellent inter-rater reliability for dysphagia severity was found by the Spearman’s rho \( rs(36) = .978, p < .001 \).

*EAT-10.* Among the 282 participants, 157 (55.7%) were able to complete the EAT-10, of which 62 (39.5%) were mildly dysphagic; 13 (8.3%) were moderately dysphagic; six (3.8%) were severely dysphagic; and 76 (48.4%) were non-dysphagic.

**Table 2: Mean total EAT-10 scores of participants with different severity of dysphagia**

<table>
<thead>
<tr>
<th>Dysphagia severity</th>
<th>Mean total EAT-10 score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>1.3 ± 3.7</td>
</tr>
<tr>
<td>Mild</td>
<td>2.6 ± 5.2</td>
</tr>
<tr>
<td>Moderate</td>
<td>4.5 ± 5.2</td>
</tr>
<tr>
<td>Severe</td>
<td>21.2 ± 16.7</td>
</tr>
</tbody>
</table>

Table two shows the mean total EAT-10 scores of the participants. The Spearman’s rho revealed statistically significant positive correlation between dysphagia severity and total
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EAT-10 score \[rs(155) = .316, p < .001\].

*Traditional oral-motor examination.* Among the 282 participants, 148 (52.5%) were able to complete the traditional oral-motor examination, of which 58 (39.2%) were mildly dysphagic; eight (5.4%) were moderately dysphagic; five (3.4%) were severely dysphagic; and 77 (52.0%) were non-dysphagic. Among the 148 participants who completed the examination, 107 (37.9%) were classified to have mild oral motor impairment; 33 (11.7%) were classified to have moderate oral motor impairment; and four (1.4%) were classified to have severe oral motor impairment. The rest (n = 4, 1.4%) were classified to have normal oral motor functions.

*IOPI.* Among the 282 participants, 141 (50%) were able to complete the IOPI test, of which 54 (38.3%) were mildly dysphagic; seven (5.0%) were moderately dysphagic; six (4.3%) were severely dysphagic; and 74 (52.5%) were non-dysphagic. The mean maximal tongue pressure of dysphagic participants was $21.9 \pm 12.3\text{kPa}$, and that of non-dysphagic participants was $27.1 \pm 13.7\text{kPa}$.

**Adequacy of swallowing-related services**

Among the 190 dysphagic participants, 83 (43.7%) were able to complete the swallowing-related service questionnaire, of which 64 (77.1%) were mildly dysphagic; 13 (15.7%) were moderately dysphagic; and six (7.2%) were severely dysphagic. Only 16 (19.3%) participants reported satisfying adequacy of swallowing-related services by giving a
passing total score (≥12 out of 24 scores). Table three shows the summary of mean scores of the swallowing-related service questionnaire. No statistically significant correlation between dysphagia severity and total score of swallowing-related service questionnaire was revealed by the Spearman’s rho \( rs(81) = .116, p = .296 \).

*Table 3: Summary of mean scores of swallowing-related service questionnaire*

<table>
<thead>
<tr>
<th>Items</th>
<th>Mean score ± SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I have received swallowing assessment regularly. (0-4)</td>
<td>0.37 ± 1.06</td>
</tr>
<tr>
<td>2. I have received swallowing therapy regularly. (0-4)</td>
<td>0.12 ± 0.65</td>
</tr>
<tr>
<td>3. I can seek help from health professionals easily for my swallowing problems. (0-4)</td>
<td>1.55 ± 1.86</td>
</tr>
<tr>
<td>4. I can seek help from speech therapist easily for my swallowing problems. (0-4)</td>
<td>0.47 ± 1.23</td>
</tr>
<tr>
<td>5. The government has provided me with sufficient swallowing-related medical services. (0-4)</td>
<td>1.35 ± 1.70</td>
</tr>
<tr>
<td>6. I have got sufficient mealtime assistance every day. (0-4)</td>
<td>2.31 ± 1.83</td>
</tr>
<tr>
<td><strong>Total (/24)</strong></td>
<td><strong>6.18 ± 5.54</strong></td>
</tr>
</tbody>
</table>

Information regarding swallowing assessment and treatment services was collected from 121 dysphagic participants, their family members or nursing home staff.

Among them, 65 (53.7%) had never received any swallowing assessment, while 119 (98.3%)
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had never received any swallowing treatment. The mean number of swallowing assessment received by the dysphagic participants in the last 12 months from the date of data collection was $0.31 \pm 0.52$.

Information about the service provider of the last swallowing assessment was obtained from 68 participants, their family members or nursing home staff. Among them, 46 (67.6%) received the swallowing assessment service from the hospital; ten (3.5%) from community speech therapy service offered by the Hospital Authority; six (2.1%) from private speech therapy outreach service; two (0.7%) from private speech therapy clinic; and four (1.4%) from employed staff other than speech therapists in the residential care homes.

Swallowing quality of life (SAPP)

Among the 282 participants, 158 (56.0%) were able to complete the SAPP, of which 64 (40.5%) were mildly dysphagic; 12 (7.6%) were moderately dysphagic; six (3.8%) were severely dysphagic; and 76 (48.1%) were non-dysphagic. Table four shows the mean total SAPP scores of the participants. The mean total SAPP score of dysphagic participants was $30.7 \pm 47.5$, and that of non-dysphagic participants was $9.0 \pm 27.4$. The total SAPP score of dysphagic participants was significantly higher than that of non-dysphagic participants when analyzed by independent $t$-test [$t(-3.552) = 131.278, p < .001$]. The Spearman’s rho revealed statistically significant positive correlation between dysphagia severity and total SAPP score [$r_s(156) = .382, p < .001$].
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Table 4: Mean total SAPP scores of participants with different severity of dysphagia

<table>
<thead>
<tr>
<th>Dysphagia severity</th>
<th>Mean total SAPP score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>9.0 ± 27.4</td>
</tr>
<tr>
<td>Mild</td>
<td>23.0 ± 29.7</td>
</tr>
<tr>
<td>Moderate</td>
<td>27.0 ± 41.9</td>
</tr>
<tr>
<td>Severe</td>
<td>119.8 ± 106.1</td>
</tr>
</tbody>
</table>

Cognitive functions

Table 5 shows the mean total MMSE scores of the participants. The mean MMSE score of dysphagic participants was 7.6 ± 8.8, and that of non-dysphagic participants was 17 ± 9.4. The MMSE score of dysphagic participants was significantly lower than that of non-dysphagic participants when analyzed by independent t-test \([t(280) = 8.174, p < .001]\). The Spearman’s rho revealed statistically significant negative correlation between dysphagia severity and MMSE score \([r_s(280) = -.453, p < .001]\).

Table 5: Mean total MMSE scores of participants with different severity of dysphagia

<table>
<thead>
<tr>
<th>Dysphagia severity</th>
<th>Mean total SAPP score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>17 ± 9.4</td>
</tr>
<tr>
<td>Mild</td>
<td>8.9 ± 9.0</td>
</tr>
<tr>
<td>Moderate</td>
<td>5.3 ± 7.9</td>
</tr>
<tr>
<td>Severe</td>
<td>3.0 ± 6.3</td>
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Discussion

Prevalence rate of dysphagia

The prevalence rate for dysphagia found in the current study (62.2%) is consistent with those reported in other studies carried out in Hong Kong (Ho, 2012) and other countries (Fleming & Weaver, 1987; Kayser-Jones & Pengilly, 1999; Layne et al., 1997; Lin et al., 2002). In these studies, over 50% prevalence rates were consistently found despite of different screening methods used. In the study of Ho (2012), 234 participants from three care and attention homes were included. A prevalence rate of 51.71% was found by chart review. In the current study, 3690 participants from 30 residential care homes with all levels of care were included. Higher prevalence rate found in the current study may possibly be related to the inclusion of participants from nursing homes, which provide higher level of care and accommodate residents with weaker health conditions. The prevalence rate found in the current study is also more representative of the Hong Kong geriatric population receiving residential care services because of the larger sample size. According to the latest announced statistics provided by the Social Welfare Department (2012), the total number of elderly residents living in residential care homes was 30726 (as at 31/12/2012). Estimated by the dysphagia prevalence rate found in the current study, 19112 of them are dysphagic. With the continuously aging trend of the population, the geriatric population in Hong Kong is predicted to reach 30% in 2041 (Census and Statistical Department, 2012). In the future,
more public resources should be allocated to dysphagia management in the geriatric population, as the number of elderly requesting these services will definitely increase.

**Adequacy of swallowing-related services**

One of the most important findings from the current study is the poor satisfaction of the adequacy of swallowing-related service, as reflected by the low mean scores and low passing rate of the swallowing-related service questionnaire. This is probably related to the shortage of swallowing-related speech therapy services provided to the participants. It is a surprising finding that more than half (53.7%) of the dysphagic participants had never received any swallowing assessment, and even more surprising that almost none of the dysphagic participants (98.3%) had received any swallowing treatment. However, the actual rate of service received may be underestimated, as some of the participants might not be able to accurately recall their medical history. The high rate of dysphagic participants whose swallowing functions had never been assessed implies a high rate of unrecognized dysphagia in the population. It shows that the current practice of dysphagia screening by the nursing home staff, and referral to the physicians before actual referrals are made to speech therapists is not working effectively. In fact, the nursing home care workers’ lack of dysphagia knowledge has already been confirmed in a number of previous studies (Kayser-Jones, 1996, 1997; Kayser-Jones & Schell, 1997a; Langmore et al., 1998; Sanders, Hoffman & Lund, 1992; Simmons, Osterwell, & Schnelle, 2001; Pelletier, 2004). Overreliance on the care workers’
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judgment for dysphagia screening may be risky, as unrecognized dysphagia can results in numerous consequences for the residents including aspiration pneumonia and death.

Therefore, it is highly recommended that more swallowing assessment services by speech therapists be provided to this population. As reflected from the current findings, the quality of life of the residents is correlated to the severity of dysphagia \( r_s(156) = .382, p < .001 \). More swallowing treatment services should be provided to the dysphagic residents, aiming to reduce the severity of dysphagia and thus enhancing their quality of life.

**Residential home staffing**

The absence of speech therapy service in 96.7% of the residential care homes is the major reason for the lack of swallowing therapy services and the overreliance on the nursing staff for dysphagia management. With regard to the current situation, the author recommends the government to provide funding to all elderly residential care homes in Hong Kong for employing speech therapists or purchasing speech therapy services. Increase in the manpower for community speech therapy services offered by the Hospital Authority, so that more regular and frequent visits to the residential care homes can be achieved may be another option. Apart from improvement in direct clinical management for the residents, with increased speech therapy services, residential home staff will be able to seek assistance from speech therapists more easily. Likewise, the speech therapists will be able to provide direct feedback for the staff’s feeding technique and dysphagia management. Pelletier (2004) has
made recommendations on the areas of routine dysphagia management by care workers for which speech therapists can provide training and assistance.

Apart from the poor satisfaction of the adequacy of swallowing assessment and treatment services, dysphagic participants’ satisfaction of mealtime assistance barely passed (mean score = 2.31 ± 1.83 out of 4). Care worker-to-resident ratios of 1:5, 1:10 and 1:15 during day, evening and night were recommended by an expert panel in order to ensure adequate mealtime feeding assistance with around 30 minutes of care for each dependent resident (Harrington et al., 2000). However, in Hong Kong, the Residential Care Homes (Elderly Persons) Ordinance only requires the minimum care worker-to-resident ratios to be 1:20, 1:40 and 1:60 during day, evening and night shifts (Social Welfare Department, 2012).

Insufficient staffing was confirmed to be a major cause of inadequate swallowing-related services in many nursing homes in Western countries (Kayser-Jones & Schell, 1997a, 1997b; Kayser-Jones et al., 2003; Kayser-Jones, Schell, Porter, Barbaccia & Shaw, 1999). As time allocated to each resident becomes less, the adequacy and quality of care are compromised. Reducing the required care worker-to-resident ratio may be a possible way to improve service provision. Study by Simmons and Schnelle (2004) has also confirmed that offering more feeding assistance is effective in improving oral intake and general health of nursing home residents.

Public education about the speech therapy profession
When responding to the questionnaire item concerning the ease of seeking services from speech therapist, most of the participants claimed that they did not know what speech therapist is and how to seek their services. This suggests that the elderly residents had poor awareness of the speech therapy profession. Education about the speech therapy profession to the general public especially to the geriatric population targeted in the current study is recommended. The residents should know what role speech therapists take in managing their swallowing difficulty and how they can seek help from speech therapists when they experience swallowing difficulty.

**Limitations and recommendations for future study**

The participants in the current study included 92 non-dysphagic, 135 mildly dysphagic, 36 moderately dysphagic and 19 severely dysphagic residents. The disproportionate number of participants with different severity of dysphagia is one of the greatest limitations to the current study. Significant negative correlation was found between dysphagia severity and cognitive functions of the residents \( r_s(280) = -0.453, p < 0.001 \). The participants with more severe dysphagia also had poorer cognitive and communicative competence in general. Therefore, the number of moderately and severely dysphagic participants who were able to complete the questionnaires was even smaller. Among all participants who were able to complete the swallowing-related service questionnaire, only 7.2% were severely dysphagic, while among those who had completed the SAPP, only 3.8%
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were severely dysphagic. Thus, the interpretation of the effect of dysphagia severity on service satisfaction and quality of life needs to be made with caution. Future study may investigate ways to include these residents with severe cognitive or/and language impairment in order to overcome the subject bias. Validation of caregiver-reported service satisfaction questionnaire and quality of life questionnaire is one possible direction to consider.

Conclusion

The high prevalence rate of dysphagia in the geriatric population receiving elderly residential care services found in the current study was consistent with previous studies. Poor satisfaction of the adequacy of swallowing-related services was found for the residents. Increase in public funding for speech therapy services and education about the speech therapy profession for this population are recommended.

Acknowledgement

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professional supervision. *Journal of the American geriatrics society, 47*(10), 1187-1194.


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Appendix

Swallowing-related service questionnaire

甲部 – 吞嚥評估 Part A – Swallowing assessment

1. 曾否接受過吞嚥評估？ Have you ever received swallowing assessment?
   □有 Yes □沒有 No

2. 上次吞嚥評估日期 Last date of swallowing assessment: ______________________

3. 負責吞嚥評估的人員 Person providing swallowing assessment:
   □言語治療師 Speech therapist □護士 Nurse □其他 Others: ________

4. 提供吞嚥評估服務的機構 Institution offering swallowing assessment:
   □醫院 Hospital □社區言語治療服務 Community speech therapy service
   □私家診所門診 Private speech therapy clinic
   □私家外展言語治療服務 Private outreach speech therapy services
   □院舍 (非言語治療師提供服務) Residential care home (Service not offered by speech therapist)

5. 過去12個月內接受的吞嚥評估次數 Number of swallowing assessment received in the past 12 months: ________________

乙部 – 吞嚥治療 Part B – Swallowing treatment

1. 曾否接受過吞嚥治療？ Have you ever received swallowing treatment?
   □有 Yes □沒有 No
PREVALENCE OF DYSPHAGIA AND ADEQUACY OF RELATED CARE

2. 上次吞嚥治療日期 Last date of swallowing treatment: ____________________________

3. 負責吞嚥治療的人員 Person providing swallowing treatment:
   - □ 言語治療師 Speech therapist
   - □ 護士 Nurse
   - □ 其他 Others: ______

4. 提供吞嚥治療服務的機構 Institution offering swallowing treatment:
   - □ 醫院 Hospital
   - □ 社區言語治療服務 Community speech therapy service
   - □ 私家診所門診 Private speech therapy clinic
   - □ 私家外展言語治療服務 Private outreach speech therapy services
   - □ 院舍 (非言語治療師提供服務) Residential care home (Service not offered by speech therapist)

5. 過去12個月內接受的吞嚥治療次數 Number of swallowing assessment received in the past 12 months: ____________________________

丙部 – 吞嚥相關服務滿意度 Part C – Swallowing-related service satisfaction

以下是問題關於閣下所接受的吞嚥相關服務，請為以下項目評分。

Please rate the following items about the swallowing-related services you have received.

<table>
<thead>
<tr>
<th>項目</th>
<th>尚待改善</th>
<th>十分認同</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improvement</td>
<td>Totally warranted</td>
<td>agree</td>
</tr>
</tbody>
</table>

1. 我有定期接受吞嚥評估/檢查。 0 1 2 3 4

I have received swallowing
2. I have received swallowing therapy regularly.

3. I can seek help from health professionals easily for my swallowing problems.

4. I can seek help from speech therapist easily for my swallowing problems.

5. The government has provided me with sufficient swallowing-related medical services.
6. I have got sufficient mealtime assistance every day.