

Experience in the Application of GUSS Swallowing Function Assessment Scale and Self-Rating Masticatory Ability Assessment Scale for the Elderly People Health Care

Minchuan Huang^{1,*}, I Ping Chen^{2,*} and Shuying Chung²

¹*School of Computer Science, Guangdong University of Petrochemical Technology, Maoming 525000, China*

²*Institute of Nursing College, Central Taiwan University of Science and Technology, Taichung, 406053, Taiwan, China*

Keywords: Gugging Swallowing Screen (GUSS), Swallowing Function, Masticatory Ability, Geriatric Medicine, Empirical Nursing Care.

Abstract: Elderly people have progressive problems with swallowing function degradation as they get older. The degradation of swallowing function has a great impact on many living diets in the elderly, which easily causes body dehydration, nutrition imbalance, with and without susceptibility to aspiration pneumonia, problems with physiological function, and psychological problems. Common problems, elderly people fear of eating and drinking due to choking, self-social isolation, pulmonary trachea phlegm and other problems. The elderly will also have a decreased swallowing function, a reduced oral intake capacity, and a significantly lower ability to perform activities of daily living. To cite GUSS (gugging swallowing screen) swallowing function assessment scale and self-rated masticatory ability assessment scale, five elderly people with different age intervals were selected to implement clinical real-life observation and interview record, according to the research subjects' self-conscious health and no swallowing function present status, the suggestions and precautions for planning self-improvement methods.

1 INTRODUCTION

According to Article 2 of the legal database of Taiwan's elderly welfare law, the age standard of the elderly is that those over 65 are called old persons (Balou, 2019; Krishnan, 2020). Many medical studies have shown that effective and safe swallowing ability is an important factor in maintaining health and quality of life. Swallowing function involves a complex coordination process of psychology, feeling and motor behavior (Nuchit, 2020; Carnaby, 2020; Shimizu, 2021; Sasegbon, 2017).

Dysphagia definition: there are problems involving the mouth, pharynx, esophagus or gastroesophageal junction in the process of food entering the stomach from the mouth through chewing. Dysphagia is the inability to chew food effectively. One or more foods cannot be safely Swallow into the esophagus. Uncoordinated breathing and swallowing. Swallowing activities are divided into oral preparation stage, oral stage, pharyngeal stage and esophageal stage according to the location of food. If there is a problem in any stage that affects eating, it

is also an abnormal phenomenon of swallowing (Kuramoto, 2020).

Dysphagia in the elderly is the most common and life-threatening serious problem, such as aspiration pneumonia, malnutrition, dehydration and so on. In view of the increasing popularity of chewing and swallowing difficulties, especially in the elderly of different ages (e.g. 65, 70, 80 and 90 years old), chewing and swallowing problems have varying degrees (Jardine, 2021).

To explore the incidence of dysphagia in the elderly, research in Taiwan shows that dysphagia affects the elderly in the community: 15% at the age of 65, 23% at the age of 70, 16.6% at the age of 70 to 79 and 33% over the age of 80. Foreign studies have shown that dysphagia affects elderly patients: 56% to 78% of hospitalized elderly patients, 47.5% of hospitalized elderly patients in acute geriatric ward, 30% of stroke patients, 52% to 82% of patients with Parkinson's disease, 60% of patients with lateral amyotrophic sclerosis, 40% of patients with multiple sclerosis and 84% of patients with Alzheimer's disease (Wirth, 2016). The prevalence of pharyngeal disorders in the

elderly population is high, but it is underestimated and underdiagnosed. It may increase related complications, affecting morbidity, length of hospital stay and medical costs (Khan, 2014).

2 SYMPTOMS AND EVALUATION OF DYSPHAGIA

Dysphagia symptoms are common in the elderly (Kahrilas, 1994; Vose, 2018; Ashiga, 2019). Assessment tools include GUSS (giggling swallowing screen), SSA (standardized swallowig assessment), EAT-10 (eating assessment tool), SWAL-QOL (swallowing quality of life), SPDQ (self-competent dysphagia questionnaire), self-assessed screening test for masticatory ability.

2.1 Symptoms of Dysphagia

Symptom observation of clinical nursing: excessive oral action is required for chewing or swallowing. Coughing or choking often occurs during or after eating. Each bite needs to be swallowed two or three times. There is still a lot of food left on the tongue after dinner. The food is piled on one side of the mouth but not consciously. Food falls out during chewing. Easy to drool, especially during meals. There is often a large amount of secretion (saliva) around the mouth. When entering, there will be a grunt (similar to phlegm sound).

2.2 Key Factors Affecting Swallowing Function in the Elderly

The physiological changes of aging include muscle atrophy, decreased tissue elasticity, structural changes of the cervical spine, decreased saliva and decreased brain response. The insufficient strength of the tongue leads to the obstacle of chewing and the inability to trigger the swallowing reflex in time (Khan, 2014). Aging causes the decline of oral sensory function, the decrease of the number of taste buds and the atrophy of oral mucosa, which affects the passivation of tongue and lip to spatial touch, the decrease of oral sense to viscous substances, the deterioration of body feeling and the dullness of taste (Youmans, 2006). The slow process of reflection leads to obvious delay in the transmission and pushing of food mass, which is easy to cause the inhalation of foreign bodies and lead to aspiration pneumonia. The lack of hyoid bone displacement and the reduction of hyoid bone, epiglottis ligament, muscle fibres will affect the protective mechanism of the respiratory tract: aging will affect the as chewing difficulty or swallowing.

3 CLINICAL SWALLOWING EVALUATION AND TEST RESULTS

Using GUSS, EAT-10 and Self-assessed screening test for masticatory ability, five elderly people in the community were healthy and had no swallowing problems (Vose, 2018; Molfenter, 2018). Chart of clinical evaluation and testing is shown in Figure 1.

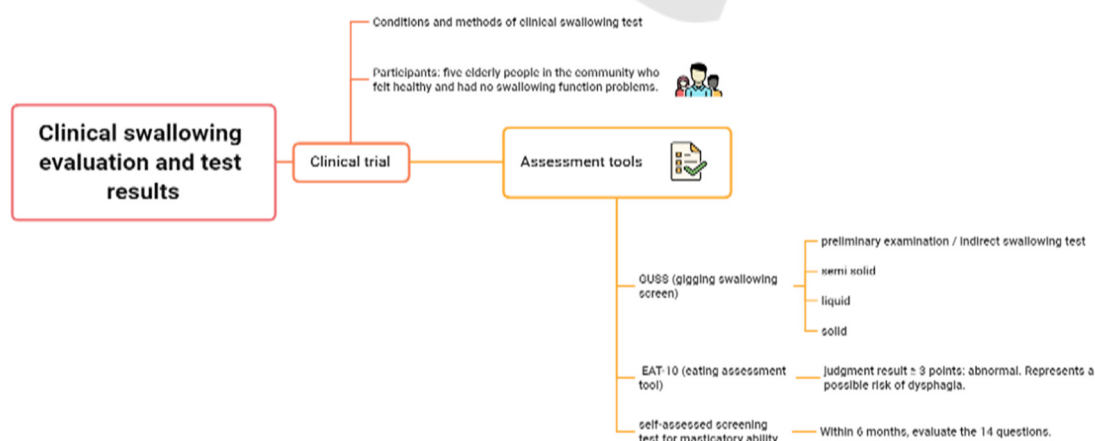


Figure 1: Chart of clinical evaluation and testing.

3.1 Clinical Trial

Conditions and methods of clinical swallowing test: the subjects should be awake and can cooperate with the instructions. Subject SaO₂ > 90%, no obvious respiratory urgency or insufficient vocal cord / throat function, and no oxygen mask or respirator is required. The subject had no suspected symptoms of aspiration pneumonia in the past 3 days. Before the test, clean the mouth, according to the standard procedure to avoid choking food / secretions during the test. First give the subject 3ml of water to drink, observe whether there is any problem, and repeat the same step 3 times. If there is no abnormal swallowing, increase the amount of water tested to 10 ml, 30 ml and 50ml in sequence. If the subject will choke in any process, stop the test and record the reaction during swallowing. Participants: five elderly people in the community who felt healthy and had no swallowing function problems.

3.2 Gugging Swallowing Screen (GUSS)

Table 1: Indirect swallowing test and direct swallowing test.

GUSS (Gugging Swallowing Screen)	♂96	♀91	♂74	♀84	♀71
Total score	20	18	20	17	20

1. ※Sample: add thickeners with one third to half spoon water (thick as pudding) Ask the patient has 3-5 spoon if without any symptoms, assess after 5 spoons.
2. ※Following 3,5,10,20ml water , continue with50ml water if without any symptoms, assess until presence of listed results.
3. ※Clinic: Fibrotic Nasopharyngoscope swallowing function test: dry bread soaked in color liquid.
4. ※Use functional examination, such as swallowing X-ray television fluoroscopy, fiber Nasopharyngoscope swallowing function examination.

3.3 Eating Assessment Tool (EAT-10)

Early detection of patients at high risk of swallowing disorders in order to receive further swallowing evaluation and swallowing treatment as soon as possible. A score of 3 or more is dysphagia. The reliability and validity of eating assessment tool EAT-10: The Cronbach alpha was 0.960. The correlation coefficient within the test retest project ranges from 0.72 to 0.91 (Belafsky, 2008).

Table 2: Assessment of swallowing ability (EAT-10): within 3 months, 10 questions will be assessed (score means: 0 is no problem, 4 is serious).

EAT-10 (Eating Assessment Tool)	♂9	♀9	♂7	♀8	♀7
Assessment	6	1	4	4	1
Total score	1	11	10	5	5

5. ※judgment result ≥ 3 points: abnormal. Represents a possible risk of dysphagia.

3.4 Self-Assessed Screening Test for Masticatory Ability

Table 3: self-assessed screening test for masticatory ability.

self-assessed screening test for masticatory ability	♂96	♀91	♂74	♀84	♀71
Total score	3	10	6	10	6

6. ※Within 6 months, evaluate the following 14 questions. Judgment result: some laborious and unable to eat ≥ 4 kinds.

4 MEDICAL AND NURSING PROGRAMS

The case receiving process of the empirical study on oral care for the elderly is divided into seven steps, as shown in Figure 2. The flow chart of evaluation empirical research.

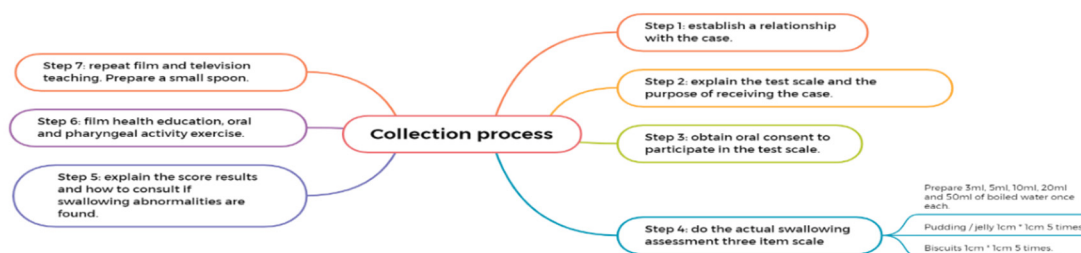


Figure 2: The flow chart of evaluation empirical research.

4.1 Consultation Program for Finding Dysphagia

Visit a qualified medical institution: evaluation and referral of rehabilitation department or Otorhinolaryngology department. Speech therapist assesses swallowing function. Provide swallowing training. Swallowing related health education courses. Radiation therapist if swallowing photography is required, the radiologist shall assist in it after being referred by the doctor. Nutritionist a balanced and complete diet is recommended. Suitable nutritious food or nutritious fortified food is recommended.

4.2 Video-Fluoroscopic Swallowing Study (VFSS)

The golden (best) standard for evaluating patients' swallowing ability. To confirm the structural and physiological abnormalities causing the patient's symptoms. Identify and evaluate the ability and treatment plans for patients to eat safely and / or effectively. It needs to be evaluated by the dynamic image the television fluorescence photography (VFSS).

4.3 Oral and Pharyngeal Mobility Exercise

Oral movement control exercise, tongue activity, exercise, impedance movement, food, ball control movement, improve the rough movement of getting objects, the movement of holding close food ball, the movement of promoting food ball, the activity of pharyngeal structure, respiratory tract entrance, vocal cord closure movement, tongue root movement, laryngeal lifting movement (false voice exercise), neuromuscular electric stimulation.

Head and neck relaxation exercise: Tilt your head to the left and right, lower your head and raise your head. Mouthwash saliva swallowing movement: hold your left hand flat to rotate next to your left cheek,

and your left cheek is in the shape of mouthwash. Lip, tongue and tooth movement: extend the tongue to move left and right. Oral rotation: make a snapping sound and a lip shape that makes a snapping sound.

5 CONCLUSION

With the deterioration of tongue muscle strength and the aging of teeth, the diet of the elderly may indeed bring many difficulties and inconvenience in chewing and swallowing.

However, with proper maintenance and treatment of teeth, effective training of tongue muscle strength, adjustment of food types and selection of suitable food materials, the elderly can still eat nutritionally balanced and delicious.

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