# Evaluation of an Educational Training Sessions on Self-Care for Stroke Patients Health Related to Dysphagia

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**Abstract**
Background: patients with neurological conditions like Parkinson's disease or cerebral palsy frequently struggle with swallowing. Furthermore, a stroke or head injury may decrease or interfere with the swallowing muscles' coordination or limit mouth and throat feeling. Objective: To evaluate the effectiveness of the educational training sessions on self-care for stroke patients status related to dysphagia, Methods: Quantitative study quasi-experimental design carried out with two groups in Middle Euphrates Neuroscience Center in AL-Najaf City from the period 17 Jun 2022 to 22 May 2023, (60) stroke patients were divided into experimental and control group. Non-probability purposive sampling used to select the study sample which include (60) patients who previously diagnosed with stroke who divided to experimental group who attend the educational training sessions and control group who follow routein management. Results: After conducting the educational training sessions (post-tests) revealed a significant improvement for patient's swallowing, nutrition, and decrease in severity of dysphagia. Conclusion: application of the educational training sessions for at least six weeks is an effective approach to improving swallowing on the stroke patients status related to dysphagia compared with the control group. Recommendations: Establishing structured educational training sessions realized the challenges that might be faced after stroke patients because this long journey need special planed care to decrease the severity of dysphagia and to decrease the risk of aspiration and malnutrition by special rehabilitation units, the unit services may extended for the patient's family to decrease the impact of dysphagia and inhancing their quality of life.
Keywords: Educational training sessions, Dysphagia, Stroke.

## 1. Introduction

When there is an issue with the brain control or the structures involved in any step of the swallowing process, dysphagia results. it could be challenging to move food around in the mouth for chewing if the tongue or cheek muscles are weak. It may be challenging to initiate the swallowing response, a stimulus that enables food and liquids to pass safely through the throat, after a stroke or another dysfunction of the neurological system [1]. Aspiration, pneumonia, and malnutrition are some of the factors that contribute to post-stroke dysphagia, which is a frequent and expensive complication of acute stroke. It is also linked to higher mortality, morbidity, and institutionalization. at six months, a sizable minority of patients still suffer dysphagia, even though the majority of patients recover their ability to swallow on their own. Although there have been significant advancements in both secondary prevention and hyper acute stroke treatment, the optimal management of post-stroke dysphagia, including diagnosis, investigation, and treatment, has not yet been established [2].

For individuals who aspirate frequently or who are at high risk of aspiration, therapeutic exercises to strengthen the suprahyoid muscles are crucial, several exercise techniques are currently being used in clinical settings to strengthen suprahyoid muscles, in the Shaker exercise the supine position is used to repeatedly elevate the head off the floor against gravity. the intention is to strengthen suprahyoid muscles to make swallowing safer. the Shaker exercise is known to result in issues including excessive neck and abdominal effort, myalgia, and muscle fatigue. However, previous research have shown that the Shaker exercise is beneficial in enhancing hyoid motion, minimizing aspiration, and opening the upper esophageal sphincter. In other words, it is not very effective when comparing the effort required to achieve the intended result, Patients with dysphagia can benefit from CTAR exercise (Chin tuck against resistance), a therapeutic exercise that more precisely engages the suprahyoid muscle. it takes less physical strain and effort than Shaker exercise, which promotes better compliance [3].

### Objectives of the study

1. To evaluate the effectiveness of the educational training sessions on the self-care for stroke patients related to dysphagia.
2. To find out relationship between the educational training sessions and demographical variables such as (age, gender, educational level).

## 2. Methodology

Quantitative study, quasi-experimental design

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carried out with two groups in Middle Euphrates Neuroscience Center in AL-Najaf City in order to evaluate the effectiveness of un educational training sessions on the evaluation of the educational training sessions on the self-care for stroke patients health s related to dysphagia from the period 17 Jun 2022 to 22 May 2023. Non-probability (purposive sample) technique selected, all participants are medically diagnosed with stroke disease and those who visit the center regularly for follow up or admitted patients. The study sample consists of (60) patients have the same inclusion criteria. Those patients are divided into two groups: (30) patients selected as experimental group (10) females and (20) males, the other (30) patients are treated as control group (10) females and (20) males. The study tool consist of three parts; Demographic Data sheet, consists of (6) items, which included age, gender, marital status, level of education, occupational status, and residency, second part distributed 7 items related to patients clinical information such as (type of stroke, body side that is affected by stroke, recurrence of stroke, durations of stroke, using tube feeding, family history for stroke, associated other chronic diseases, smoking, body mass index, and stroke complication occurrence). while third part directed to dysphagia classification scale (lower esophageal sphincter LES), the dysphagia outcome and severity scale; the severity of dysphagia started from no dysphagia, mild dysphagia, moderate dysphagia, and sever dysphagia. Normal passage of food from lower esophageal sphincter zone (No dysphagia = 0), mild dysphagia is sensation or short delay of passage of dysphagia food from lower esophageal sphincter without the need of water (mild dysphagia = 1), moderate dysphagia is need of water for passage of food from dysphagia lower esophageal sphincter zone (moderate dysphagia = 2), and Sever dysphagia is accompanied with passive or active dysphagia regurgitation (sever dysphagia = 3).

Validity: to obtain the validity of the study tool, (12) experts who work in different fields and have not less than (15) years of experience, asked to.

Ethical consideration: Oral permission was obtained to start data collection from the director of the center after explaining the study purpose and objectives to secure the cooperation of the healthcare provider to facilitate data collection and provide the educational training sessions as well as the respect for patients' personalities as a human is considered in the current study as issue of ethical consideration.

Data collection: The data were collected from the period between 7 August 2022 to 22 June 2023. The inpatient department is used as an area to collect data from the stroke patients who attend for consultation or who admitted to the wards for management by direct face-to-face interview. used collect the pretest for all (60) patients each patient need about (10-15 min ) to complete the tool items, the second step started with experimental group members who attend the training sessions, for presentation of the educational training and explanation takes about (90 min), after that each patient need about (10 to 15 min) to complete the dysphagia training sessions after two weeks the third step is caring out, the first post test collected for all patients, according to their time visit to the center, the final step was performed two weeks to collect the second post test.

## 3. Results

Table 1. Demographic characteristics of the study sample.

| Variable | | Group | | | | P |
|---|---|---|---|---|---|---|
| | | Intervention G | | Controls G | | |
| | | No. | % | No. | % | |
| Age (year) | ≤ 50 | 5 | 16.7 | 4 | 13.3 | 0.710 ns |
| | 51 – 60 | 10 | 33.3 | 11 | 36.7 | |
| | 61 – 70 | 7 | 23.3 | 10 | 33.3 | |
| | > 70 | 8 | 26.7 | 5 | 16.7 | |
| Gender | Male | 20 | 66.7 | 20 | 66.7 | 1.00 ns |
| | Female | 10 | 33.3 | 10 | 33.3 | |
| Marital Status | Married | 25 | 83.3 | 26 | 86.7 | 0.718 ns |
| | Other* | 5 | 16.7 | 4 | 13.3 | |
| Educational level | Illiterate | 6 | 20.0 | 5 | 16.7 | 0.920 ns |
| | Read and write | 6 | 20.0 | 8 | 26.7 | |
| | Primary | 9 | 30.0 | 7 | 23.3 | |
| | Secondary | 6 | 20.0 | 6 | 20.0 | |
| | Institute-college-higher | 3 | 10.0 | 4 | 13.3 | |
| Occupation | Employed | 6 | 20.0 | 8 | 26.7 | 0.542 ns |
| | Unemployed | 24 | 80.0 | 22 | 73.3 | |
| Residency | Rural | 14 | 46.7 | 14 | 46.7 | 1.00 ns |
| | Urban | 16 | 53.3 | 16 | 53.3 | |
| Family History for Stroke | Yes | 8 | 26.7 | 10 | 33.3 | 0.573 ns |
| | No | 22 | 73.3 | 20 | 66.7 | |
| Smoking | Yes | 8 | 26.7 | 9 | 30.0 | 0.774 ns |
| | No | 22 | 73.3 | 21 | 70.0 | |

| Table 2. Stroke related variables in both groups. | | | | | | |
|---|---|---|---|---|---|---|
| Variable | | Group | | | | P |
| | | Intervention | | Controls | | |
| | | No. | % | No. | % | |
| Type of stroke | Non-Hemorrhagic | 25 | 83.3 | 24 | 80.0 | 0.739 ns |
| | Hemorrhagic | 5 | 16.7 | 6 | 20.0 | |
| Body side that is affected by stroke | Right | 12 | 40.0 | 14 | 46.7 | 0.602 ns |
| | Left | 18 | 60.0 | 16 | 53.3 | |
| Recurrence of stroke | Yes | 12 | 40.0 | 11 | 36.7 | 0.791 ns |
| | No | 18 | 60.0 | 19 | 63.3 | |
| Using Tube Feeding | Yes | 8 | 26.7 | 10 | 33.3 | 0.573 ns |
| | No | 22 | 73.3 | 20 | 66.7 | |

| Table 3. Changes in dysphagia experienced by patients in both studied groups (intervention and control) | | | | | | |
|---|---|---|---|---|---|---|
| Time point | Dysphagia | Intervention | | Control | | P. value |
| | | No | % | No. | % | |
| Pretest | None | 0 | 0.0 | 0 | 0.0 | 0.785 ns |
| | Mild | 10 | 33.3 | 9 | 30.0 | |
| | Moderate | 16 | 53.3 | 15 | 50.0 | |
| | Severe | 4 | 13.3 | 6 | 20.0 | |
| Posttest 1 | None | 8 | 26.7 | 0 | 0.0 | 0.001 sig |
| | Mild | 20 | 66.7 | 19 | 63.3 | |
| | Moderate | 2 | 6.7 | 11 | 36.7 | |
| Posttest 2 | None | 21 | 70.0 | 2 | 6.7 | < 0.001 sig |
| | Mild | 9 | 30.0 | 19 | 63.3 | |
| | Moderate | 0 | 0.0 | 9 | 30.0 | |

| Table 4. Cross-tabulation for the changes in the dysphagia post training sessions among intervention group | | | | | | |
|---|---|---|---|---|---|---|
| | | Dysphagia Posttest 1 | | Dysphagia Posttest 2 | | |
| | | None | Mild | Moderate | None | Mild |
| Dysphagia Posttest 1 | Mild | 6 | 4 | 0 | 9 | 1 |
| | Moderate | 2 | 14 | 0 | 12 | 4 |
| | Severe | 0 | 2 | 2 | 0 | 4 |
| Total | | 8 | 20 | 2 | 21 | 9 |
| Dysphagia Posttest 2 | None | - | - | - | 8 | 0 |
| | Mild | - | - | - | 14 | 6 |
| | Moderate | - | - | - | 0 | 2 |
| Total | | - | - | - | 21 | 9 |
| Color Key | Improved | No change | | | | |

| Table 5. Cross-tabulation for the changes in the dysphagia post training sessions among intervention group | | | | | | |
|---|---|---|---|---|---|---|
| Dysphagia | | Dysphagia Posttest 1 | | Dysphagia Posttest 2 | | |
| | | Mild | Moderate | None | Mild | Moderate |
| Pretest | Mild | 8 | 1 | 2 | 7 | 0 |
| | Moderate | 11 | 4 | 0 | 12 | 3 |
| | Severe | 0 | 6 | 0 | 0 | 6 |
| Total | | 19 | 11 | 2 | 19 | 9 |
| Posttest 1 | Mild | - | - | 2 | 17 | 0 |
| | Moderate | - | - | 0 | 2 | 9 |
| Total | | - | - | 2 | 19 | 9 |
| Color Key | Improved | No change | | Get worse | | |

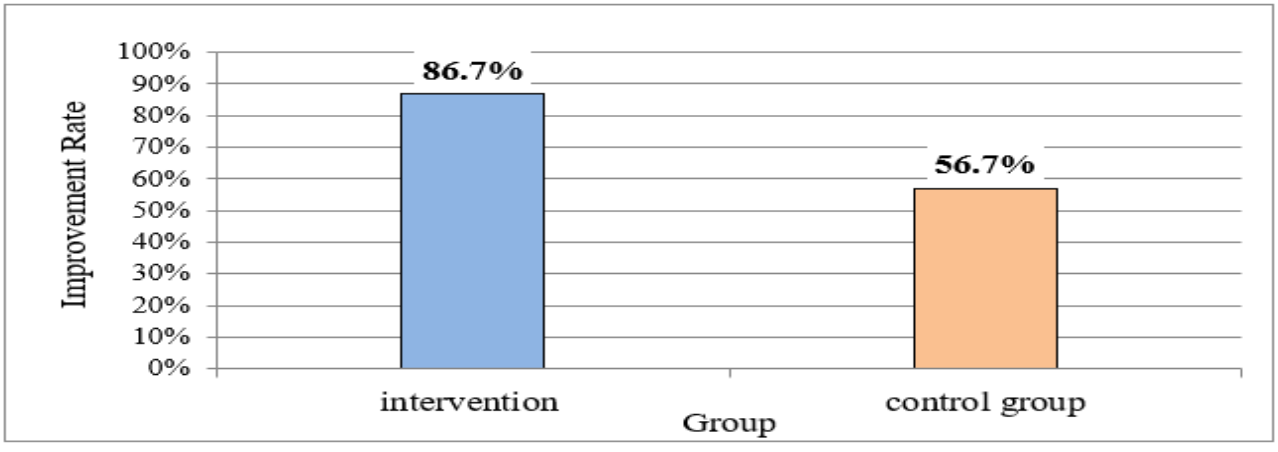


*Figure 1. Rates of improvement in dysphagia severity after the program in study and control groups at Posttest 1*

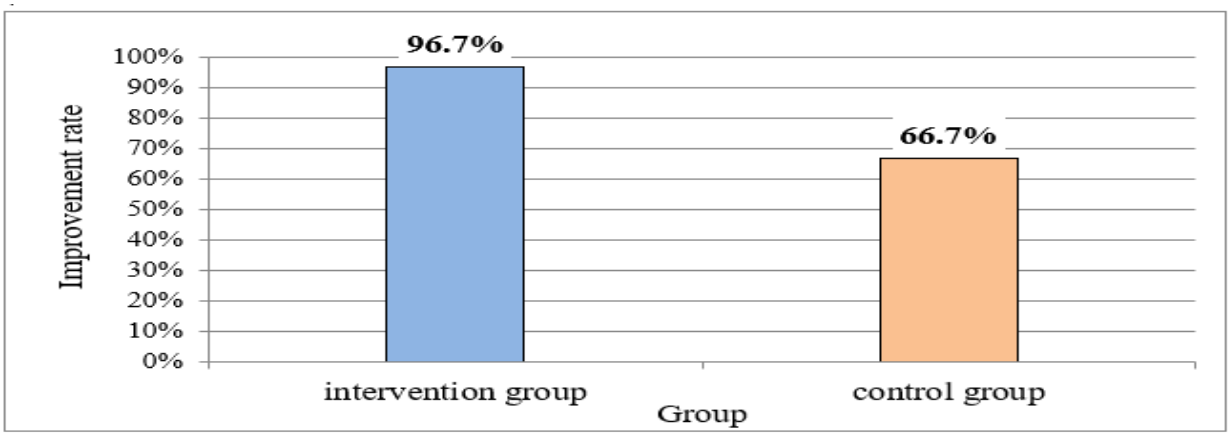


*Figure 2. Rates of improvement in dysphagia severity after the program in study and control groups at Posttest 2*

Table 6. Results of cross-tabulation for the association between improvement in dysphagia after the program and categorical variables of patients in the study group.

| Variable | Statistical parameters | |
|---|---|---|
| | Chi-square \ Fisher's | P. value |
| Gender | 0.517 | 0.472 |
| Marital Status | 0.207 | 0.649 |
| Educational status | 4.138 | 0.388 |
| Occupation | 1.138 | 0.422 |
| Residency | 1.182 | 0.277 |

## 4. Discussion

traditional therapies focus on the prevention of secondary complications early after stroke and continue into the sub-acute stage to improve affected swallowing control, the suggested frequency is three times each day for six consecutive weeks. the exercise increases anterior hyolaryngeal excursion, and UES opening, strengthens suprahyoid muscles, and enhances thyrohyoid shortening [4].

### Part One: Discussion for Patients' Socio-Demographic Data

Study on the quality of life of stroke patients conducted in Iraq, which found that male made up the majority of stroke patients (70%) under the age of 61 and that the risk of stroke increases with advancing age, with elderly male being nearly twice as likely to experience a stroke as female [5], Patients with low levels of education may put themselves at risk for stroke at any time because they cannot accurately determine when they need counseling or medical help due to a lack of knowledge about how to classify all symptoms and indicators of such need [6]. the most of the sample were housewives (N=50), 8(36.0%) who visited the middle Euphrates neuroscience center in the Al-Najaf region, made up the biggest percentage in relation to the city's demographics [7], most of the study sample with urban residency, this result was in agreement with a study shows that 72% of the subjects in the study stayed in city area. The lifestyle of the person in the urban area has more risk factors for patients with stroke related to the city environment [7,8]. The results shows 21 (70%) of the study sample are no smoker, This finding is go along with a study shows that adults with a history of smoking were (23.7%) which act as risk factors for stroke that patients, smoking was uncommon among elderly Iraqi populations [9,10].

### Part Two: Discussion the Effectiveness of the educational training sessions on self care for stroke patients related to dysphagia

There are improvement in the findings where the mean in the pre-test was better, it was good in the post-test 1, and the results in the post-test 2 were really patients' swallowing ability, the study's findings show that the swallowing ability improved after training sessions [11]. educational training sessions focus on the prevention of secondary complications early after stroke and continue into the sub-acute stage to improve affected swallowing control, the suggested frequency is three times each day for six consecutive weeks. the training sessions increases anterior hyolaryngeal excursion, and UES opening, strengthens suprahyoid muscles, and enhances thyrohyoid shortening [4]. Chin Tuck against Resistance (CTAR) exercise not only helped to activate the suprahyoid muscle but also the sternocleidomastoid muscle. Additionally, according to five articles, CTAR exercise was successful in enhancing oral food stage in the pharyngeal phase and improving swallowing function in individuals with dysphagia following stroke, including a decrease in airway aspiration [3]. Shaker exercises assessed using the principles of muscle-specificity and training intensity from the field of training science. this exercises is developed to improve bolus transfer by strengthening the suprahyoid muscles, which contractions help the upper esophageal sphincter open [12]. The Masako maneuver, an exercise for swallowing rehabilitation to improve the function of the pharynx rear wall, was conducted for 20 minutes per day, 5 days a week for 4 weeks. This

maneuver was performed by inducing dry swallowing. In this method, the patients softly bite the end of their tongues with their front teeth and maintain this posture while swallowing, Masako maneuver, which is an exercise for swallowing rehabilitation to improve the function of pharynx constriction by strengthening muscle strength of the tongue base, has been reported to improve swallowing by helping the coordination of the larynx and the hyoid bone and improving the constriction of the pharynx and airway obstruction during pharyngeal swallowing [13].

## 5. Conclusion and recommendation

The study concluded the incidence of stroke is increased in male patients, compared with female patients. the intervention group members who attend the training sessions for six weeks duration related to dysphagia shows significant improvement of swallowing compared with control group members. The educational sessions effective factor to improve stroke patient self care related to dysphagia.

Establishing structured program realized the challenges that might be faced the post stroke patients because this long journey need special planed care to decrease the severity of dysphgia for patients after stroke by special rehabilitation units. the unit services may extended for the patient's family to decrease the impact of dysphagia on their life.

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