# Effect of Implementing Teaching Program on Patient's Outcomes Suffering from Mandibular Fracture

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## 1.ABSTRACT

**Background:** Mandibular fractures are among the most common maxillofacial fractures which affect talking and swallowing ability. **Aim:** To evaluate the effect of implementing teaching program on patient outcomes suffering from mandibular fracture. **Design:** Quasi-experimental research design was used in this study. **Setting:** The current study was conducted at Plastic & Reconstructive Burn Center and Mansoura university hospital. **Sample:** A purposive sample of 80 conscious adult patients with mandibular fracture was recruited in the study. **Tools of the study:** Three tools were used to collect the data: Tool I: Interview Questionnaire sheet: divided into 3 parts: Part 1: Demographic data, Part 2: Patient's medical health history, Part3: Patient's knowledge regarding mandibular fracture questionnaire. Tool II: Patient assessment sheet. Tool III: Tempo mandibular dysfunction (TMD) Disability Index Questionnaire. **Result:** The results of this study revealed that there were highly statistically significant differences (P<0.001) in level of knowledge at pre-test, post-test and follow up test, over all complication were decreased in study group in post-test and follow up test compared to control group. **Recommendation:** Provide adequate knowledge about nutrition, oral care and jaw exercise to mandibular fracture patient to help them reach full recovery.

**Key words:** Mandibular fracture, Patient outcomes, Teaching program.

## 2.Introduction:

The mandible is a strong solitary bone with a distinctive shape. It is the only movable bone in the facial skeleton (apart from the auditory ossicles) and the site of the second most common fracture. The mandible constitutes major part of a person's appearance and expression of personality. It is also involved in the basic human function. The mandible supports the mandibular teeth, which occlude with the teeth in the maxilla and enable the act of mastication [7].

The mandible is one of the most commonly broken facial bones, accounting for 36–70% of all facial fractures. Due to its general mobility and inadequate bone support, it has a considerably higher incidence than other face bones. [20]. Maxillofacial fracture is a major cause of mortality and morbidity worldwide. Mandibular fracture is one of the most common facial fractures about 170 patients admitted in maxillo facial surgery unit in Mansoura emergency hospital according to hospital medical record in 6/2019 to 6/2020.

Clinical signs of mandibular fracture include change in occlusion, change in mandibular excursions (limited opening, deviation, step in occlusion) and ecchymosis of the floor of the mouth, mucosa, or skin. In addition, soft tissue bleeding, palpable fracture line, crepitation on manual palpation, sensory disturbance, pain in the jaw, especially on swallowing and talking.

Moreover, altered bite, numbness of the lower lip, swelling, and drooling can occur. Furthermore, gingival bleeding and difficulty in moving the jaw, loosening of teeth/mobility of fractured segment, trismus and sublingual hematoma [15].

The patients who diagnosed with mandibular fracture needed special educational program that provide information on how to stay on normal life as possible and prevent complication. Early physical treatment (rehabilitation) after a fracture is critical for attaining positive outcomes, such as pre-occlusion restoration, mouth opening restoration, pain-free mouth opening, complete range of mandibular excursion, and facial and mandibular symmetry restoration. [10].

Maxillofacial fracture is a major cause of mortality and morbidity worldwide. Mandibular fracture is one of the most common facial fractures about 170 patients admitted in maxillo facial surgery unit in Mansoura emergency hospital according to hospital medical record in 6/2019 to 6/2020. From the researcher experience has been observed that the patients who diagnosed with mandibular fracture needed special educational program that provide information on how to stay on normal life as possible and prevent complication.

**Aim of study:**

The aim of the current study was to evaluate the effect of implementing teaching program on

patient outcomes suffering from mandibular fracture.

**Hypothesis**

1. The knowledge of mandibular fracture will increased after application of teaching program.
2. Post-operative complication associated with mandibular fracture will be decreased after application of educational program.

## 3. Materials & Method

### 3.1. Study Design:

A quasi-experimental research design was utilized to accomplish this study.

### 3.2. Setting:

This study was carried out in Plastic & Reconstructive Burn Center and outpatient clinic in Mansoura University.

### 3.3. Purposive sample:

The current study involved 80 conscious adult patients with mandibular fractures who were randomly assigned to two equal groups and met the following criteria:-

Newly diagnosed with mandibular fracture, between 20 to 60 years old, from both sex and have ability to learn.

Patients were excluded if they were previously treated from jaw fracture, patient's with bone disease (osteoporosis) and Patients who have any other trauma (head trauma, stroke).

### 3.4. Tools:

Three tools were utilized in the current study.

**Tool I: Interview Questionnaire sheet:**

The researcher developed this tool based on a review of recent related literatures (Mekkawy, Azer & El Gamil, 2015) and consisted of three parts:

**Part1:**Demographic characteristic; including patient's age, gender, level of education, marital status, occupation and causes of mandibular fracture.

**Part 2:** Medical history and health status of the patients and includes:

**1- Health habits:** (drinking of tea, coffee, alcohol, smoking, drugs and exercise).

**2- Current complaint including** (Pain, swelling, bleeding, facial bruises, limited jaw movement, malocclusion, soreness, numbness in the lower lip, and loose or damaged teeth are all signs and symptoms of a mandibular fracture).

**Part 3: Patient's knowledge regarding mandibular fracture questionnaire:**

It was designed by the researcher after reviewing recent literature, and to evaluate patients' knowledge regarding mandibular fracture before and after the implementation of the teaching program.

**Tool II: Patient assessment sheet**

This tool was developed by researcher, based on reviewing recent related literature to assess patients' outcomes after 2 weeks, then 6 weeks from discharge, and this sheet included 4 items:

**1-Complications that included:** Feeding difficulties, difficulty speaking, periodontitis, gingivitis, wound infection, temporomandibular joint painful movement, malocclusion, facial nerve injury, malunion, and nonunion and temporomandibular joint pain.

**2-Nutritional status assessment included height, weight and body mass index** (BMI).

**3-Maximal Mouth Opening (MMO).**

While the patient was seated and asked to expand the mouth as wide as possible without pain or discomfort, the distance between the incisors was measured in millimeters with a 10-cm ruler marked in millimeters.

**4-Rating Pain Scale:**

The purpose of this test is to determine the severity of pain. In comparison to other pain measures, the NPRS is sensitive and consistent. It was adopted from **(McCaffery, Beebe et al. 1989)**

**Tool III: (TMD) Tempo mandibular dysfunction Disability Index Questionnaire:** adapted from **Steigerwald Maher .**

This questionnaire has (16) question covering 4 sections: questions about TMD disability, each with a score ranging from 0-4. Higher scores indicate a higher level of disability.

### 3.5. Administrative design:

The study was approved by the Dean of the Faculty of Nursing and the Director of the Plastic and Reconstructive Burn Center at Mansoura University Hospital.

### 3.6. Ethical Considerations of the study

The Research Ethics Committee gave ethical permission. The researcher introduced herself to each patient and discussed the purpose of the study prior to their involvement in order to get their acceptance and cooperation, as well as their verbal agreement when the purpose of the study was clarified. Anonymity, privacy, safety and

confidentiality were absolutely assured throughout the whole study. Patients were informed that they had the right to refuse participation in the research or withdraw at any time.

### 3.7. Validity and reliability of the instruments:

The tool was advanced by the investigator next revising the significant writings and verified for its power by judges of 5 professionals in the field (3 nursing professors and 2 medicine professors). To test the study tools for content validity, completeness, feasibility and clarity of the item.

Reliability test was completed by Cronbach's Alpha for the aim to establish the clearness and applicability of the tool, to guess the period wanted for questionnaire response and to measure the internal consistency of the tool. The reliability of knowledge questionnaire and TMD scale were measured using Cronbach's alpha test and the values of Cronbach's alpha were (alpha= 0.871 & 0.891) respectively.

### 3.8. Pilot study:

To test the feasibility, objectivity, clarity and the applicability of the study tools, a pilot study was conducted on (10%) eight patient, as well, identify difficulties that may be encountered during the application of the study to estimate the time needed for data collection and some items have been added and others were rephrased to be clear and understood, patients who participated in the pilot study were not included in the study sample.

### 3.9. Data collection:

Data collection began after receiving administrative approval and lasted for four months, from the beginning of June to the end of September 2018. At the end of this study, the mandibular fracture patients are expected to be able to return to normal life and restore his body functions as possible and prevent complication.

### 3.10. Field work:

Assessment phase, planning phase, implementation phase, and evaluation phase" were the four phases of our research.

### 1- Assessment Phase:

It was carried out by the researcher for all study subject to collect baseline data to assess their knowledge.

### 2- Planning Phase:

The researcher created colored booklet. It is written in a simple Arabic language and is accompanied by photos and illustrations to aid the patient's understanding. The planning phase includes the development of study goals and outcomes.

### 3- Implementation Phase:

**The control group:** Only the plastic surgery department provided routine hospital care to the patients in this group.

**The study group:** In addition to the suggested teaching programme, patients in this group got routine hospital care.

**Proposed mandibular fracture teaching program:** it was implemented for the study group individually and refers to the designed interventions that incorporate knowledge and practice regarding mandibular fracture teaching and healthy lifestyles modifications that guide patient's recovery.

### Teaching program:

It was applied in 5 sessions. Each session took about 30 to 45 minutes and taking in consideration the attention span of the patient. Methods of teaching were done individually for each patient and integrated lectures and real-life demonstrations and re demonstrations. Media used for teaching included a Microsoft power point presentation (ppt), illustrated pictures and mandibular fracture booklet (handout).

### 4- Evaluation Phase:

Evaluating the patient's response to the teaching program and the extent to which the outcomes have been achieved. The study patients were evaluated three times using the study tools:

**The first phase of evaluation (pre-test)** was conducted immediately on admission using all study tools (Tool I, II and III).

**The second phase of evaluation (post-test)** was done after two week during follow up for both groups using tool I (part III), tool II, and tool III.

**The third phase of evaluation** was done after four weeks during follow up for both groups using tool I (part III), tool II, and tool III.

Data were collected and analyzed and comparisons between the data for both the control and study groups finding were performed to evaluate the effectiveness of the mandibular fracture educational program using the proper statistical analysis.

### 3.11. Statistical analysis of the data:

The collected data were revised then analyzed, coded and fed to the acquired data was updated, then processed, coded, and fed into a personal computer, where IBM SPSS software package version 20.0 was used to analyze.

Qualitative statistics were designated by number and percentage. Measurable statistics were designated by range (minimum and maximum), mean, and standard deviation. Significance of result was as following:

- When p<0.05 there was statistically significant differences.
- When p<0.01 there was highly statistically significant differences.

The following statistical tests were used:

Student t- test, F-test (ANOVA), Pearson coefficient and Pearson's Chi square test.

## 4. Results

### Table 1:

The table shows that nearly two thirds (62.5%) of studied groups were in age group between 20 and 30 years old with the Mean age were 30.5 ±9.2 for the study group and 30.4 ±9.1 for control group. The majority of both study and control groups (85%, 72.5%) of the study group and control group respectively were males. With regard to educational level (62.5%) of the study group and (70.0%) of the control group were secondary education. Furthermore, above three fourth (80%) of the study group, and about two third (67.5%) of control group were working.

Also, in this table there were no statistically significant difference (P >0.05) between studied groups.

**Figure (1)** Concerning the causes of mandibular fracture this figure revealed that majority of study and control groups (72.5%, 85%) were suffering mandibular fracture as a result of road traffic accident.

**Figure (2):** This figure demonstrates that the majority of study group (97.5%) had unsatisfactory total knowledge level at pre-test, while nearly half of patients (52.5 %) had satisfactory total knowledge level at post-test. The highest score for satisfactory total knowledge (80%) were at follow-up. There were highly statistical significant differences (P<0.001) in level of knowledge at pre-test, post-test and follow up test

**Table (2)** This table displays that there were no statistical significant differences (P> 0.05) in BMI between studied groups pre-test and post-test. While, that there were a highly statistical significant differences (P<0.001) in BMI between studied groups at follow up.

*Table (3):* This table reveals that there were no statistical significant differences (P>0.05) in Maximal Mouth Opening, Pain rating scale and TMD disability index between studied groups at pre-test. In post-test statistical significant differences were found in Maximal Mouth Opening (P=0.03), Pain rating scale (P=0.03) and TMD disability index (P=0.017) between studied groups. There were highly statistical significant differences in Maximal Mouth Opening (P=0.00), Pain rating (P=0.001) and TMD disability index (P=0.046) between studied groups at follow-up test.

**Table (4)**: This table reveals that there were no statistical significant differences (P>0.05) between demographic characteristics and total knowledge for the study group. It appears from the table that (62.5%) had satisfactory total knowledge was in age group 20-30 years. Also more than half (53.1%) was unmarried. Related to education the greatest percentage (65.6%) was secondary education had satisfactory total knowledge.

**Table (1): Distribution of the studied groups according to demographic data (N=80).**

| Item | Study group (N= 40) | % | Control group (N= 40) | % | Chi square test X$^2$ | P |
|---|---|---|---|---|---|---|
| **Age** | | | | | | |
| 20 – 30 | 25 | 62.5 | 25 | 62.5 | | |
| 31 – 40 | 9 | 22.5 | 10 | 25.0 | 0.386 | 0.943 |
| 41 – 50 | 4 | 10.0 | 4 | 10.0 | | |
| 50 – 60 | 2 | 5.0 | 1 | 2.5 | | |
| Mean ± SD. | 30.5 ±9.2 | | 30.4 ±9.1 | | 0.049 | 0.961 |
| **Sex** | | | | | | |
| Male | 34 | 85.0 | 29 | 72.5 | 1.867 | 0.172 |
| Female | 6 | 15.0 | 11 | 27.5 | | |
| **Marital status** | | | | | | |
| Unmarried | 20 | 50.0 | 18 | 45.0 | 0.201 | 0.654 |
| Married | 20 | 50.0 | 22 | 55.0 | | |
| **Educational level** | | | | | | |
| Illiterate | 1 | 2.5 | 1 | 2.5 | | |
| Secondary | 25 | 62.5 | 28 | 70.0 | 0.530 | 0.767 |
| Higher | 14 | 35.0 | 11 | 27.5 | | |
| **Occupational status** | | | | | | |
| Working | 32 | 80.0 | 27 | 67.5 | 1.614 | 0.204 |
| Not working | 8 | 20.0 | 13 | 32.5 | | |

**Figure (1):** Distribution of study and control groups according to causes of mandibular fracture
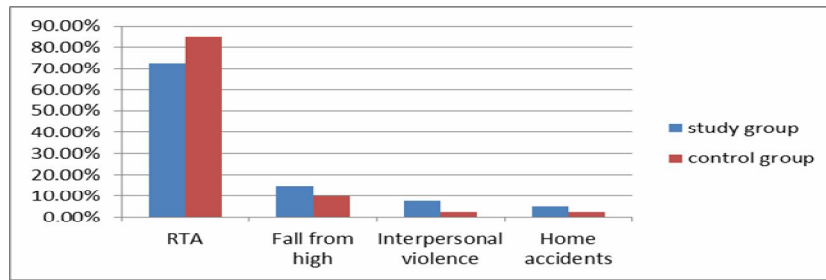


**Figure (2): Total knowledge score levels of study group at pre-test, post-test and follow-up test regarding mandibular fracture.**
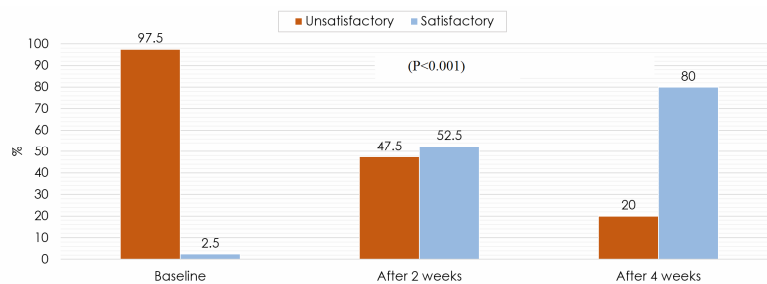


**Table (2): Frequency distribution of studied groups in relation to body mass index at pre-test, post-test and follow-up test**

| BMI | Study | | Control | | Chi square test | |
|---|---|---|---|---|---|---|
| | N | % | N | % | $X^2$ | P |
| **Pre-test** | | | | | | |
| Underweight | 0 | 0 | 0 | 0 | | |
| Normal weight | 31 | 77.5 | 34 | 85.0 | 0.738 | 0.738 |
| Overweight | 9 | 22.5 | 6 | 15.0 | | |
| **Post-test** | | | | | | |
| Underweight | 0 | 0 | 3 | 7.5 | | |
| Normal weight | 36 | 90.0 | 35 | 87.5 | 3.681 | 0.159 |
| Overweight | 4 | 10.0 | 2 | 5.0 | | |
| **Follow-up** | | | | | | |
| Underweight | 0 | 0 | 24 | 60.0 | | |
| Normal weight | 39 | 97.5 | 16 | 40.0 | 34.61 | <0.001* |
| Overweight | 1 | 2.5 | 0 | 0.0 | | |

**Table (3): Frequency distribution of the studied sample regarding mean scores of Maximal mouth opening, Pain rating scale, TMD Disability Index between studied groups at pre-test, post-test and follow-up test**

| Items | Study | Control | Student's t test | |
|---|---|---|---|---|
| | Mean ±SD | Mean ±SD | T | P |
| **Pre-test** | | | | |
| Maximal mouth opening | 0.32 ±0.08 | 0.35 ±0.10 | 1.103 | 0.273 |
| Rating pain scale | 9.0 ±0.8 | 9.2 ±0.7 | 0.845 | 0.400 |
| TMD Disability Index | 95.3 ±5.1 | 95.8 ±4.8 | 0.426 | 0.671 |
| **Post-test** | | | | |
| Maximal mouth opening | 1.30 ±0.2 | 1.16 ±0.2 | 3.118 | 0.003* |
| Rating pain scale | 2.68 ±1.1 | 3.38 ±1.0 | 3.014 | 0.003* |
| TMD Disability Index | 48.9 ±6.9 | 53.0 ±7.9 | 2.442 | 0.017* |
| **Follow-test** | | | | |
| Maximal mouth opening | 2.79 ±0.2 | 2.14 ±0.3 | 12.113 | <0.001* |
| Rating pain scale | 0.38 ±0.74 | 2.13 ±1.3 | 7.379 | <0.001* |
| TMD Disability Index | 13.8 ±7.2 | 19.5 ±12.1 | 1.681 | 0.046* |

**Table (4): Relation between the demographic characteristics and total knowledge for the study group**

| Item | Unsatisfactory (n=8) | | Satisfactory (n=32) | | Chi square test | |
|---|---|---|---|---|---|---|
| | n | % | N | % | $X^2$ | P |
| **Age** | | | | | | |
| 20 – 30 | 5 | 62.5 | 20 | 62.5 | 0.590 | 0.899 |
| 31 – 40 | 2 | 25.0 | 7 | 21.9 | | |
| 41 – 50 | 1 | 12.5 | 3 | 9.4 | | |
| 50 – 60 | 0 | 0.0 | 2 | 6.2 | | |
| **Sex** | | | | | | |
| Male | 8 | 100.0 | 26 | 81.2 | 1.765 | 0.184 |
| Female | 0 | 0.0 | 6 | 18.8 | | |
| **Marital status** | | | | | | |
| Unmarried | 3 | 37.5 | 17 | 53.1 | 0.625 | 0.429 |
| Married | 5 | 62.5 | 15 | 46.9 | | |
| **Educational level** | | | | | | |
| Illiterate | 0 | 0.0 | 1 | 3.1 | 1.143 | 0.565 |
| Secondary | 4 | 50.0 | 21 | 65.6 | | |
| Higher | 4 | 50.0 | 10 | 31.2 | | |
| **Occupational status** | | | | | | |
| Working | 6 | 75.0 | 26 | 81.2 | 0.156 | 0.693 |
| Not working | 2 | 25.0 | 6 | 18.8 | | |

## 5. Discussion:

The mandible is regarded the heaviest and strongest facial bone, but it is also more prone to fractures. Because it is an open arch, positioned in the lowest half of the face, and atrophies with age. Facial injuries affect not just the soft tissues, but also the bone, resulting in fractures. The mandible is connected by the strong muscles for various functions. They act as a splint and protect the mandible, but these powerful muscles can also cause massive displacement of the fracture fragments [17]. This study aimed to determine the effect of implementing teaching program on patient outcomes suffering mandibular fracture.

The result of the present study revealed that nearly two thirds of study group were in third decade of their life. The increased prevalence of mandibular fracture in this age group can be attributed to the fact that persons in this age group are more active socially, in business, sports, and high-speed transportation, making them more susceptible to mandibular fracture.

This is in line with Obimakinde et al, (2017) who mentioned that the higher prevalence of mandibular fracture was documented in the third decade of age . Another study by (Ahmed, Usmani, Shaikh, Iqbal, Hassan, & Ali 2018) stated that only slightly more than one third of the studied patients with mandibular fracture were in third decade of their age.

In relation to sex, this study showed that the majority of patients in both study and control groups were males. This male dominance could be attributed to male mobility and aggressive behaviour, as well as the fact that males engage in more outdoor activities while females engage in more interior activities. In resemblance with this result, Shankar et al., 2012 mentioned that the majority of patients were males. This also was supported by Senthilkumar, Priya & Anandan., (2017).

Concerning the causes of mandibular fracture, the findings of this study clarified that the mandibular fracture was caused by road traffic accidents in the majority of patients. This is may be due neglection to wear full-coverage helmets or using seat belt and don't follow safe traffic behaviors and fast driving. Shankar et al., (2012), Rajandram et al., (2013) and Senthilkumar, Priya & Anandan,( 2017) agreed this study and reported that road traffic accident the main cause of mandibular fracture in the majority of patient.

In the current study, there was statistical significant difference in patients' knowledge regarding mandibular fracture at pre-test, post-test and follow up in the study group. As the highest score for satisfactory total knowledge was at follow-up. This means that implementation of educational program affected positively on patients' knowledge.

This is in concordance with El Gamil, (2015) who found in his study that after implementation of the

teaching protocol about mandibular fracture, there were significant improvements throughout the teaching protocol at post-test and follow up.

In the present study there were statistical significant difference between control and study group at post-test and follow-up regarding knowledge about nutrition in which level of knowledge increased in the study group compared to control group. El Gamil, (2015) supported this result and concluded that data collected after the implementation of the nutritional teaching protocol showed significant improvements in patient knowledge's throughout the nutritional teaching protocol at posttest and follow up as measured by Mini Nutritional Assessment (MNA) scale.

Concerning jaw exercise and oral care study revealed that the most of our study sample had significantly increased level of knowledge after application of teaching program at post test and follow up this in agreement with with Khalifa, Essa & Elshall (2018) and Boljevic, Vukcevic& Pesic, (2019) another study by Van der Merwe & Barnes, (2015) confirmed that post-operative rehabilitation would have the benefit of enhancing the recovery and rehabilitation process. The majority of participants indicated that physiotherapy intervention should not only be provided when patients complain of functional impairment and pain, but as a routine preventative measure.

The patient's awareness is also essential to therapy success. Training the patient on how to perform the exercises and ensuring that they are done correctly are two actions that should be taken to prevent patient errors and increase the likelihood of effectively managing TMD. (Moraes, Sanches, Ribeiro & Guimarães, 2013).

Overall, mandibular fractures and their treatment were linked to a nearly 5% weight loss, which peaked at seven weeks after surgery. Trauma intensive care unit (TICU) when compared to patients who were not admitted to the TICU, a prolonged stay was associated with a larger weight loss. Christensen, Chapple, & King, (2019).

Based on the result of this study, it is clear that there was a highly statistical significant difference in BMI between studied groups at follow-up. Body weight loss is attributed to a loss of physical strength, and calorie restriction-induced weight loss has been related to reductions in muscle size and strength. It is commonly documented that individuals who receive IMF treatment typically lose weight.

El Gamil, (2015) and Kondo,et al, (2017) results are consistent with this study and mentioned that there was a statistical significance difference in both study and control groups regarding nutritional assessment which includes BMI, at follow up after discharge. In (Bobamuratova et al., 2018) study confirmed that body weight loss with nutrition support in interventional group was significantly lower than that control group.

Another study by (Kondo et al, 2017) revealed that despite the fact that mild oral injuries heal fast, usually within one or two weeks, malnutrition induced by low nutrient intake appears to begin at an early stage. He suggested that start nutrition intervention at an early stage is important for maintaining nutritional status, regardless of whether injuries are minor or severe.

On the light of this, Ghafoor kayani, (2015) and Senthilkumar, Priya, & Anandan, (2017) indicated that in surgically treated patients, weight loss occurred during the first postoperative week. This was probably due to the poor intake of proper diet due to surgical trauma Patients with mandibular fractures lost moderate weight during therapy, indicating deterioration in nutritional status. Additionally, Christensen & King, (2016) found that a portion of patients presented with preexisting evidence of poor nutritional status.

In relation to pain our study reveals that there were no statistical significance difference in rating pain scale at pre-test in study group and control group. While there was statistical significance difference in rating pain scale at post-test and follow up test in study and control groups. These results attributed to improvement of nutritional status which enhance the process of healing and pain level will decreased. Omeje, Efunkoya, Adebola & Osunde, (2015) reported relatively the same result.

In the current study it's clear that there were statistical significance difference in maximal mouth opening between study and control group at post-test and follow-up. This is may be due to the effect of implementing physical therapy for study group. This in agreement with Senthilkumar, Priya, & Anandan, (2017). Who illustrated that The mouth opening becomes normal in study groups after four to six weeks' time.

The result of the present study demonstrates that there were statistical significant differences in tempo mandibular disability index in study compared to control group at post-test and follow-up. This is in agreement with Khuman, Chavda, Surbala, Chaudhary, Bhatt & Nambi (2013). Who

has confirmed the efficacy of physical therapy intervention in the form of manual treatment, therapeutic exercise, and a home exercise programme in TMD following a mandibular fracture.

This study shows that there were no statistical significant relation between sociodemographic characteristics and total knowledge for the study group.

**6. Conclusion:**

It can be concluded that teaching program for mandibular fracture patients have improve the health status and decrease complication.

**7. Recommendation:**

**Based upon the result of the current study, the following recommendations can be suggested:**

- Patient knowledge should be assessed constantly, progressively and supplies them with needed knowledge.

- Provide adequate knowledge and skills about nutrition, oral care and jaw exercise to mandibular fracture patient to help them full recovery.

- Recommendations for Further Researches: Re-application of the study about mandibular fracture management on a large sample required from different hospitals in different geographical area in Egypt.

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