The Effect of Progressive Muscle Relaxation Techniques on the Reduction of Pain Levels in Gastristic Patients

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Abstract

Gastritis or ulcers or stomach disease is a collection of symptoms that are felt as pain, especially in the gut, people who suffer from this disease are often nauseous, vomiting, feeling full, and feeling uncomfortable. This study focuses on the muscle relaxation method that consists of stretching and relaxing as well as doing extension and flexion movements of a group of muscles, and feeling relaxed. The Quasi-experimental research method observational with a one-group pretest-posttest design approach was carried out in a hospital. Based on research conducted on 35 respondents, the level of pain before progressive muscle relaxation techniques, it obtained 8 people (22.9%) had moderate pain, 17 people (48.6%) severe pain, and 10 people (28.6%) very severe pain 0 %. Treatment was done with progressive muscle relaxation techniques in inpatient and outpatient care, it obtained 5 people with mild pain (14.3%), 15 people with moderate pain (42.9%), 8 people with severe pain (22.9%) and 7 people with very severe pain (20.0%). There is a significant influence of progressive muscle relaxation techniques on the level of pain in people with gastritis.

Keywords: Gastritis, Progressive Muscle Relaxation, Pain

Introduction

Background

Progressive muscle relaxation exercises are non-pharmacological relaxation that can provide a gentle massage of the various glands in the body, reduce cortical production in the blood, and restore sufficient hormone output to provide emotional balance and peace of mind [1]. Progressive muscle relaxation aims to determine the effectiveness of using muscle relaxation techniques in reducing pain.

Pain is one of the clinical manifestations that occur in gastritis patients. The pain that a patient feel is a heartburn or epigastric pain. Pain is an unpleasant sensory and emotional experience due to actual and potential tissue damage [2]. In general, the signs and symptoms that often occur in patients who experience pain can be reflected and the patient's behaviour, for example, voices (crying, moaning, exhaling). Facial expression (grimace, lip biting). Body movements (restlessness, tense muscles, pacing, etc.). Social interaction (avoiding conversation, time disorientation) [3]. Broadly speaking, pain is divided into 2, namely acute pain and chronic pain. Gastritis is a disease of the upper gastrointestinal tract that is mostly complained of in the community and is mostly found in the gastroenterology department. It is estimated that almost all
gastritis sufferers experience recurrence. One of the factors that can cause the appearance of gastritis symptoms is stress and the habit of consuming foods that can increase stomach acid [4]. The WHO research agency conducted a review of several countries in the world and got the percentage results of the incidence of gastritis in the world. Among them are Britain 22%, China 31%, Japan 14.5%, Canada 35%, and France 29.5%. The percentage of the incidence of gastritis in several regions in Indonesia is quite high with a prevalence of 274,396 cases out of 238,452,952 people [5].

The results of this study are in line with Widianingrum [6] study regarding the effectiveness of providing progressive muscle relaxation techniques in reducing pain in acute gastritis patients at Muara Teweh Hospital 2013 with the results of 25 respondents, the level of pain in acute gastritis patients before giving progressive muscle relaxation techniques was mild pain. 4 people (16%), moderate pain was 16 people (64%), severe pain was controlled by 5 people (20%). The level of pain in acute patients after giving progressive muscle relaxation techniques to gastritis sufferers was 1 person (4%), 12 people with mild pain (48%), moderate pain 7 orang (28%), 5 people with controlled severe pain (20 %). The sum ranks value shows that the rank value for the level of pain before the provision of progressive relaxation techniques is 71.50, while at the time after the provision of progressive relaxation techniques is 6.50. The Z value is 2.887 with a significant value of 0.004.

Based a preliminary survey conducted at Dr Pirngadi Hospital of Medan City obtained 176 gastritis sufferers' data from January to December 2019. Therefore, based on the survey results above, researchers conducted a study on the Progressive muscle relaxation exercises are non-pharmacological relaxation.

**Research Methods**

**Research design**

This type of research uses quantitative research with a quasi-experimental research method in an observational manner with a one-group pretest-posttest design approach. to determine the decrease in the level of pain in patients with gastritis after progressive muscle relaxation.

<table>
<thead>
<tr>
<th></th>
<th>X</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>O1</td>
<td>Pretest</td>
<td>O2 Posttest</td>
</tr>
<tr>
<td></td>
<td>treatment</td>
<td></td>
</tr>
</tbody>
</table>

Information:

O1: Before the progressive muscle relaxation technique (Pretest)

O2: After a progressive muscle relaxation technique (Posttest)

X: Progressive muscle relaxation technique

**Location and Time of Research**
This research was conducted at Dr Pirngadi Hospital Medan City starts from March 2019 to May 2019.

**Population and Sample**

The populations in this study were all 176 outpatients or inpatients of gastritis from January to December 2018. In this study, the number of samples taken using the Slovin formula, namely:

\[ n = \frac{N}{1 + Ne^2} \]

Note:

- \( n \) = Total of Sample
- \( N \) = Total of Population
- \( Ne \) = Level of mistakes 15% or 0,15

\[ n = \frac{176}{1 + 176(0.15)^2} \]
\[ n = \frac{176}{1 + 176(0.0225)} \]
\[ n = \frac{176}{4.96} \]
\[ n = 35.48 \]
\[ n = 35 \]

The sample size in this study was 35 people. Where the number of samples taken based on secondary data obtained from Dr Pirngadi Hospital Medan City. And the sampling technique is done through accidental sampling which is done by taking cases or respondents who happen to exist or are available in a place according to the context of the study.

In the sample study, the researcher also determined the inclusion criteria, namely:

1. Patients with Acute or Chronic Gastritis Both in inpatient and outpatient care
2. Can read and write
3. Willing to be interviewed

The exclusion criteria in this study are:

1. Unable to read and write
2. Not willing to be interviewed

**Method of collecting data**

The data used are primary data and secondary data. Primary data, namely data obtained by the author using an observational method which is a measuring tool by providing direct observation to respondents to look for changes or things under study. On the pain observational sheet using a descriptive analogue scale with the following criteria:

- a. 0: painless
- b. 1-3: mild pain: objectively able to communicate well
- c. 4-6: moderate pain: objectively the client hisses, grins, can show the location of pain, can describe it.
- d. 7-9: Severe pain: objectively the client sometimes cannot follow orders but is still responsive to the action can show the location of pain, cannot describe it, cannot be resolved by changing positions and distractions.
- e. 10: Very Severe pain: the patient is no longer able to communicate.

Secondary data is data on gastritis patients obtained from Dr Pirngadi Hospital Medan City.

**Data Processing**

In the data processing process, there are several activities carried out, namely:

- a. Editing

Editing is to check the completeness of the data that has been collected, if there are errors and deficiencies in data collection, it will be corrected by checking it and re-collecting the data.

- b. Coding

Coding, namely giving a code or mark on each data that has been collected to make it easier to enter into the table

- c. Tabulating

Tabulating is to simplify data analysis, data processing and data deduction in the form of a frequency distribution table

**Data analysis**

Analysis was carried out to determine the frequency distribution and proportion of each studied and analyzed to see the influence between independent and dependent variables. With the results of a significance of 0.05 with a confidence level of 95%. The test used in this study was the Paired T-test
Results and Discussion

Research result

Based on data collection conducted by researchers from March to May 2019, 35 respondents suffered from gastritis, 11 outpatients at gastro poly, 9 Asoka 1, 10 Asoka 2, and 5 dahlia 2.

1. Univariate Analysis

Table 1. Frequency Distribution of Respondents Based on Pain Levels in Gastritis Sufferers Before Progressive Muscle Relaxation Techniques at Dr Pirgnadi Hospital of Medan City Administration in 2019 (Pre-test)

<table>
<thead>
<tr>
<th>No.</th>
<th>Level of Pain</th>
<th>Frequences</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>0 (No Pain)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2.</td>
<td>1-3 (Mild Pain)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3.</td>
<td>4-6 (Moderate Pain)</td>
<td>8</td>
<td>22.9</td>
</tr>
<tr>
<td>4.</td>
<td>7-9 (Severe Pain)</td>
<td>17</td>
<td>48.5</td>
</tr>
<tr>
<td>5.</td>
<td>10 (Very Severe Pain)</td>
<td>10</td>
<td>28.6</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>35</td>
<td>100</td>
</tr>
</tbody>
</table>

Based on table 1 above, it can be seen that the level of pain of the respondents before the Progressive Muscle Relaxation Technique was carried out, the majority of respondents who suffered from gastritis felt a severe pain level of 17 people (48.6%).

Table 2. Respondents' Frequency Distribution Based on Pain Levels in Gastritis Sufferers After Progressive Muscle Relaxation Techniques at Dr Pirgnadi Hospital of Medan City Year 2019 (Post-test)

<table>
<thead>
<tr>
<th>No.</th>
<th>Level of Pain</th>
<th>Frequences</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0 (No Pain)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>1-3 (Mild Pain)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>4-6 (Moderate Pain)</td>
<td>8</td>
<td>22.9</td>
</tr>
<tr>
<td>4</td>
<td>7-9 (Severe Pain)</td>
<td>15</td>
<td>42.9</td>
</tr>
<tr>
<td>5</td>
<td>10 (Very Severe Pain)</td>
<td>5</td>
<td>14.3</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>35</td>
<td>100</td>
</tr>
</tbody>
</table>

Based on table 1 above, it can be seen that the level of pain of the respondents after being carried out by the Progressive Muscle Relaxation Technique, the majority of respondents who suffered from gastritis felt moderate pain levels as many as 15 people (42.9%).
Table 3 Results of Paired T-test Pain Levels in Gastritis Patients Before and After Progressive Muscle Relaxation Techniques at Dr Pirngadi Hospital Medan City in 2019.

<table>
<thead>
<tr>
<th>No.</th>
<th>Level of Pain</th>
<th>Average Value</th>
<th>P- Value</th>
<th>α</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Pre-test</td>
<td>24.529</td>
<td>0.000</td>
<td>0.05</td>
</tr>
<tr>
<td>2.</td>
<td>Post-test</td>
<td>14.684</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Based on table 3, it can be seen that the results of the paired T-test showed that the value of $p = 0.000 <0.05$ means that Ha is accepted, meaning that there is an effect of progressive muscle relaxation techniques on reducing the level of pain in patients with gastritis at Dr Pirngadi Hospital of Medan city.

**Discussion**

*Gastritis* is an inflammation of the stomach lining, which is fairly common and could have different causes. Many kinds of agents may lead the stomach into an inflamed statement; in the first place, it could be due to *non-steroidal anti-inflammatory drugs* (NSAID) such as aspirin, ibuprofen, naproxen, etc [7]. The gastritis constellation includes heterogeneous clinic pathological entities, among which long-standing, non-self-limiting gastritis, mainly due to *Helicobacter pylori* infection, has been epidemiologically, biologically, and clinically linked to gastric cancer development (i.e. "inflammation-associated cancer") [8]. The "gastritis" label is extensively (but inappropriately) applied to a spectrum of clinical symptoms relating to the upper abdomen, and the epigastrium in particular [9]. At endoscopy, gastritis is described as any reddening of the gastric mucosa, but neither of these endoscopic features is specific or exclusive to mucosal inflammation [10].

This study discusses the Effect of Progressive Muscle Relaxation Techniques on Decreasing Pain Levels in Gastritis Sufferers at Dr Pirngadi Hospital Medan City Year 2019. The design used is a quasi-experiment in the form of one group pre-test - post-test design. This discussion will be presented based on a univariate analysis of the independent and dependent variables, then followed by a bivariate analysis to find the effect of progressive muscle relaxation techniques on reducing pain levels in gastritis sufferers at Dr Pirngadi Hospital of Medan in 2019. According to Ignastivicious (in Tetti and Cecep 2018), progressive muscle relaxation is a method consisting of stretching and relaxation as well as extension and flexion movements of a group of muscles, as well as focusing on feeling relaxed, which aims to reduce pain.

Based on research that has been conducted on 35 respondents, all respondents followed the overall procedure of progressive muscle relaxation techniques for 35 people (100%). And based on the level of pain before the progressive muscle relaxation technique is carried out by asking the respondent the level of pain based on the visual analogue scale by matching it back to the
analogue face scale so that you get clearer data because it must be the same between the analogue scale and also the face analogue scale and data is obtained. Moderate pain 8 people (22.9%), severe pain 17 people (48.6%), and very severe pain 10 people (28.6%).

The results of this study are in line with Widyaningrum's [6] study regarding the effectiveness of providing progressive muscle relaxation techniques in reducing pain in acute gastritis patients at Muara Teweh Hospital 2013 with the results of 25 respondents, the level of pain in acute gastritis patients before giving progressive muscle relaxation techniques was mild pain. 4 people (16%), moderate pain was 16 people (64%), severe pain was controlled by 5 people (20%). After carrying out progressive muscle relaxation techniques for outpatient treatment, 11 respondents in the waiting room at the end of the gastro-clinic, the researcher placed a comfortable place near the garden of Dr Pirngadi Hospital of Medan City, this activity is carried out after registration in the poly before being examined by a doctor in the room. For inpatient care, the researchers conducted 9 people in Ashoka 1 room, 10 people in Ashoka 2, and 5 in Dahlia 2.

This activity was carried out in each patient's bed with the same series of procedures. After doing progressive muscle relaxation techniques in inpatient and outpatient care, data obtained from 35 respondents, 5 people with mild pain (14.3%), 15 people with moderate pain (42.9%), 8 people with severe pain (22.9%), and very severe pain in 7 people (20.0%). From these results, it can be seen that there is a decrease in the level of pain after progressive muscle relaxation techniques are applied.

The results of this study are in line with Widyaningrum's [6] study regarding the effectiveness of providing progressive muscle relaxation techniques in reducing pain in acute gastritis patients at Muara Teweh Hospital in 2013 with the results of 25 respondents of pain levels in acute gastritis patients after giving progressive muscle relaxation techniques to gastritis sufferers. 1 person (4%), mild pain was 12 people (48%), moderate pain was 7 (28%), severe pain was controlled by 5 people (20%).

Based on the results of the above research, it can be seen that there is an influence on progressive muscle relaxation techniques to reduce the level of pain in gastritis sufferers at Dr Pirngadi Hospital of Medan City. Through the Paired T-test statistical test, it was proven that the value of $p = 0.000 < \alpha = 0.05$, which means that $H_0$ is accepted, that is, there is an effect of progressive muscle relaxation techniques on the level of pain in patients with gastritis. The $p$-value is obtained from the sig-2tailed value which distinguishes between the two pretest and posttest scores.

Progressive relaxation techniques are easy for anyone to do at any time and can be done at home if pain occurs. Progressive muscle relaxation techniques do not relieve pain from severe pain to no pain but can reduce pain, for example from severe pain to mild pain. The progressive relaxation technique has no side effects because it is a non-pharmaceutical activity.

The results of this study are in line with Widyaningrum's [6] research on the effectiveness of providing progressive muscle relaxation techniques in reducing pain in acute gastritis patients at Muara Teweh Hospital (2013) and wanted to find out how effective progressive muscle relaxation techniques are in acute gastritis sufferers. Pain in acute gastritis patients, the sum
The rank value shows that the rank value for the pain level before the provision of progressive relaxation techniques is 71.50, while at the time after the provision of progressive relaxation techniques is 6.50. The Z value is 2.887 with a significant value of 0.004.

Researchers assumed that the administration of progressive muscle relaxation techniques performed in inpatients was more influential. After all, they found patients who were able to rest and were comfortable, whereas outpatients did not concentrate on progressive muscle relaxation because they were rushed by a doctor's call. So, a comfortable place and an ideal atmosphere are very influential with the results carried out.

**Conclusions and Suggestions**

**Conclusion**

From the results of research conducted on the effect of progressive muscle relaxation techniques on reducing pain levels in gastritis sufferers at Dr Pirngadi Hospital of Medan City in 2019, the following conclusions can be drawn:

1. The level of pain in gastritis patients varies in intensity depending on how severe the inflammation is, and the level of pain can be seen from the analogue face scale measurement which is supported by the analogue scale measurement.
2. Progressive muscle relaxation techniques, non-pharmacological activities that focus on relaxing thoughts that cause the parasympathetic nerves to work to resolve pain.
3. There is an influence on progressive muscle relaxation techniques on the level of pain in people with gastritis.
4. Progressive muscle relaxation techniques can be done anytime and anywhere because it is very easy to do and there are no side effects nor does it cost money.

**Suggestion**

1. For Respondents For gastritis respondents who already know the effect of progressive muscle relaxation techniques on the level of pain in gastritis sufferers, they should continue to do progressive muscle relaxation techniques that can be done alone at home or can be assisted by a family member.
2. For Nursing Institutions For institutions, it can increase the capacity and quality of education so that the results of this study can be used as additional material to enrich knowledge about the effect of progressive muscle relaxation techniques on reducing pain levels in patients with gastritis.
3. For further researchers, it is hoped that this research can develop using more complete variables and can use other respondents besides gastritis at Dr Pirngadi Hospital of Medan city.
4. The Hospitals are expected to make special days to carry out progressive muscle relaxation techniques to reduce the level of pain in patients with gastritis.
References