Abstract

Background: Asthma is a common chronic respiratory disease that affects around 300 million people of all ages worldwide so that it has an impact on patients both physically, activity restrictions, and psychosocially, in terms of quality of life.

Objective: This study aims to assess the effectiveness of Asthma Self Management Education (ASME) to improve the quality of life of people with asthma.

Design: The design of this study uses a literature review.

Data Sources: Initial searches of journal articles were performed on the Pubmed, Science Direct, and Google Scholar search databases from 2017-2021 with the keyword Asthma self management education. The ASME study found 807 articles but only 7 journal articles that met the search inclusion criteria.

Review Methods: A literature review procedures were used to collect library data, reading and taking notes, as well as critical assessment of managing research materials.

Results: According to the results of the literature review, ASME has several variants with an average duration of ASME being carried out for 6 months to 15 months. Asthma control is measured to assess lung function and behavioral changes in individuals with asthma. The ASME technique is effective as an educational method in improving lung function, asthma control, quality of life, and behavior change which are important components of asthma sufferers.

Conclusion: The application of ASME technical interventions to asthma sufferers can be used as an educational program to improve behavior changes that can control asthma symptoms non-pharmacologically.

Keywords: Asthma, Asthma Control, Asthma Self Management Education (ASME), Quality Of Life

INTRODUCTION

Asthma is characterized by disease characteristics with variable airflow obstruction, airway hyperresponsiveness and airway inflammation (Maisyaroh, 2017).
Asthma is a chronic respiratory condition that is encountered with episodes of physiological airway narrowing that causes symptoms of wheezing, shortness of breath, and mucus production. The trajectory of symptoms varies from mild, moderate to severe episodes that can be fatal. The effects of this chronic disease are known to have an impact on patients both physically, limiting activities, and psychosocially, in terms of quality of life (McTague, 2019).

One of the causes of asthma can occur in the agricultural environment. According to Widianto (2020) work in agriculture is one of the jobs that are at risk with accident and death rates. Farmers may experience a variety of chronic illnesses and diseases similar to the general population; however, there is evidence that they are at increased risk of acute occupational injuries, certain chronic illnesses and pesticide illnesses (Maisyaroh dkk., 2022).

According to the World Health Organization (WHO) in 2020, until now, the number of people with asthma worldwide is estimated at 300 million, and this number is expected to continue to increase to 400 million in 2025. Worldwide, asthma is one of the top 5 causes main cause of death with 17.4%. The disease has indeed increased over the past 20 years, with a projected 20% increase in mortality over the next 10 years. WHO estimates that 255,000 patients died from asthma in 2005 (Kweon, 2017). According to Restrepo Klinge (2019) the study was carried out at the Emergency Room at Klungkung Hospital which explained that 24 people (35.3%) had controlled asthma and 44 people (64.7%) had uncontrolled asthma. The quality of life of bronchial asthma sufferers showed that 41 people (60.3%) had quality of life problems and 27 people (39.7%) did not experience problems. Quality of life can be compromised by uncontrolled or poorly controlled asthma.

Asthma that is not handled properly can cause an increase in morbidity, and the symptoms will get worse and interfere with quality of life, and can be fatal to death (Kurnianto dkk., 2022).

Self-management education can help young people overcome these barriers. Asthma Self Management Education (ASME) is a health education program created to help individual or community attitudes from unhealthy behavior to healthy behavior by using an educational process. In this context it is related to appropriate and rational treatment techniques that can control asthma symptoms and the quality of life of asthma sufferers (CDC, 2018).

Adolescent and adult populations have major adaptive needs in benefiting from educational support making it highly effective to take responsibility and turn to self-care (Buckner dkk., 2018).

Various ASME variants with an average ASME duration of 6 months to 15 months, so it is necessary to analyze the variants with the right duration to assess lung function and behavior changes in individuals with asthma.

This study aims to assess the effectiveness of Asthma Self Management Education (ASME) to improve the quality of life of people with asthma. The ASME technique is effective as an educational method in improving lung function, asthma control, quality of life, and behavior change which are important components of asthma sufferers. The application of ASME technical interventions to asthma sufferers can be used as an educational program to increase behavior change that can control asthma symptoms non-pharmacologically.

METHODS

Design

This research is a literature review, a comprehensive review of several research studies are determined based on the theme of effectiveness ASME on improving the quality of life of asthma sufferers.

Search Methods

Literature search in this literature review used the Pubmed, Science Direct and Google
Scholar databases with the keywords used when searching for "Asthma self management education AND asthma" or "Asthma self management education AND asthma". Literature searches based on the last five years (2017-2021) and articles that will be used in this literature review must meet the full text requirements. After that, the selected articles will be reviewed.

Table 1 Keywords Literature Review

<table>
<thead>
<tr>
<th>Database</th>
<th>Keyword</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pubmed</td>
<td>&quot;Asthma Self Management Education&quot; AND &quot;Asthma&quot;</td>
<td>434</td>
</tr>
<tr>
<td>Science Direct</td>
<td>&quot;Asthma Self Management Education&quot; AND &quot;Asthma&quot;</td>
<td>149</td>
</tr>
<tr>
<td>Google Scholar</td>
<td>&quot;Self Management Education&quot; AND &quot;Asthma&quot;</td>
<td>224</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>807</td>
</tr>
</tbody>
</table>

Search Outcome

- Number of Articles from Searches in various Databases: Pubmed = 434, Science Direct = 149, Scholar = 224
- Number of Articles that have been filtered based on the Year 2017-2021 (n=807)
- Number of articles that have been filtered based on full text (n=801)
- Number of articles that are not full text (n=6)
- Number of articles that have been filtered based on Randomized Controlled Trial (n=456)

Quality Appraisal

The author carries out careful and precise evaluations by using an assessment of the quality of research studies that have been found using the Critical Appraisal Skills Program (CASP). Assessment considerations are given a value of yes, no, or unclear. Each score with the value "yes" is given one point and the others are given a score of zero, then each score is calculated and summed up. If the overall result is less than 50% then it does not pass the critical assessment test and more than 50% then it passes the critical assessment test. Journal quality reviewed are those that pass critical appraisal as many as 7 articles.

Inclusion And Exclusion Criteria

This selection was made based on eligibility according to the inclusion and exclusion criteria.

Table 2 PICOS Format in Literature Review

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Inclusion</th>
<th>Exclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>Asthma sufferers range from adolescents to adults</td>
<td>Children and family</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Intervention</th>
<th>Asthma Self Management Education</th>
<th>Non Asthma Self Management Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comparators</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Outcomes</td>
<td>There is effectiveness of asthma self-management education to improve the quality of life of people with asthma</td>
<td>There is no effectiveness of asthma self-management education to improve the quality of life of asthma sufferers</td>
</tr>
<tr>
<td>Study Design</td>
<td>Randomized controlled trial</td>
<td>Case control studies, cohort studies, quasi experimental studies</td>
</tr>
<tr>
<td>Publication Years</td>
<td>2017-2021</td>
<td>Pre-2017</td>
</tr>
<tr>
<td>Language</td>
<td>Indonesian and English</td>
<td>Language other than English and Indonesian</td>
</tr>
<tr>
<td>Text Availability</td>
<td>Full text</td>
<td>Not full text</td>
</tr>
</tbody>
</table>

**RESULT**

Ten studies analyzed in the review. This library uses different interventions (Table 3).

**Improved Quality of Life**

Quality of life according to the World Health Organization Quality of Life (WHOQOL) is an individual's perception of their place in the cultural context and related to set goals, expectations, and standards. It also affects physical health, mental state, level of independence, social relationships, beliefs, and relationships with the environment (Mutianisa, 2017). Quality of life is often used as a benchmark in chronic disease conditions (Luthfa dan Fadhilah, 2019). Based on the research of Rhee dkk. (2020) explained that Quality Of Life (QOL) increased significantly from the start of the training to post-training and was further improved from time to time. Apter dkk. (2019) stated that the AQLQ is rated on a scale of 1 to 7 points, with a higher score indicating a better quality of life related to asthma.

**ASME effectiveness**

Statistical test results from 7 articles obtained a p value = <0.05 which means significant and 1 article was not significant because it did not conclude the results of the p value but the results affected the improvement of asthma control.

According to Rhee dkk. (2020) demonstrated long-term positive effects of peer-led asthma management programs on various asthma outcomes, including quality of life, asthma control, knowledge and attitudes related to asthma in adolescent peer leaders. Rhee dkk. (2021) said peer-led asthma self-management education was more effective than adult-led programs in improving asthma outcomes, with continuous improvement for up to 15 months with a statistical test result of P=0.001. Meanwhile, according to Liao dkk. (2019) said there is evidence to support the effectiveness of goal setting interventions in improving asthma control, quality of life and self-efficacy in adult asthma patients.

**CONCLUSION**

Most of the identification results for the implementation of ASME use a combination of ASME and PLASMA with the required duration of 6-15 months. While the improvement in the quality of life of asthma patients showed an overall increase, where a scale of 1 to 7 points, with a larger score indicating a better quality of life related to asthma. Assessment of quality of life using the AQLQ measurement tool. From the conclusions above, the application of ASME interventions for asthma sufferers can make educational programs to improve behavior changes that can control asthma symptoms and quality of life non-pharmacologically.
<table>
<thead>
<tr>
<th>Writing, Year</th>
<th>Title</th>
<th>Population / Sample</th>
<th>Outcome</th>
<th>Intervention</th>
<th>Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farag, et al. 2018.</td>
<td>Asthma action plan for bronchial asthma self-management proactiveness in adults: a test randomized controlled trial.</td>
<td>320 asthma patients chronic.</td>
<td>Randomized controlled trials</td>
<td>AAP</td>
<td>a. The measuring instrument used by ACT is 6 month b. The value of p&lt;0.0001 indicates effective in improve asthma control</td>
</tr>
<tr>
<td>Kohler, et al. 2020.</td>
<td>Self-Management Program Internet-Based Asthma Increase Knowledge About Asthma.</td>
<td>82 participants</td>
<td>Randomized controlled trials</td>
<td>AE</td>
<td>a. The measuring tool used by ACT is with a duration of 12 month b. The value of p &lt;0.001 indicates effective in improve asthma control</td>
</tr>
<tr>
<td>Rhee, et al. 2019.</td>
<td>Fidelity of management interventions peer-led asthma self and deep attention control youth multi-site study urban.</td>
<td>Old teenager 12-17 years (N = 259).</td>
<td>Randomized controlled trials</td>
<td>PLASMA</td>
<td>a. The measuring instrument used is ACQ with a duration of 12 month b. The value of p &lt;0.001 indicates effective in improve asthma control</td>
</tr>
<tr>
<td>Buckner, et al. 2018.</td>
<td>Education programs Asthma Independent Management Interprofessional Based School for School Students Intermediate: Eligibility Trial</td>
<td>Student medium with asthma diagnosis (N=18).</td>
<td>Randomized Controlled trials</td>
<td>ASME</td>
<td>a. Measuring tools used are ACT and PAQLQ b. There is a significant increase in quality of life from 18.45 to 45.82 c. The value of p&lt;0.000 indicates effective in improve asthma control and quality of life</td>
</tr>
<tr>
<td>Rhee, et al.</td>
<td>Long Term Effectiveness of Old teenager Randomized controlled</td>
<td>Old teenager Randomized controlled ASME</td>
<td>a. The measuring tool used is PAQLQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year</td>
<td>Study Description</td>
<td>Participants</td>
<td>Outcome Measures</td>
<td>Outcome Details</td>
<td></td>
</tr>
<tr>
<td>----------</td>
<td>------------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------</td>
<td></td>
</tr>
</tbody>
</table>
| 2021     | Asthma Self Management Program Peer-led against Outcomes of Asthma in Adolescents Living in an Urban Area. | 12 to 17 year with persistent asthma (N=320). | Randomized Controlled trials with duration 15 months. | a. Measuring tools used are ACQ and AQLQ with a duration of 12 months.  
  b. There is a quality of life that is better than 0.38 to 0.63.  
  c. The value of p <0.001 indicates effective in improve the quality of life of asthma. |
| 2019     | Home visits for asthma uncontrolled in between income adults low with portal access patient. | Three hundred and one adults with asthma who does not controlled. | Randomized Controlled trials ASME. | a. Measuring tools used are ACQ and AQLQ with a duration of 12 months.  
  b. Quality of life increased at the start of training 2.4 to 3.6 after training.  
  c. The value of p <0.05 indicates that it is effective in improve asthma control and quality of life. |
| 2020     | Long term effects of asthma self-management program led by colleagues peers on asthma outcomes on adolescent peer leaders. | 51 youth (16-20 years) the registered in program management asthma independent. | Randomized controlled trials PLASMA. | a. Measuring tools used using ACQ and AQLQ with a duration of 15 months.  
  b. QOL increased from baseline to 16.5 post training 24.5 and more improved from time to time.  
  c. The value of p <0.001 indicates effective in improve the quality of life of asthma. |
Table 4 Statistical Test Results

<table>
<thead>
<tr>
<th>No</th>
<th>Journal articles</th>
<th>Statistical Test Results</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>(H. Farag et al., 2018)</td>
<td>P = 0.0001</td>
<td>significant</td>
</tr>
<tr>
<td>2.</td>
<td>(Apter et al., 2019)</td>
<td>P = 0.05</td>
<td>significant</td>
</tr>
<tr>
<td>3.</td>
<td>(B. Kohler et al., 2020)</td>
<td>P = 0.001</td>
<td>significant</td>
</tr>
<tr>
<td>4.</td>
<td>(Buckner et al., 2018)</td>
<td>P = 0.000</td>
<td>significant</td>
</tr>
<tr>
<td>5.</td>
<td>(Rhee et al., 2019)</td>
<td>P = 0.001</td>
<td>significant</td>
</tr>
<tr>
<td>6.</td>
<td>(Rhee et al., 2020)</td>
<td>P = 0.001</td>
<td>significant</td>
</tr>
<tr>
<td>7.</td>
<td>(Rhee et al., 2021)</td>
<td>P = 0.001</td>
<td>significant</td>
</tr>
</tbody>
</table>

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AUTHOR CONTRIBUTION
Novarika Aliya Rizky: Main authors, conceptualization, methodology, analysis, resources.

Arista Maisyarah: Conceptualization, methodology, formal analysis, resources, data curation.

Dwi Ochta Fibrianti: Validation, formal analysis, data curation.

Syaiufuddin Kurnianto: review writing and editing.

Eko Prasetya Widianto: review writing and editing.

ORCID
Novarika Aliya Rizky: None

Arista Maisyarah: 0000-0001-7849-1186

Dwi Ochta Fibrianti: 0000-0003-1528-9006

Syaiufuddin Kurnianto: 0000-0001-7060-9389

Eko Prasetya Widianto: 0000-0002-4749-3776

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