

The Relationship Between Self-Efficacy And Self-Management Among Teenager With Asthma: A Systematic Review

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Abstract

Asthma is a chronic reactive airway disease caused by a variety of variables, one of which is psychological. Adolescents are prone to psychological issues. Adolescents frequently face difficulties and feel frustrated as a result of the conditions they face, but most adolescents employ a variety of strategies to overcome the problems that arise. Self-efficacy can lead to good self-management. To investigate the relationship between self-efficacy and self-management in asthmatic teenagers. The search strategy is to conduct Pubmed and Google Scholar s for articles that have been published. The term “asthma” is a combination of the words “adolescents” and “self-efficacy” and “self-management” The search criteria were as follows: research on asthma patients who were teenagers, published between 31th January 2004 and July 20 2020, in English, full text, and of quantitative nature. A cross-sectional study evaluated each article for quality using a standard format from The Joanna Briggs Institute Critical Appraisal Tools (JBI). Only five articles were found that matched the search criteria. The relationship between self-efficacy and self-management were found to be associated inconsistent. Four studies reported significantly associated, while one study found no significant correlation between self-efficacy and self-management in asthmatic teenagers. Efficacy has an effect on self-management in adolescents with asthma. Adolescents with asthma must have a high level of self-efficacy to feel more confident in dealing with their situation, make positive changes, and maintain reasonable asthma control.

Keywords: Asthma, Adolescents, and Self Efficacy

Introduction

Asthma is a non-communicable disease characterized by shortness of breath and recurring wheezing, which varies in severity and frequency depending on the individual. Asthma is commonly referred to as reactionary airway disease, involving several factors, including biochemistry, immunology, endocrine, infectious, autonomy and psychology. Asthma is an unhealable disease, but if it is correct, therapy and the patient's knowledge are good, it can lead to good control and management of asthma (WHO, 2017; Black, 2014; WHO, 2019).

Asthma is characterized by wheezing episodes, shortness of breath, steepness of the chest and repeated cough. Symptoms of asthma may occur several times a day or week and for some individuals. These symptoms can worsen at night, leading to sleeping difficulty and reduced activity levels, which can lead to school or work absence (LeMone, 2015; WHO, 2017).

Around 235 million asthma patients worldwide are killed, and in developing countries, more than 80 percent are killed. In 2015, 338,000 asthma deaths were reported. In 2019, the incidence of asthma in Bandung was 9,680. The total number of asthma deaths in the city of Bandung has increased in the last two years, with 68 deaths in total due to asthma in 2017 and 127 deaths in 2018. (WHO, 2019; DinKes Kota Bandung, 2019).

Despite effective therapies, adolescents with asthma have much less control of the disease. Poor asthma control will lead to less self-management, particularly in medication adherence. In addition, chronic adolescents may experience development and growth problems that can lead to physical, cognitive, communication, motor, adaptive or social delays compared to ordinary children (Holley et al., 2019; Soetjningsih, 2004).

Young people often have difficulties and feel frustrated by the conditions they face. Young people with chronic conditions usually use a number of mechanisms to overcome the problems. However, the system often used by young people is to deny their situation, and young people will usually not accept their conditions easily, leading to feelings of anger, frustration and blame on their parents

or health workers (Soetjningsih, 2004).

Self-efficacy is defined as "belief in the ability of a person to organize and take the necessary measures to handle a future situation." Good autonomy can lead to good autonomy. Management of self-efficacy in asthma includes strategies used to prevent and manage the symptoms. Self-effectiveness management is an important concept because self-efficacy in adolescents with asthma has a connection with good medication adherence (Holley et al., 2019).

Results of the Surakarta research with as many as 63 breast cancer patients have a strong positive effect on global health status between self-efficacy. Bandung research in 40 parents of kids with cancer showed that most parents undergoing childhood cancer treatment have a high degree of self-efficacy, namely 23 people (57, 5 percent). The Canadian study on COPD patients demonstrated a positive relationship between self-efficacy and HRQOL. Research in China with a sample of 452 patients with lung cancer demonstrated that self-efficacy results have a direct and indirect impact on the quality of life of the patients suffering from resection (Lusiatun, et al., 2019; Hendrawati, et al. 20 19; Selzler et al. al., 2019; Chen, Kun & Qing - Sheng, 2018).

Research results from 764 cancer patients surveyed in China revealed that self-efficacy significantly affects coping style. Another study in New Zealand showed that parents describe self-efficacy as important for managing their children's health by interviews with 23 parents. Research in Brazil, with 216 parents or caregivers responding, has obtained significant results related to the connection between self-efficacy in children with asthma and the self-control parameters of asthma (Geng et al., 2018; Jones, et al., 2016; Gomes et al. ., 2018). However, few review have summarized the relationship between self-efficacy with and self-management among teenager with asthma. Thus, this review aimed to summarized the relationship between self-efficacy and self-management among teenager with asthma.

Method

Research types

The purpose of this study is to conduct a systematic review of the available literature to ascertain the findings of previous studies on self-efficacy in adolescents with asthma. A systematic review of the literature is a term that refers to specific research or research methodologies and developments that are used to collect and evaluate research on a particular focus topic (Lusiana in Triandini, 2019). The PICO was as follows: 1) population: adolescent asthmatic patients, 2) intervention: self-efficacy, and 3) self-management.

Search Strategy

The search strategy is to conduct Pubmed and Google Scholar s for articles that have been published. For example, the term “asthma” is a combination of the words “adolescents” and “self-efficacy” and “self-management”. The search criteria were as follows: research on asthma patients who were teenagers, published between January 31 2004 and 20th July 2020, in English, full text, and of quantitative nature.

Quality Assessment Study

Each article was evaluated for quality using

a standard format from The Joanna Briggs Institute Critical Appraisal Tools (JBI) for a cross-sectional study that included eight checklist items. The checklist’s eight items include an explanation of the sample’s inclusion and exclusion criteria, a detailed explanation of the subject and location of the study, a determination of whether the study uses a valid instrument, a determination of whether a special standard is used to measure the instrument, a determination of whether the confounding factor is explained, and a determination of whether the measured outcome is valid and reliable. There are four response options for each of the eight items: yes = if the item matches the JBI checklist, no = if the item does not match the checklist, unclear = if the research journal is explained but not clear, and not applicable = cannot be applied. The conclusion is then drawn based on the review’s findings; the more affirmative responses in the JBI critical appraisal column, the better and more valid the journal.

Result

A Pubmed search using the keywords asthma, adolescents, and self-efficacy returned 254 articles. The articles obtained are then screened and reviewed against the study’s predetermined inclusion criteria; journals that do not meet the predetermined inclusion criteria are excluded. Only five articles were

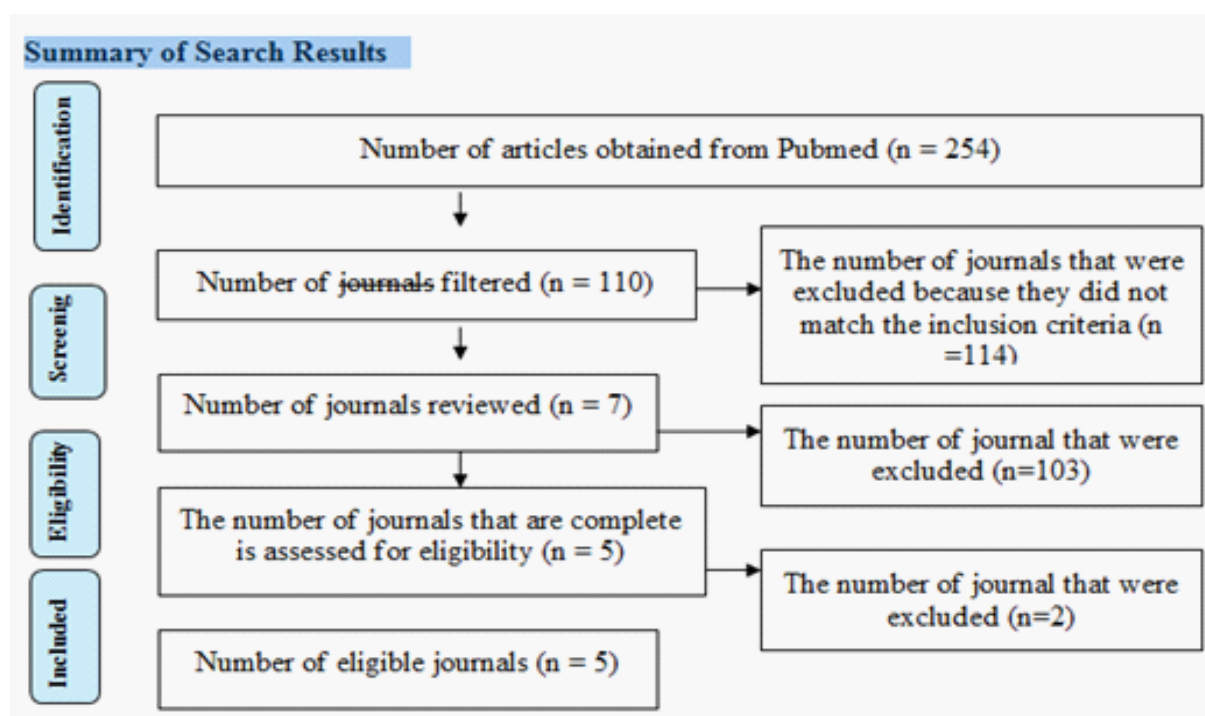


Chart 1: Summary of Search Result

found that matched the search criteria.

Characteristics of the Research

Five articles were included in the literature review based on the inclusion criteria established. The five articles were published between 2004 and 2020. There are similarities and differences between the five articles, including the number of respondents, their characteristics, the location of the research, the research methods, the instruments used, and the research results, as described below:

The total number of respondents

Zebracki's (2004) study surveyed a total of 77 respondents. Ayala's 2009 study surveyed a total of 12,174 respondents. Rhee et al. (2009) surveyed 126 respondents. Rhee et al. (2018) surveyed 373 respondents. 371 adolescents were diagnosed with asthma as a result of clinical or school referrals in Rhee et al. (2020) . 's study.

Location of Research

Zebracki's (2004) research took place in the United States. Ayala's (2009) research took place in the United States. Rhee et al. (2009) conducted their research in New York. Rhee et al. (2018) researched in the United States. Rhee et al. (2020) study was conducted in

the United States.

Characteristics of Respondents

Zebracki's (2004) study enrolled adolescents aged 11 to 7 years who visited the Central West Children's Hospital's pulmonology clinic on a routine basis. Ayala's (2009) study enrolled students in grades 7 and 8, with an average age of 13 years, who self-reported having asthma diagnosed by doctors in NCSAS. Rhee et al. (2009) conducted a study on adolescents between the ages of 13 and 20. Rhee et al. (2018) conducted research on adolescents between the ages of 12 and 20 years. Rhee et al(2020) . 's study examined adolescents aged 12-20 years who suffer from asthma.

Study design

Zebracki's (2004) research employed a cross-sectional design and data processing techniques such as paired-sample t-tests and chi-square analyses. Ayala's (2009) study employed a cross-sectional method, and data analysis included descriptive univariate statistics, one-way ANOVAs, and multivariate linear regressions. Rhee et al. (2009) used a

cross-sectional research design, descriptive statistics, one-way analysis of variance, and Pearson correlation coefficient to process their data.

Rhee et al. (2018) conducted a cross-sectional study and processed data using Pearson correlations and multiple linear regression. Rhee et al. (2020) conducted a cross-sectional study and processed data using Pearson correlation coefficients and multiple linear regressions.

Instrumentation used

Zebracki's (2004) study incorporated the Asthma Self-Efficacy Instrument. Ayala (2009) conducted research using the ISAAC questionnaire. Research Rhee et al. (2009) assessed asthma self-efficacy using the Asthma Self-Efficacy Instrument. The Asthma Expectation scale was used in Rhee et al(2018) .'s research. The Asthma Outcome Expectation-self-efficacy subscale (AOE-SE) instrument, the Asthma Management Index-self-efficacy subscale (AMI-SE), and the Asthma Self-Efficacy scale were used in Rhee et al(2020) .'s study (ASE).

Summary of the Research Findings

Zebracki's (2004) study states that self-

efficacy is associated with adherence but not with self-management or asthma morbidity. According to Ayala's (2009) research, healthy self-efficacy benefits adolescents with asthma by preventing exacerbations. Adolescents who lack confidence will have difficulty preventing possible exacerbations. Rhee et al. (2009) discovered that self-efficacy has a significant effect on the barrier factors affecting adolescents' self-management of asthma, including health service factors, negative barriers, cognitive difficulty, social influence, and denial. Self-efficacy will help adolescents overcome obstacles to self-management of asthma.

According to Rhee et al. (2018), high self-efficacy is associated with a perception of low barriers and higher outcome expectations. Self-efficacy improves adherence to treatment and asthma control in adolescents, and self-efficacy independently predicts fewer missed doses. Self-efficacy can help adolescents overcome perceived barriers to self-management of asthma. Perception barrier (perceptions of the barrier) is predicted to be capable of controlling asthma and compliance treatment on its own. According to Rhee et al. (2020), self-efficacy has a strong correlation with quality of life, medication adherence, asthma control, and knowledge.

Table 2: Summary of Research Characteristic

No.	Author, Year, Place	Sample	Instrument	Data Analysis Techniques	Result	JBI Value
1	Zebracki, Kathy and Dennis Drotar 2004, Cleveland, United States	Sample: Seventy-seven adolescents who routinely attend the pulmonology clinic at the Central West Children's Hospital. Inclusion Criteria: 11-17 years old, has been diagnosed with asthma for at least one year, previously had asthma symptoms for more than 3 days in the last 12 months, has mild to severe persistent asthma, only has asthma as the only chronic disease experienced, and speaks English.	Asthma Self-Efficacy	Data processing was performed using Paired-sample t-tests, and chi-square analyzes on descriptive variables, predictors, and outcomes.	1. In this study, self-efficacy was associated with three predictors, namely self-management, adherence, and morbidity. 2. Self-efficacy has a significant relationship with adherence with scores ($\beta = .30, p < .05$), $F(2.65) = 2.69, p = .08$. 3. Self-efficacy did not have a significant relationship with self-management and asthma morbidity.	7

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2	Ayala, Karin, and Delesha, 2009, USA	Number of Samples: 12,174 participants Inclusion Criteria: Youth in grades 7 and 8.	ISAAC questionnaire	Data processing was performed using descriptive univariate statistics, one-way ANOVAs, and multivariate linear regressions.	<ol style="list-style-type: none"> 1. Self-efficacy affects adolescents with asthma. 2. Teenagers who have self-efficacy that either will have the ability to prevent exacerbations suffered from asthma, adolescent Kaena chose a self-management was good, including inhalers bring them to school, knowing how to use a flow meter, and having access to resources for asthma. 3. Adolescents who have less self-efficacy will find it challenging to prevent exacerbations because adolescents often forget to bring medicines. 	7
3	Rhee, Michael, Susan and Judith, 2009, New York	Number of Samples: 126 adolescents with asthma (aged 13–20 years) Inclusion Criteria: Diagnosed with asthma at least 1 year and have specific persistent asthma as determined by the Expert Panel Review 3 (EPR3), understand English both orally and in writing. Exclusion Criteria: If you have chronic health problems or other emotional problems that require daily medication or learning disabilities based on reports from parents, teachers, or doctors.	Asthma Self-Efficacy	Descriptive statistics are used to assess the level of resistance in the sample. One-way analysis of variance and Pearson correlation coefficient was used to examine the bivariate relationship between barriers and socio-demographic variables.	<ol style="list-style-type: none"> 1. Self-efficacy can significantly influence the barrier factors in asthma self-management in adolescents, which include health service factors ($\beta = -0.40$, $p < 0.001$), negative barriers ($\beta = -0.32$, $p < 0.001$), cognitive difficulty ($\beta = -0.30$, $p < 0.001$), social influence ($\beta = -0.26$, $p < 0.01$), and denial ($\beta = -0.18$, $p < 0.05$). 2. Self-efficacy is high will lower the barriers to self-management of asthma in adolescents. 	8
4	Rhee et al, 2018, USA	Number of Samples: 373 urban youth (12–20 years) Inclusion Criteria: Residing in an urban area based on postal code or school district, and can understand English both orally and in writing. Exclusion Criteria: The presence of other chronic comorbid conditions affecting the cardiopulmonary system (e.g. cancer, cystic fibrosis, congenital heart disease)	Asthma Expectation Scale	Data processing was performed using Pearson correlations and multiple linear regression	<ol style="list-style-type: none"> 1. High self-efficacy was associated with perceptions of lower barriers and higher expectations ($r = 0.50$, $p < 0.001$; $r = -0.26$, $p < 0.001$, respectively). 2. Self-efficacy predicted better asthma control ($B = -0.098$, $p = 0.004$) and better adherence ($B = 0.426$, $p = 0.011$). 3. Self-efficacy independently predicted fewer missed doses ($B = -0.621$, $p = 0.006$). 4. Perception barrier (barrier perceptions) is predicted to be independently capable of controlling asthma ($B = 0.12$, the $p < 0.001$) and compliance ($B = 0.50$, $p < 0.001$). 5. High self-efficacy can reduce barrier perceptions of self-management of asthma in adolescents. 6. Self-efficacy improves medication adherence and asthma control among adolescents. 	8

5	Rhee, Tanzy and Donald, 2020, American	<p>Number of Samples: 371 participants</p> <p>Inclusion Criteria: 12-20 years of age, had a diagnosis of asthma for at least one year, persistent asthma based on the EPR3 classification or being on medication, utilization of asthma-related health services in the last 12 months before enrollment, was in an urban or district area, could speak English.</p>	<p>Asthma Outcome Expectation-Self Efficacy Subscale (AOE-SE), Asthma Management Index-self-efficacy subscale (AMI-SE), and the Asthma Self-Efficacy scale (ASE).</p>	<p>Data processing was performed using Pearson correlation coefficients and multiple linear regressions.</p>	<p>1. Self-efficacy can significantly predict the quality of life, medication adherence and asthma control, and knowledge.</p> <p>2. The measuring self-efficacy and quality of life found that (AOE-SE) self-efficacy can predict the better quality of life for the symptom domain, but not the emotional activity and function domains.</p> <p>With value: AOE-SE QoL Activity (0.13 (-0.01 0.27) p = 0.061), emotional function QoL (0.08 (-0.07 0.22) p = 0.290) and symptom QoL (0.16 (0.02 0.31) p = 0.028).</p> <p>3. Self-efficacy (AMI-SE) significantly predicted a better quality of life for activity and symptoms, but not for emotional functioning.</p> <p>With value: AMI-SE QoL Activity QoL (0.19 (0.05 0.33) p = 0.008), emotional function (0.13 (-0.01 0.27) p = 0.075) and symptom QoL (0.20 (0.06 0.35) p = 0.006).</p> <p>4. Self-efficacy (ASE) significantly predicts a better quality of life in all three subdomains.</p> <p>With value: ASE QoL activity (0.38 (0.24 0.51) p <0.001), emotional function QoL (0.37 (0.23 0.51) p < 0.001) and symptom QoL (0.41 (0.27 0.55) p <0.001).</p> <p>5. The results of measuring self-efficacy (AOE-SE, AMI-SE and ASE) on medication adherence and asthma control have a significant positive relationship.</p> <p>With value : AOE-SE treatment adherence (0.62 (0.17 1.07) p = 0.007) and asthma control (-0.06 (-0.09, -0.02) p = 0.002). AMI-SE treatment adherence (0.70 (0.26 1.14) p = 0.002) and asthma control (-0.07 (-0.10, -0.03) p = <0.001). ASE treatment adherence (1.08 (0.65 1.52) p <0.001) and asthma control (-0.06 (-0.10, -0.02) p = 0.002).</p> <p>6. The measurement results (AOE-SE and ASE) of self-efficacy can significantly predict knowledge and attitudes. Self-efficacy (AMI-SE) can significantly predict knowledge but not attitude.</p> <p>With value: AOE-SE knowledge (0.53 (0.17 0.89) p = 0.004) and attitudes (1.83 (0.90 2.76) p <0.001). AMI-SE knowledge (0.74 (0.38 1.10) p <0.001) and attitude (0.88 (-0.06 1.83) p = 0.067). ASE knowledge (0.63 (0.27 0.99) p <0.001) and attitude (.87 (1.97 3.76) p <0.001).</p>	7
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Discussion

The relationship between self-efficacy and self-management were found to be associated inconsistent with this review. Self-management is encapsulated in the concept of self-efficacy, which refers to a patient's confidence or belief in their ability to make decisions and engage in behaviours that result in successful chronic condition management. Because self-efficacy plays a significant role in managing asthma independently, the appropriate and effective management of asthma can determine the extent to which patients take an active role in disease management (Bandura, 2000; Nikki et al., 2016 in Halawa et al., 2019). According to Rhee (2009) and Rhee et al. (2018), self-efficacy can influence the barrier factors in asthma self-management; this means that if individuals have high self-efficacy, the barrier factors in self-management will decrease. The low barrier factor may have a beneficial effect on asthma, allowing patients to manage their condition effectively and improve their self-efficacy, self-esteem, and health status. Asthma is a disease that has psychological components. Adolescents who are ill or who have chronic conditions will face obstacles in completing developmental tasks, and as a result, adolescents will employ mechanisms, explicitly denying the circumstances they are experiencing. Denial by these adolescents frequently results in negative behaviour; the adolescent may forget the previous agreement with the doctor or the adolescent may forget to take medication (Santos, 2016).

Numerous studies indicate that self-efficacy is critical for adolescents with asthma. Individuals with a high level of self-efficacy will set goals and remain committed to themselves; they will visualize success, view complex tasks as opportunities, refine their approach efficiently when confronted with obstacles, and recover from setbacks without losing faith (Bandura, 1989; Bandura, 2004 in Rhee et al., 2018). Adolescents with chronic conditions will self-manage in a variety of ways. Most adolescents who have a solid psychological foundation or adolescents who come from supportive families will cope with the stress they encounter. Meanwhile, adolescents who cannot engage in positive

mechanisms to overcome their condition will frequently take medication irregularly, exhibit increased deviant behaviour, and suffer from depression (Soetjaningsih, 2004). Self-efficacy is a critical concept in chronic disease because it is associated with good medication adherence in adolescents with asthma. Adolescents with a high sense of self-efficacy are more likely to adhere to treatment, resulting in improved asthma outcomes (Holley et al. 2019 & Zebracki, 2004; Holley et al., 2017 in Rhee, 2020). Adolescents with chronic conditions will self-manage in a variety of ways. Most adolescents who have a solid psychological foundation or adolescents who come from supportive families will cope with the stress they encounter. Meanwhile, adolescents who cannot engage in positive mechanisms to overcome their condition will frequently take medication irregularly, exhibit increased deviant behaviour, and suffer from depression (Santos, 2016).

According to Ayala's (2009) research, adolescents who have a high level of self-efficacy will be able to prevent asthma exacerbations. Exacerbation prevention is one aspect of self-management. Asthma self-management is a behaviour that sufferers engage in on their own to manage and control asthma symptoms to avoid exacerbations. Self-management is a subset of the concept of self-efficacy, which is intended to assess an individual's belief in their ability to manage the conditions they encounter. This is based on Zebracki (2004) findings, which asserts that self-efficacy can affect an individual's adherence, with adherence serving as a proxy for a person's level of self-efficacy.

Additionally, compliance is a necessary element of effective self-management. Rhee's (2020) study demonstrates that self-efficacy can significantly predict the quality of life, medication adherence, and asthma control, as well as self-management knowledge. Self-efficacy is critical for effective asthma management because it can help reduce depression symptoms, increase medication adherence, and decrease asthma and asthma-related death rates. Self-efficacy shapes how an individual feels, thinks, motivates and behaves. Numerous studies have been conducted on the four primary psychological

processes of efficacy that influence human functioning. The four processes are cognitive, motivational, affectionate, and selection. Self-efficacy is influenced by a variety of factors, including gender, culture, and age (Bandura, 1994; Bandura, 2004).

Limitations

The study's limitations include the small number of articles that met the researcher's inclusion criteria, and keywords. In addition, the articles discovered were primarily experimental, several of the articles analyzed lacked exclusion criteria, and the articles included tools. Self-efficacy, but the result of the measurement does not specifically explain the value of self-efficacy.

Conclusion

According to a review of five articles, efficacy affects self-management in adolescents with asthma. The five articles analyzed examined self-management in terms of knowledge, medication adherence, asthma control, barrier factors, and quality of life. Adolescents with asthma must have a high level of self-efficacy to feel more confident in dealing with their situation, make positive changes, and maintain good asthma control.

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Conflict of interest

The author has no conflict of interest to declare.

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