Self-efficacy resources program for behavior changes:

A systematic literature review

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Behavior change is essential to support individuals in achieving good medication adherence. Adherence to treatment and good habits can reduce the risk of disease and lead to optimal health and quality of life.[1] Making a lasting behavior change isn't a simple process. A long-term change to a healthy behavior is more challenging than achieving short-term results.[2] The impact of behavior change will usually be significant in the short term but gradually decrease over time.[3] There are many interventions designed to change lifestyle habits related to physical activity, but one must consider whether the intervention and expected behavior are sustainable.[4,5] Combining self-efficacy during behavior change interventions can maintain the sustainability of these behaviors in society.[6,7]

Self-efficacy, a theory from Bandura, is used to make long-lasting behavioral changes; self-efficacy is an individual's belief that they can take the steps needed to attain specific performance objectives.[8] Self-efficacy consists of four dimensions: enactive mastery, vicarious persuasion, verbal persuasion, and physiologic arousal. These four dimensions are essential in giving participants the confidence needed to achieve the goals of an intervention. Environmental and individual considerations can be barriers to implementing healthy behavior, so interventions should be integrated with self-efficacy. The purpose of this review is to identify programs that can be sources of self-efficacy for behavior change.

Methods

This study employed a systematic literature review, conducted between June and August 2022, using appropriate criteria and strategies to search PubMed, Web of Science, Scopus, and other sources of published articles. Thematic analysis was used to summarize the findings. The search included only English language articles from 2012 to May 2022. The article had to include an experimental research design or an article review that included an experimental design as well as the four dimensions of Bandura's theory. Librarians assisted in the search to obtain articles that met the research objectives. The researchers used a Boolean search with keywords: *enactive mastery, *vicarious experience, *verbal persuasion, *physiological arousal, *Bandura's theory. Data were extracted using the Preferred Reporting Items for Systematic Reviews (PRISMA) 2009 guidelines.

Data extraction and analysis

Two reviewers independently conducted the screening process. Any disputes between the two reviewers regarding the inclusion of articles were discussed with the senior author to determine a resolution. Articles identified through other sources (such as articles known to authors), as well as those cited in the retained articles, were also considered for inclusion. The two reviewers independently extracted the following information from retained studies using a standardized data collection form developed for this review: a) author/year; b)

research period; c) country; d) research methods; e) sampling method; f) number of samples; and g) data set.

After the reviewers synthesized the data, they extracted the data using a standard template and summarized it in a table. After identifying the articles that included an experimental design and the four sources of self-efficacy, the researchers compared the induction results for each source of self-efficacy in every article. Articles with different induction results were selected and those with the same induction results were excluded from the analysis. Finally, researchers found the programs that promoted self-efficacy according to Bandura's theory.

Study selection process

Researchers used the Population, Intervention, Comparison, Outcomes and Study (PICOS) framework to determine search criteria (no specific population, Bandura self-efficacy intervention, no comparison, and expected results of self-efficacy with experimental design). The literature search yielded 181 articles but 17 were eliminated for similarity, so 164 articles were analyzed. Of those 164 articles, 155 articles didn't meet the criteria. Nine full-text articles were eligible with a total sample size of 2,590 (see *Figure 1)*.

Results

Nine experimental articles met the criteria of explaining the four dimensions from Bandura's theory of self-efficacy during the intervention. The research studies were conducted in Malaysia, the US, China, Korea, Iran, and Denmark.

Article characteristics

Interventions from Bandura's four dimensions of self-efficacy involve enactive mastery (performance accomplishments), vicarious persuasion/experience, verbal persuasion, and physiologic arousal/information. Investigators in the cited studies expected the results of the programs using the four self-efficacy dimensions to produce a significant effect on sustainable behavior change in the individuals participating in the interventions (see *Table 1*). All nine articles matched the criteria in which data sets were obtained nationally and locally. One review article used experimental design, and eight original research articles used both quasi and experimental design. The study samples included at least 33 participants; the highest number of participants was 336 in the original research studies, and 1,745 in the review article.

Enactive mastery

Enactive mastery (performance accomplishments) refers to the individual's direct experience from behaviors in forming self-efficacy. Four programs can help establish self-efficacy. First, provide education or training using seminars and booklets to increase knowledge and improve skills pertaining to good behavior, which can be accomplished through brainstorming, counseling, role-play, and group activities. The knowledge provided should include goals to be achieved after implementing the behavior, the benefits obtained, and the correct information. It's important that presentations and reading materials are provided in a language that participants will understand so there's no miscommunication. Second, enlist successful participants to be mentors for other participants in implementing positive behaviors either in-person or via video conferencing. Third, develop targets, starting with realistic goals that are likely to be achieved. Fourth, assign tasks for participants to do at home or anywhere and provide feedback on what the participants did.

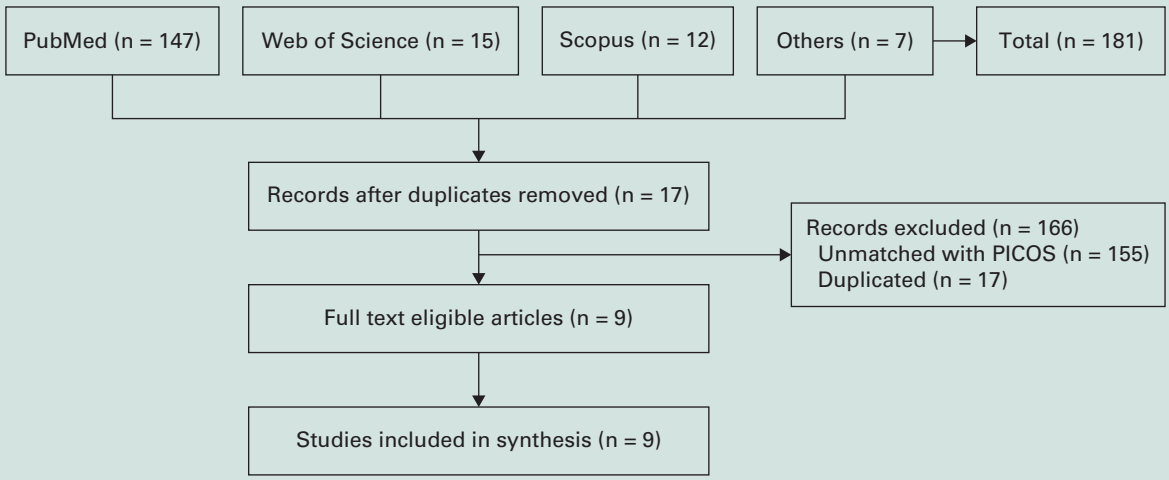
Vicarious persuasion

The second dimension, vicarious persuasion/experience, is individual learning from observing and absorbing the successful behaviors or achievements of others. Three activities can be done to build self-efficacy. Individuals who have successfully implemented the behavior and experienced its benefits can share correct and appropriate guidance with others. Researchers or other professionals who manage the behavior can also engage in these types of discussions. Information shared by those who have had success implementing expected behaviors and have similarities to participants (such as similar age, ethnicity, and health conditions) can increase participants' confidence. The next activity is to demonstrate the behavior, and it can be done offline or in a video chat. Researchers, other professionals, and participants' relatives can effectively communicate with them through direct or indirect visits, using messaging platforms such as WeChat and WhatsApp.

Verbal persuasion

Verbal persuasion is conveying knowledge, guidance, and advice

Figure 1: Flow diagram of the study selection process



so an individual feels confident that they can succeed at a task. There are at least three ways to achieve this. First, provide positive input and encouragement verbally and give participants rewards so they feel confident that they can perform the behavior. Next, a researcher or professional involved with the participant's behavior can use a personal approach to help the participant address the problem and find a solution. The third option is monitoring feedback on the tasks that participants have executed and continuously remind them of the importance of these behaviors.

Physiologic arousal/information

The last dimension is physiologic arousal/information, an individual psychological adjustment. Programs that can be implemented at the time of the intervention are: (1) Using direct visits, teaching techniques, and-meditation therapy to provide comfort to participants and help them deal with their emotions; (2) Building empathy among participants to encourage mutual support of other participants; (3) Adapting the intervention to the participant's specific circumstances, which can reduce exercise or rest; (4) Identifying and finding solutions to problems that arise in individuals.

Discussion

People who have a correct understanding of a disease will have high confidence in what not to do and what to do, so increasing knowledge and understanding can be a source of self-efficacy. Imparting appropriate knowledge becomes a concern in interventions to obtain expected outcomes.[18] The presence of a mentor is indispensable to generate self-efficacy because improving knowledge and skills requires the right people to offer direction about what to do and how to perform the expected behavior. With the help of peer coaches, health professionals can improve long-term adherence with healthy behaviors.[19] Setting goals is essential to promote healthy behavior.[20] Working on tasks can be a source of self-efficacy when there's an objective evaluation of whether healthy behaviors are carried out correctly or not. Evaluation of the behavior can increase self-confidence because feedback promotes an understanding of how to improve and increase healthy behavior.[21]

Feeling empowered to openly express thoughts and opinions about behaviors with others can produce self-efficacy. Participants can share experiences of success and failure to advance healthy behavior. Having social support in discussions can help people to manage emotionally and physiologically the difficulties they face.[22] Seeing, hearing about, and participating in healthy behavior at the time of the intervention engages all the senses and builds self-confidence by creating a connection that indicates the behavior is indeed beneficial. Demonstrating the behavior directly either reinforces that it's correct or allows for guidance about how to

Table 1: Summary of self-efficacy programs from the literature

No	Author/year	Enactive mastery	Vicarious persuasion	Verbal persuasion	Physiological arousal
1.	Siti Khuzaimah Ahmad Sharoni et al. (2017)[9]	• Education in seminars and booklets • Local nurses' guide • Successful respondents become mentors • Develop targets	• Sharing sessions • Specific guidance	• Give positive input and encouragement	• Emotional support • Weekly visits
2.	William G. Shadel et al. (2017)[10]	• Provided smoking cessation treatment	N/A*	• Give encouragement	N/A*
3.	Xinjun Jiang et al. (2019)[11]	• Target setting • Realistic achievement • There's a video model • The patients who go home become mentors • Exercise • Plan, review, and provide assistance	• Successful patients become mentors • Combine videos by role models and demonstrations • Discussion • Watching DVD and explaining booklets • Communication via WeChat	• Approach by nurse • Monitoring by providing feedback • Health knowledge • Approach by researcher • Persuasion by psychological and health knowledge	• Techniques to reduce stress • Identify emotional problems • Discuss, encourage, and reward • Convey empathy and concern, a sense of humor • Relaxation therapy • Family support
4.	Youllee Kim et al. (2020)[12]	N/A*	• Observe others who are successful • The effect of narrative • The source comes from the same ethnicity	N/A*	N/A*
5.	Habibollah Hosseini et al. (2013)[13]	• Teaching • Self-instructed performance • Needs assessment • Assign tasks	• Provide pictures and examples in the instructions • Sharing in group meetings	• State the importance • Verbal prompts • Involve family members • Refer to physician	• Giving tasks • Encourage participants • Teach mutual behavior
6.	Fatemeh Mohammadi et al. (2021)[14]	• Giving knowledge	• Giving a booklet • Sharing experiences	• Encourage and relax at home	• Identify problems and provide solutions • Seeing the participants' readiness
7.	Marjan Rabani-Bavojdan et al. (2017)[15]	• Increase knowledge • Behavior training educational methods, including group discussion, brainstorming, counseling, and role-playing • Increase understanding • Reviewing a previous successful performance	N/A*	• Using gifts in all cases, either participate in the discussion or experience of success	• Feedback • Control complications and symptoms • Relaxation techniques to reduce stress

(continues)

Table 1: Summary of self-efficacy programs from the literature (*continued*)

No	Author/year	Enactive mastery	Vicarious persuasion	Verbal persuasion	Physiological arousal
8.	Nanna Maria Hammer et al. (2016)[16]	• It's derived from previous personal successful experiences with similar activities	• Based on observations of others similar to oneself who engage in similar activities	• Have the necessary skills to master certain activities	• Positive interpretation or attribution of situational factors
9.	Bo Deng et al. (2022)[17]	• Set achievable goals • Provide information • Give positive feedback • Do consultation • Make plans • Identify postoperative rehabilitation • Provide positive feedback	• Sharing successful rehabilitation cases • Sharing previous success stories • Introducing other people's successful experiences	• Give verbal encouragement, explanation, and persuasion • Explain the benefits • Self-regulate • Provide positive feedback • Provide encouragement • Reinforce	• Develop strategies to overcome obstacles • Help to find social support • Assess the patient's expression of anxiety and depression • Identify individual barriers and resources

*N/A = Not available

modify the behavior so the practice is correct. Effective communication is needed to develop confidence in expected behaviors because everyone's daily life will be different, which can cause people to question their actions. If the target of communication is an expert in certain areas of behavior, it can help people carry out healthy behaviors that will eventually lead to self-efficacy.

To attain that goal, there needs to be a reward system to increase and improve healthy behavior. Giving repeated appreciation will increase motivation and produce self-efficacy to achieve the expected goals.[23] Appreciation should be expressed appropriately and not excessively. Excessive appreciation doesn't produce self-efficacy but may cause discomfort. The right approach to implementing behavior individually or in groups can produce self-efficacy. Paying attention to the psychology of the target audience can help determine the right approach. This can generate confidence in the surrounding environment, making people feel more comfortable to disclose information and overcome problems they've experienced to promote self-efficacy. Monitoring can be used to determine a person's development toward achieving the expected behavior. In addition to determining the level or levels of self-efficacy attained, monitoring can allow any deviations that occur to be corrected immediately.[24]

Implementing strategies to promote inner peace allows open thinking so individuals can understand and recognize healthy behavior, anxiety, and other somatic disorders that interfere with achieving desired behaviors. Emotional balance can allow a person to clearly assess their state and acts as a source for achieving self-efficacy.[25] Inspiring empathy can also be a source of self-efficacy. Knowing and understanding the feelings of others can enhance self-awareness so that anxiety and other psychological disorders don't interfere with implementing healthy behaviors. The involvement of others helps to encourage cognitive processes, which becomes a source of self-efficacy. Adapting to new behaviors enables people to respond quickly to changes and generates satisfaction, thereby producing self-efficacy. Finally, finding solutions brings satisfaction and builds confidence in new behaviors.

Implication for nurse leaders

Sources of self-efficacy can be integrated into interventions in the community to achieve the expected changes in healthy behavior.

Conclusions

Self-efficacy has four sources according to Bandura's theory.

First is enactive mastery (performance accomplishments) by providing education and mentoring, setting targets, assigning tasks, and giving feedback. Second is vicarious persuasion/representative experience by discussion, demonstration, and communication. Third, verbal persuasion by encouragement, approach, and monitoring. Finally, physiologic arousal was induced by emotional intervention, empathy, adaptation, and finding solutions. NM

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