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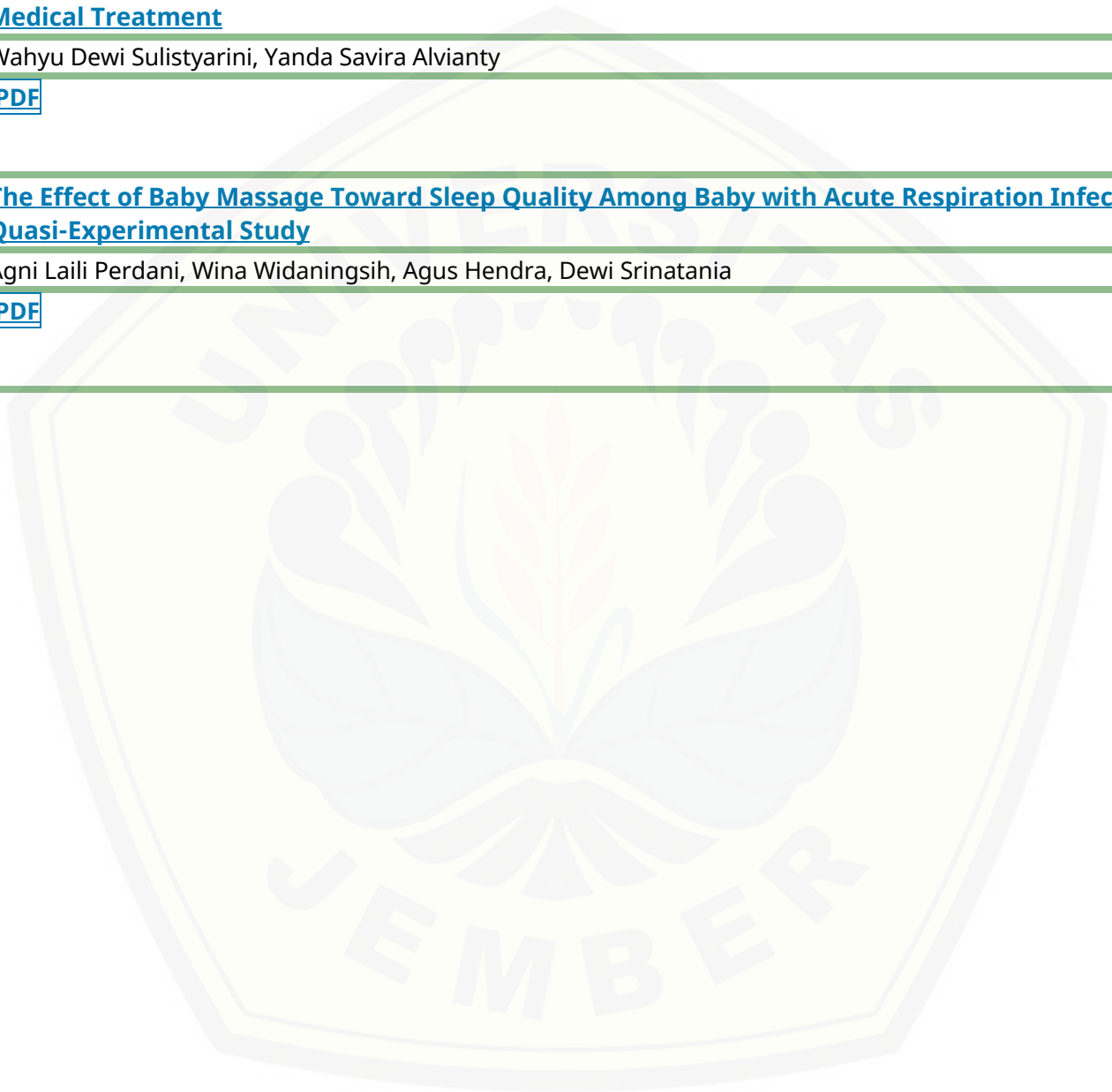
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STIMULATING DEVELOPMENT METHOD TO PROMOTE HEALTH IN CHILDREN WITH INTELLECTUAL DISABILITIES DURING THE COVID-19 PANDEMIC CRISIS: A SYSTEMATIC LITERATURE REVIEW

Benjayamas Pilayon¹, Pairin Yodsuban^{2*}, Niruwan Turnbull³, Chanicha Chaitonthueng⁴, Muhamad Zulfatul A'la⁵, Rondhianto⁶

^{1,4}Boromarajonani College of Nursing Nakhon Phanom, Nakhon Phanom university, Thailand

²School of Nursing, Amnatcharoen Campus, Mahidol University, Thailand

³Faculty of Public Health, Mahasarakham University, Thailand

^{5,6}Faculty of Nursing, University of Jember, Indonesia

ABSTRACT

***Corresponding Author:**

Pairin Yodsuban

School of Nursing, Amnatcharoen Campus, Mahidol University, Thailand

E-mail: pairin.yod@mahidol.ac.th

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During the COVID-19 pandemic, caregivers and parents play a crucial role in supporting individuals with intellectual disabilities, necessitating adjustments in self-care and the acquisition of essential caregiving skills. Research efforts are focused on developing effective health promotion programs and understanding the pandemic's impacts on individuals with intellectual disabilities, highlighting the importance of systematic literature reviews in synthesizing knowledge for effective caregiving during this crisis. This research aimed to systematically review literature related to stimulating development for health promotion in children with intellectual disabilities during the COVID-19 pandemic crisis. A systematic literature review searched keywords related to variables and sample groups. Data sources were electronic databases, including Scopus, ScienceDirect, Web of Science, and PubMed. The research included studies on the care and health support of individuals with intellectual disabilities over the past 10 years, from September 1, 2021, to January 1, 2022. Among these studies, 8 were selected, focusing on stimulating development and health support for children with intellectual disabilities. The systematic review yielded four programs: 1) Health education in classrooms to promote the health of individuals with intellectual disabilities, 2) Health record registration and health check-ups to promote health, 3) Training with equipment, and 4) Weight reduction and body mass index improvement programs to promote health among individuals with intellectual disabilities. The literature review revealed an increase in knowledge about programs for stimulating development and promoting health in children with intellectual disabilities during the COVID-19 pandemic crisis.

Keywords:

Children with intellectual disabilities, COVID-19 pandemic, Stimulating development systematic literature review

INTRODUCTION

During the COVID-19 pandemic crisis, caregivers or parents must receive assistance and support in various aspects to ensure their physical and mental health (Willner et al., 2020). Taking care of individuals with intellectual disabilities, especially in situations where caregivers or parents have limitations due to the pandemic, requires significant adjustments in self-care to prevent illness and ensure the well-being of those with intellectual disabilities (Landes et al., 2021). Caregivers and parents, therefore, need to acquire essential skills and knowledge for caregiving during this crisis (Rahimi et al., 2021; Silalak, 2018). Moreover, stimulating development and promoting necessary skills in preventing COVID-19 in children with intellectual disabilities are considered crucial (Royal College of Pediatricians of Thailand, 2015). This not only helps children with intellectual disabilities understand self-protection against COVID-19 but also reduces the risk of transmitting the virus from these children to their caregivers.

Knowledge and expertise in caregiving for individuals with intellectual disabilities and stimulating developmental skills for health promotion in children with intellectual disabilities during the COVID-19 pandemic are deemed indispensable, given the differences from normal circumstances (Bailey et al., 2021; Doody and Keenan, 2021; Landes et al., 2021). Therefore, studying and reviewing literature related to caring for individuals with intellectual disabilities and stimulating developmental skills for health promotion in children with intellectual disabilities during the COVID-19 pandemic will help uncover the knowledge, methods, and skills necessary for effective caregiving. However, it should be noted that a narrative literature review may not provide definitive answers or guidance on the most efficient ways of caregiving for individuals with intellectual disabilities, including necessary skills and support during this crisis.

In this regard, research on stimulating development in individuals with intellectual disabilities during the COVID-19 pandemic, both in terms of program development and experimentation, is somewhat limited (Doody and Keenan, 2021). Therefore, the researchers conducted a literature review of the development of health promotion programs for individuals with intellectual disabilities under normal circumstances and reviewed research that examines the impacts of the COVID-19 pandemic on individuals with intellectual disabilities. A systematic literature review is a method of research that systematically

reviews the literature. It helps provide a framework for research to narrow the scope of inquiry to discover new knowledge through the synthesis of research studies (Owens, 2021). Additionally, it establishes criteria for selecting research works of sufficient quality to create high-quality research for use in synthesizing various content and values that indicate the effectiveness or quality of past research, enabling the creation of new knowledge in the care of individuals with intellectual disabilities amid the COVID-19 pandemic crisis. Researchers are therefore interested in studying the stimulation of development for health promotion in children with intellectual disabilities during the COVID-19 pandemic crisis through the systematic literature review method.

METHODS

Conducting a systematic literature review by searching electronic databases, specifying keywords for variables and sample groups, such as "Intellectual disability," "caregivers," "developmental disability," "COVID-19 outbreak," "support," and "health promotion program" was utilized in this study. This review also adopted the PICO method (Frandsen et al., 2020). Patient (P) in this research context was children with intellectual disabilities. Intervention (I) utilized was a health promotion program. Comparison (C) was an ordinary program, and Outcome (O) was quality of life. Data sources were used using electronic databases, including Scopus, ScienceDirect, Web of Science, and PubMed. We utilized Mendeley reference management software to filter research papers and format citations. The papers covered research related to the care and health support of individuals with intellectual disabilities for the past 10 years, from September 1, 2021, to January 1, 2022.

RESULTS

Twenty-four research papers regarding the care and health support of individuals with intellectual disabilities over the past ten years were identified during the duration of this investigation. This resulted in the publication of eight research papers explicitly concerned with promoting health and developmental support for children with intellectual disabilities after undergoing the quality selection process.

Impact of the COVID-19 Pandemic on Individuals with Intellectual Disabilities

From the literature review, it was found that individuals with intellectual disabilities are at signifi-

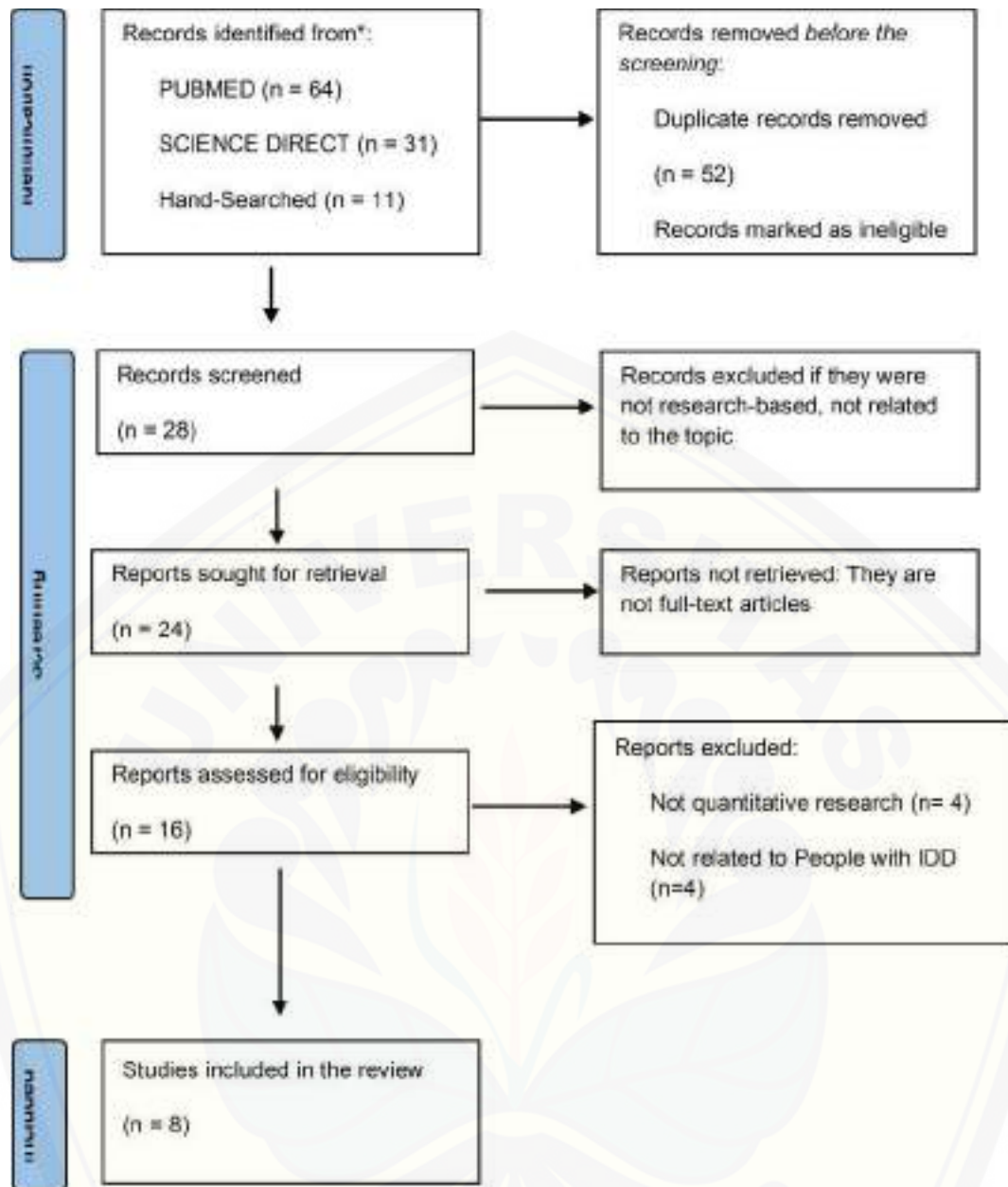


Fig. 1. Prisma flow diagram

cantly higher risk of contracting COVID-19 (Landes et al., 2021). Furthermore, it was observed that lockdown measures have impacted their overall quality of life and mental health (Amor et al., 2021; Willner et al., 2020). However, a study examining the mental health impact on individuals with intellectual disabilities and their families in the United Kingdom during a recent lockdown found that there were similar levels to before the lockdown (Bailey et al., 2021).

In terms of mortality rates, it was found that individuals with intellectual disabilities had consistently higher mortality rates due to COVID-19 infection, particularly in congregate settings (15 case studies), healthcare facilities (2 case studies), and within their own families (8 case studies). These findings indi-

cate that individuals with intellectual disabilities, especially those living in densely populated residential settings, are facing higher mortality risks from COVID-19 compared to the general population in other regions of the United States. Moreover, short-term and long-term public health interventions to manage the risk of COVID-19 may not adequately meet the needs of individuals with intellectual disabilities until all states begin reporting COVID-19 outcomes for this population (Landes et al., 2021).

Study of Developmental Stimulation for Health Promotion in Children with Intellectual Disabilities

There have been developments in programs

Table 1: Results of Literature Review on the Development of Programs for Stimulating Development to Promote the Health of Individuals with Intellectual Disabilities

Study and location	Aim of study	Design, methods and sample	Key findings	Quality score & Limitations of this study
(Jankowicz-Szymanska et al., 2012) Poland	To assess the impact of physical exercises with the use of unstable surfaces on the level of static balance in persons with IDD person.	Experimental research, 20 participants (randomly divided into two groups of the same size)	<ul style="list-style-type: none"> - The test was first carried out with the participants' eyes open and then without visual control at the beginning and at the end of a 12-week exercise program. - The length of the path covered by the participants' general center of gravity in 30 s - Before commencing the efficiency-improving exercises the higher level - of static balance expressed by a smaller value of the length of the path of COG of the body was characteristic of the persons from the group not participating in training sessions. - The intergroup comparison of the length of the path in the trial with the eyes open and closed showed significantly better results in the test conducted under visual control in both groups, before and after the period of training sessions. 	MMAT = 75% the groups are not comparable at the baseline
(Hinckson et al., 2013) New Zealand	To determine the effectiveness of a program in managing weight through changes in physical activity and nutrition behaviors in overweight and obese New Zealand children and youth with intellectual disability or autism.	Mixed design, 10-week program comprised of 18 sessions of physical activity, healthy eating, and motivational skills. 17 participants (7 females and 10 males)	<ul style="list-style-type: none"> - The program assisted in the development of a supportive community network and participants' abilities to partake in family and community activities. - Physical activity and nutrition changes were measured by means of proxy reporting and interviews with parents. Individual. - The results may support and inform future developments of an integrated weight management and prevention program to enhance the health and well-being of children and youth with disabilities. 	MMAT=75% The reasons for conducting a mixed methods study should be clearly explained.

<p>(Lennox et al., 2016) Australia</p> <p>To test a health intervention package against usual care for health promotion and disease detection outcomes.</p>	<p>A parallel-group cluster randomized controlled trial. The intervention package included classroom-based health education, a handheld personalized health record, and a health check.</p>	<ul style="list-style-type: none"> - Adolescents allocated to receive the health intervention were more likely to have their vision and hearing tested, their blood pressure checked, and their weight recorded. - There was no difference between health intervention and usual care for the identification of new diseases. - The school-based intervention package increased healthcare activity in adolescents with intellectual disability living in the community. 	<p>MMAT=100% The number of participants is not clarified.</p>
<p>(Stanish and Temple, 2012) Canada</p> <p>This study examined efficacy of a YMCA-based, peer-guided exercise program for increasing health-related physical fitness among adolescents with intellectual disabilities.</p>	<p>A one-shot pre/post-test design was used to test the feasibility and effectiveness of the 15-week exercise intervention. 20 participants (male = 10, female = 20)</p>	<ul style="list-style-type: none"> - Participants demonstrated significant improvements in curl-ups, 6-min walk and BMI. - Exercise session attendance was high, and participants typically completed all the prescribed aerobic and stretching exercises, whereas weight training exercises were completed less consistently. 	<p>MMAT=100% The participants may not be representative.</p>
<p>(Wu et al., 2017) Taiwan</p> <p>Study aims to assess effects of a cross-circuit training intervention program on body composition, cardiorespiratory fitness, balance, muscular strength of endurance overweight/obese students with intellectual disability.</p>	<p>Experimental design with control group. The participants are 43 students with intellectual disability (aged 13–19 years)</p>	<ul style="list-style-type: none"> - The obesity-exercise group demonstrated reduced weight, BMI, and fat mass after the intervention program - The exercise tolerance test, including the participants' dynamic balance, sit-up, and vertical jump performance, improved significantly. In conclusion, the cross-circuit training program effectively improved cardiorespiratory fitness, dynamic balance, muscular strength and endurance, and weight control in overweight or obese students with intellectual disability enrolled in a special education school. 	<p>MMAT=75% - Participants were not randomly assigned to a group - The study used the standard HRmax equation for all participants</p>

<p>(Lee et al., 2016) South Korea</p>	<p>to investigate the effect of balance training on postural balance, gait, and functional strength in adolescents with intellectual disabilities.</p>	<p>True experimental design. 31 participants (balance training group (n = 15) or a control group (n = 16)).</p>	<p>- Postural balance and functional strength showed significant improvements in the balance training group compared to baseline, but postural balance and muscle strength showed no significant improvements in the control group. - postural balance and functional strength significantly improved in the balance training group compared to the control group.</p>	<p>MMAT=100% The study is the absence of complete control in all variables that may affect a small number of samples, balance, and gait.</p>
<p>(Kong et al., 2019) China</p>	<p>Aims to investigate the effects of Tai Chi (TC) on anthropometric parameters and physical fitness among children and adolescents with intellectual disabilities (ID).</p>	<p>Experimental post-test design compared with baseline score. 66 individuals volunteered</p>	<p>- A significant interaction effect was observed only during the performance of a 6-minute walk test. - After 12 weeks of intervention, the AE group significantly changed body mass index. - the TC group demonstrated significantly more significant improvements on balance compared to the control group</p>	<p>MMAT=100% this was not a randomized controlled trial, may bias the assessment results.</p>
<p>(Vlot-van Aurooij et al., 2022) Netherlands</p>	<p>Aims to provide insight into whether the tool can provide a comprehensive view of assets in the system and actionable knowledge to improve health-promoting capacities in ID-support settings.</p>	<p>Exploratory research. 57 users from four settings completed the tool on availability.</p>	<p>- The findings provide a comprehensive view of available assets. Together - user satisfaction and dreams for improvements, they provide actionable knowledge for improving the health-promoting capacities of the settings</p>	<p>MMAT=50% This study is not experimental research.</p>

that stimulate development and promote the health of individuals with intellectual disabilities. The results of the literature review are presented in Table 1.

From Table 1, the literature review results on the development of programs for stimulating development to promote the health of individuals with intellectual disabilities indicate that these programs primarily focus on physical development. They are designed to enhance physical strength through exercise equipment such as inflatable cushions or exercise balls to stimulate deep sensory perception (deep sensibility) They are designed to enhance physical strength through exercise equipment such as inflatable cushions or exercise balls to stimulate deep sensory perception (deep sensibility) (Jankowicz-Szymanska et al., 2012). Additionally, weight loss and body mass index (BMI) improvement programs are designed to achieve an appropriate BMI, reduce body fat, and increase muscle mass. These programs involve physical strength training, posture control, dietary management, behavior modification, and group exercise activities (Peer-Guided Exercise Program) (Hinckson et al., 2013; Kong et al., 2019; Lee et al., 2016; Stanish and Temple, 2012; Wu et al., 2017). The outcomes of these programs primarily stimulate muscle development.

Furthermore, health promotion programs include health education in classrooms, health record registration for individuals with intellectual disabilities, and health check-ups (Lennox et al., 2016). Additionally, practical health knowledge systems are developed using an asset mapping tool to promote and support the health potential of individuals with intellectual disabilities. This includes 1) developing resources to support health, 2) identifying the types of resources that should be promoted for health support, and 3) allocating resources into the system (Vlotvan Anrooij et al., 2022).

In summary, the systematic literature review identified four developmental stimulation programs for children with intellectual disabilities. They are: 1) Health education in the classroom to promote the health of individuals with intellectual disabilities; 2) Health record registration and health check-ups to enhance the health of individuals with intellectual disabilities; 3) Physical training with equipment such as inflatable cushions or exercise balls to stimulate deep sensory perception (deep sensibility) for promoting the health of individuals with intellectual disabilities; 4) Weight loss and body mass index improvement programs designed to achieve an appropriate BMI, reduce body fat, and increase muscle mass for promoting the health of individuals with intellectual dis-

abilities.

DISCUSSION

Health Education

Children with intellectual disabilities have impairments in their ability to care for themselves and perform basic daily routines, which can lead to health problems (Inchaiya et al., 2018). Teaching basic health care can help children with intellectual disabilities have good physical and clean health (Jennings et al., 2022). A study by Silarak (2018) found that using individualized teaching plans to promote self-care skills among children with intellectual disabilities, such as bathing, handwashing, face washing, tooth brushing, hair washing, and hair drying, can help them maintain good physical health and reduce the risk of disease transmission. It is important to provide knowledge to children with intellectual disabilities following the regulations for educating children with disabilities in 2008. This aligns with their abilities and potential, making teaching appropriate and effective. However, to facilitate learning, individuals with more knowledge and skills, such as teachers and parents, are essential to assist children in developing these skills (Keiler, 2018). Currently, under the COVID-19 pandemic situation, parents play a crucial role in assisting and caring for children with intellectual disabilities to prevent infection. Preventive measures include handwashing, avoiding face touching, and using tissues to cover the mouth when coughing or sneezing. Parents should also closely monitor symptoms such as fever, cough, fatigue, nasal congestion, difficulty breathing, chills, muscle pain, headache, sore throat, vomiting, and diarrhea (Struyf et al., 2022).

Intellectually disabled children have impairments in their ability to help themselves and take care of basic daily activities, which can lead to health problems (Inchaiya et al., 2018); teaching basic health care can help intellectually disabled children have good health. From the study of Silarak (2018) on promoting healthy life skills for children with intellectual disabilities, it was found that using individualized teaching plans to promote intellectually disabled children with skills in taking care of their own hygiene when cleaning their bodies. That is, washing hands, washing nails, washing face, brushing teeth, washing hair, and drying hair can promote children's good physical health and keep them clean and away from germs. By using individual teaching plans In promoting the provision of knowledge to intellectually disabled children, according to the Education for Disabled Children Act of 2008, it is consistent with the abilities and

potential of intellectually disabled children. Makes it appropriate and effective in teaching. In teaching, it is necessary to have people with more knowledge and ability, such as teachers and parents, to help children develop those skills (Keiler, 2018). Currently, under the situation of COVID-19 outbreak, parents are critical in helping to care for children with intellectual disabilities to prevent infection. Preventing infection in children with disabilities can be done by washing hands, avoiding touching the face, using a tissue to cover the mouth when coughing or sneezing, and keeping an eye on upcoming symptoms such as fever, cough, tiredness, and nasal congestion. Difficulty breathing, chills, muscle pain, dizziness, sore throat, headache, vomiting, and diarrhea, etc. (Struyf et al., 2022).

Health History Registration and Health Check for Individuals with Intellectual Disabilities to Promote Health

The study found that the health history registration program for individuals with intellectual disabilities is crucial for recording activities and developmental histories of this group, promoting their health development, especially during the COVID-19 pandemic. This program serves as essential data for tracking vaccination history and caregiving records from parents and medical professionals. This aligns with Dooris's (2013) recommendation to conduct health check-ups for individuals with intellectual disabilities and create an integrated approach to support their health. This approach is in accordance with the settings-based approach to health promotion (Dooris, 2013). Moreover, Based on Canadian consensus guidelines for primary care of adults, annual comprehensive health assessments ("health checks") are recommended for individuals with intellectual disabilities (Sullivan et al., 2018)

Developmental Stimulation

Promoting physical, muscular, and intellectual development, self-help skills, and social activities, as well as rehabilitative activities and speech therapy, contribute to the medical rehabilitation of children with intellectual disabilities. This helps children prepare for further education and develop essential skills. In a previous study, it was found that children with intellectual disabilities who used a box set consisting of putting on and taking off clothes, socks, shoes, house cleaning, folding clothes, and organizing clothes in the closet, following the Sim-Sun practical skills training format, improved their ability to perform daily life activities (Inchaiya et al., 2018).

This resulted in increased self-sufficiency, especially in preventing health issues related to the COVID-19 pandemic. Registration of vaccine history, health care records, parental care, and medical personnel are crucial, as they help manage medical care efficiently. In line with the study by Dooris (2013), the health assessment of individuals with intellectual disabilities is important, and an integrated approach to creating a health-supporting environment is beneficial. This is consistent with the setting's approach to health promotion (Dooris, 2013). Furthermore, the study conducted in Thailand found that children with intellectual disabilities who practiced practical skills using a manipulative interface-based tool, primarily through computer games, showed improved development of their small muscle groups. This was indicated by increased handgrip strength (Tikeang et al., 2020). The children's interest was piqued because these computer games were interactive with motion and sound that attracted their attention. These devices were created through the imitation of natural objects, making learning faster. Therefore, the developmental stimulation to promote the health of individuals with intellectual disabilities emphasizes physical development through the design of training programs for body strength using equipment such as inflatable cushions and exercise balls, stimulating deep sensibility (Jankowicz-Szymanska et al., 2012).

Promoting the development of both large muscles, small muscles and intelligence Self-help and society and occupational therapy including speech correction It is part of the medical rehabilitation of intellectually disabled children. To promote children's readiness for education and the development of necessary skills in the next age (Royal College of Pediatricians of Thailand, 2015). In a study in Thailand, it was found that intellectually disabled children who used a set of work boxes that consisted of Putting on and taking off clothes, socks, and shoes, mopping the house, putting clothes and folding clothes in the closet, according to Simpson's practical skills teaching model (Naophuthon, 2020). Emphasis on intellectually disabled children to practice practical skills until they become accurate, agile, and skilled, promoting their ability to help themselves in daily life to be higher than before the experiment, with statistical significance at the .05 level; when children have practiced and done until they become proficient, they will be able to apply it to other skills. It can be as diverse as desired, and a study in Thailand found that children with intellectual disabilities who practiced skills through physical interface devices through computer games Showed better development of small muscles

with increased hand squeeze force (Tikeang et al., 2020). Children also paid attention to the device because it was a computer game with movements and sounds that caught their attention. And it is a device made by imitating nature, allowing children to learn quickly. Stimulating development to promote the health of people with intellectual disabilities emphasizes stimulating physical development by designing physical strength training programs, such as training with equipment such as inflatable pillows or balls to stimulate the development of touch. at a deep level (deep sensibility) (Jankowicz-Szymanska et al., 2012).

Weight Management Program

Nutrition and physical activity are important factors in supporting weight management in children with intellectual disabilities. For children who are overweight, it is crucial to consume balanced and nutritious meals. They should eat full meals every time and gradually reduce the portion sizes. This involves reducing energy-dense foods such as carbohydrates and fats while increasing the intake of vegetables and fruits that are not overly sweet. For children aged three and older, switching to skim milk is recommended. They should avoid consuming excessively sweet snacks and drinks and reduce sugary treats. Engaging in physical activities is also recommended (Rajanukul Institute, 2015). The study found that practicing Tai Chi among children and adolescents with intellectual disabilities improved hand-eye coordination and balance compared to before they received training. Moreover, they exhibited better postural control. Additionally, aerobic dance exercise resulted in a decrease in body mass index (BMI) (Kong et al., 2019). Physical activities for children with intellectual disabilities should be appropriate and aligned with their capabilities. Activities that promote health in these children include continuous walking, cycling, jogging, swimming, and moderate to intense Exercise. It is recommended that Exercise should be performed for at least 20 minutes at least three times a week. It is essential to avoid strenuous activities that may involve excessive flexibility.

Nutrition and exercise support children with intellectual disabilities in losing weight. By choosing to eat nutritious foods, it is essential to control your child's weight. In children who are overweight, complete main meals should be eaten at every meal. Gradually reduce the amount of foods that provide a lot of energy, such as foods in the carbohydrate group and fat group, and increase the consumption of fruits and vegetables that are not too sweet. If children are 3 years of age or older, the type of milk should be

changed to plain milk. Refrain from eating snacks and drinks that are very sweet. and abstain from binge eating and engage in physical activity (Rajanukul Institute, 2015). The study exercise of practicing Tai Chi is beneficial for children and teenagers with intellectual disabilities. Helps with eye-hand coordination. and eyes and feet are better than before receiving training. In addition, it was found that the level of balance ability improved more than the control group and aerobic dance exercise results in a lower BMI) (Kong et al., 2019). Physical activities for children with intellectual disabilities should be appropriate activities and consistent with their potential. Child Activities that promote children's health include continuous walking. Cycling, jogging, swimming, etc. and moderate to vigorous physical activity should be done at least. At least 20 minutes at a time/ 3 times/week. Avoid violent, extreme activities and activities that require too much flexibility. (Office of the Health Promotion Fund, 2021)

CONCLUSIONS

Research on intellectual disabilities remains relatively limited, both in Thailand and internationally. Therefore, conducting a comprehensive literature review is essential to support and provide recommendations for parents and caregivers of children with intellectual disabilities. By adopting these approaches, they can better stimulate the development of children with intellectual disabilities, helping them improve their self-help skills and quality of life in the future.

Suggestions and research limitations Research with Intellectual Disabilities Research There are few studies in Thailand and abroad. The researcher, therefore, sees the importance of systematically reviewing the literature to support and is a suggestion to parents and Carers for children with intellectual disabilities. The model has been used to stimulate the development of children with intellectual disabilities for better growth. Be able to help yourself better and have a good quality of life in the future.

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