ORIGINAL RESEARCH ARTICLE

Examining behavioural determinants among caregivers of children with attention-deficit hyperactivity disorder using the human action process framework

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Abstract

This study assessed the caregiver's adaptability and appropriate parenting behaviour towards children with Attention-Deficit Hyperactivity Disorder (ADHD) based on their background and mental health using the theory of Health Action Process Approach (HAPA). The study recruited 24 caregivers who completed surveys at four-weekly intervals. A moderated mediation model was used to examine the mediating effects of intentions, actions, and caregivers' resilience. The results showed that 19 of the consenting caregivers were exposed to educational intervention on HAPA constructs, and completed assessments of behaviour-change in pre- and post-training. There was an improvement in caregivers' knowledge after training. This included improved knowledge on how to properly give care to children with ADHD enabling them to stay mentally healthy ($p < 0.05$). Caregiver resilience can be determinant in behaviour change. Importantly, the link between resilience and reduced stress could be mitigated by encouraging caregivers to be stronger and more responsive. This can be a comprehensive discussion in nursing, especially about how HAPA can be used as a practical application for parenting patterns for children with ADHD. *(Afr J Reprod Health 2024; 28 [10s]: 81-92).*

Keywords: Adaptation; attention-deficit hyperactivity disorder; behaviour determinant; caregivers; children

Résumé

Cette étude a évalué l'adaptabilité et le comportement parental approprié des soignants envers les enfants atteints de trouble déficitaire de l'attention avec hyperactivité (TDAH) en fonction de leurs antécédents et de leur santé mentale en utilisant la théorie de l'approche du processus d'action sanitaire (HAPA). L'étude a recruté 24 soignants qui ont répondu à des enquêtes à des intervalles de quatre semaines. Un modèle de médiation modéré a été utilisé pour examiner les effets médiateurs des intentions, des actions et de la résilience des soignants. Les résultats ont montré que 19 soignants consentants (79 %) ont été exposés à une intervention éducative sur les constructions HAPA et ont complété des évaluations de changement de comportement avant et après la formation. Les connaissances des soignants ont été améliorées. Cela comprenait une meilleure connaissance de la façon de prodiguer correctement des soins aux enfants atteints de TDAH, leur permettant de rester en bonne santé mentale ($p < 0,05$). La fonction adaptative de l'orientation future en réponse à la résilience des soignants au changement de comportement, car les prestataires de soins perçoivent un résultat significatif comme déterminant du comportement. Il est important de noter que le lien entre résilience et réduction du stress pourrait être atténué en encourageant les soignants à être plus forts et plus réactifs. Cela peut faire l'objet d'une discussion approfondie dans le domaine des soins infirmiers, en particulier sur la manière dont HAPA peut être une application pratique des modèles parentaux pour les enfants atteints de TDAH. *(Afr J Reprod Health 2024; 28 [10s]: 81-92).*

Mots-clés: Adaptation; déterminants du comportement; enfants; les soignants; trouble déficitaire de l'attention avec hyperactivité

Introduction

The prevalence of attention-deficit hyperactivity disorder (ADHD) in Indonesia in school-aged children ranges from 3-12%, 5-9% in the overall child population, and 2-4% in adults[1]. ADHD describes children who suffer from the inability to 'stop, look, listen, and think'[2]. This weakness is caused by the inability to use organized cognitive strategies so that it is difficult to focus and maintain attention. Their behaviour is not regulated by clear rules. ADHD is a behavioural disorder characterized by poor attention span that is not appropriate for development and is characterized by hyperactivity

and impulsivity or both that are not appropriate for age[3]. ADHD describes children who show symptoms of inattention, hyperactivity, and impulsivity that are not appropriate for their age which can cause failure in carrying out their daily activities[4]. The incidence of ADHD in Indonesia is often found in preschool-aged children with 16.3% of the total population of children. It is estimated that about 5% of the world's children suffer from ADHD[5]. As many as 50% of children with ADHD do not receive appropriate treatment. Similarly, ADHD in adults is more difficult to identify and usually goes untreated. This is greatly influenced by social, economic, cultural, and religious factors[6]. The National Survey of Children's Health (NSCH) in the United States stated that ADHD in children aged 4-17 years has increased from 7.8% to 9.5%[7].

The number of hyperactive behaviour disorders in society is about 30% of the number of children with growth and developmental disorders. This suggests that 300 out of 1000 children with growth and development disorders experience hyperactive behaviour disorders[8]. The prevalence of ADHD children is most common in the United States (3-10%), Germany (3-7%) and Canada (5-10%)[9]. The cases of ADHD in Indonesia are quite high with the number reaching 26.4%, of the population of children. This was confirmed by data from the National Statistics Agency in 2007[10]. These data further report that among the total child population of 82 million in Indonesia, one in five children and adolescents under 18 years of age have mental health problems. As many as 16 million of these children experience mental problems, including ADHD.

Child development factors, including children with ADHD, are greatly influenced by the social environment. The most important of these is the process of social development of the family consisting of parents and siblings[11]. Children as part of the family, in their growth and development are not separated from the environment that cares for, and nurtures them. Each parent has their own way and pattern in caring for and guiding their children. These methods and patterns will certainly differ from one family to another. Parenting patterns are a description of the attitudes and behaviour of parents and children in interacting and communicating during parenting activities. This will affect the child's development[12]. Parental parenting styles greatly influence children's mental development. As such, parents as part of the family will need to be diligent and patient in educating their children.

Children's education as a guide to life must first be obtained from their own families. Unfortunately, there are a number of children who do not get parental education, but have to learn from outside the family, including from neighbors, playmates, and teachers at school. Apart from that, they tend to be restless they often have difficulties learning at school, hearing and following their parents' instructions and socializing with their peers. The main deficiency experienced by ADHD children is a striking obstacle between themselves and the consequences that accompany them in their lives[13]. This highlights the problem of ADHD children who are always considered uncooperative and very naughty. This problem was studied based on the parenting patterns and coping styles of caregivers and their relationship to changes in caregiver behaviour when caring for children with ADHD. One of the factors related to changes in behaviour when caring for children with ADHD is toughness or resilience[14].

Resilience is primarily related to caregivers of ADHD children[15]. The more resilient the caregivers, the more maintained the health of both caregivers and the health receivers[16]. ADHD children are usually taken care of by other family members such as parents or siblings. In some cases, ADHD children are cared for by other parties who have no filial relationships. Some families pay nurses from the first health facility to take care of ADHD children[17]. This leads to the inclusion criteria based on several studies on caregiver resilience who are family and non-family members to take care for patients with dementia, schizophrenia, and anxiety/regular panic attacks. Our study on caregiver resilience is driven by the following assumptions: 1) caregivers and family members interact and support each other, 2) the presence of stressors requires caregivers to be able to adapt and make adjustments, and 3) certain rules and communities will encourage coping and behavioural adaptations of caregivers[19].

Resilience factors in parents are often the background considered for the growth of ADHD children, but there is still no one that highlights resilience in caregivers. This study is intended to determine how caregivers care for children with ADHD and how resilient caregivers are in caring for ADHD children with socioecological differences, including indicators of financial security, career

level, and poor/rich status. Meanwhile, self-efficacy factors in parents have been studied in previous research[20]. The novelty proposed in this study is the application of stress and self-efficacy indicators to explore caregivers who care for ADHD children on a daily basis. There have been no studies that highlight how self-efficacy in caregivers influences outcomes in the growth and development of children with ADHD. The relationship between the influence of family support (whether simply entrusting the child or providing full support), psychosocial and caregiver background will be examined in this study. We believe this demonstrate the importance of the mental health of caregivers who care for children with ADHD.

Conceptual framework

Problems related to caregiver stress and resilience are likely caused by reduced capacity and skills to regulate behaviour. Self-regulation in health refers to the process of motivation, behaviour, and willingness to abandon health risks in favour of adopting and maintaining health-promoting behaviours. The Health Action Process Approach (HAPA) explains how the model is used to change behaviour and it provides empirical evidence to illustrate the use of HAPA to change behaviour[21]. If a family previously did not have a family member with ADHD, and then has a child or sibling who has ADHD, then you can be sure there will be changes in behaviour—especially in people who directly provide care. The same is true for non-family caregivers. Raising children with ADHD of course differs under various circumstances. There is an attitude adaptation which is a form of behaviour change process that must be carried out. HAPA can be a reference for investigating this matter.

HAPA was chosen for this study because it can conceptualize health self-regulation as a process that can be divided into phases in which different psychological constructs work best to move people towards better health behaviours. This framework is built based on an old approach that distinguishes between the motivational phase and the volitional phase of change, which characterizes an individual's mindset in taking action. The model has been designed as a general framework that is linked to resilience as an additional variable in this research to achieve novelty because resilience can be influenced by barriers and individual resources for changing behaviour.

HAPA constructs consist of motivational and volitional phase. Motivational phase consists of task self-efficacy, outcome expectancies, and risk perceptions that combined to reach intention. Volitional phase consists of maintain self-efficacy, action planning, and coping planning during the process of behaviour-changing and recovery self-efficacy, action control, and action in the end of process. Barriers and resources has influenced the other constructs which are intention, action and coping planning, and action and action control. The constructs also are divided into three parts which are non-intenders (constructs before intention is formed or factors that lead to intention), intenders (constructs after intention is formed related to planning of behavior-changing), and actors (the realization of planning in the end of process).

Based on the background that has been described, we posit that the problem raised in this study is the adaptability of the caregivers who care for children with ADHD. The study investigates how the parenting behaviour of the caregiver is related to the control of the behaviour of children with ADHD. The caregiver's adaptability and parenting behaviours are reviewed against their backgrounds and mental health to determine how developmental outcomes can be achieved for children with ADHD. Figure 1 shows the HAPA construct we used for this study.

Methods

Study design and procedure

The aim of the study was to apply the HAPA theory to investigate the outcome and the development of ADHD children who receive health care from family or non-family caregivers. HAPA was a psychological theory of health behaviour change, developed by Ralf Schwarzer, a professor of psychology at the Freie University Berlin of Berlin, Germany, and was first published by University of Social Sciences and Humanities, Wroclaw in 1992[22]. HAPA then has been applied in several personal exercise studies and those related to behaviour change in health and lifestyles[21–24]. The number of studies of HAPA application has increased, given its emphasis on in-depth analysis of human changing behaviour established by McCubbin[25]. Thus, we suggest to add behaviour change determinants that is proven to have correlation with mental health and stress level in health area which is resilience.

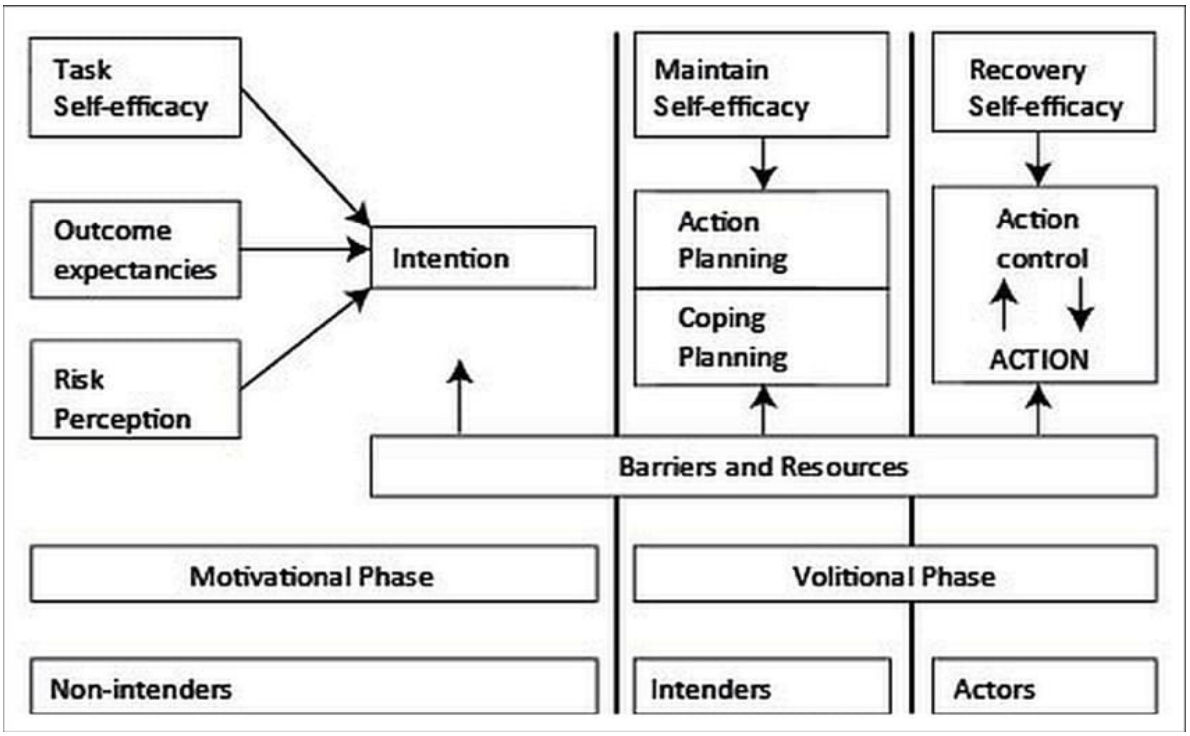

Figure 1: HAPA constructs with behaviour determinant

This study was quasi-experimental, and consisted of pre- and post-intervention of changing behaviour by caregivers. The intervention was conducted in four sessions comprising meetings over four weeks. The meetings were completed by a workbook of HAPA constructs, individual care plans, comprehensive learning activities, surveys of care type done by caregivers, and interviews for cross-check analysis. Subjects were given information about the study and meetings in the first class. Before the study began, we collected the data of caregivers in Malang responsible for caring for ADHD children from parent group and children clinics. Twenty seven caregivers were approached. Nonetheless, only 24 caregivers agreed and signed the consent to participate in the study. The pilot meeting was held to collect data of caregivers' backgrounds including their socio-demographic characteristics. Consented participants then joined the study by learning about HAPA constructs and their perspective in answer sheets included inside the workbook. They defined their driving intention in providing care for ADHD children (intention), maintaining their mental health while experiencing fatigue or burnout (maintain self-efficacy), their plan to consistently adapt to the growth of ADHD children (action and coping planning), and their attempts to make it right (recovery self-efficacy and action). Participants then filled the pre-assessment of caregiver resilience before the intervention consisting of five indicators using Connor-Davidson Resilience Scale (CD-RISC), namely: 1) personal competence, 2) trust in one's instincts and tolerance of negative effect, 3) positive acceptance of change, 4) control and 5) spiritual influences. It exhibits a high level of internal consistency convergent validity and a high test-retest reliability[26,27]. After we assessed the initial caregiver resilience, the intervention began with first session of meeting to have the participants knowing about adaptability to ADHD children. The second session was held to examine their care pattern and coping style regarding children's tantrums. The third session was focused on the new approach to adapt to ADHD children using HAPA constructs. The last session held to create a plan on care process in the future to strengthen caregiver resilience and to open their experience. After the last session, we conducted post-assessment of caregiver resilience and interview.

Data collecting

Data were collected using interviews after each meeting of the intervention. Caregivers' resilience

was measured by five items adopted from CD-RISC previous studies[14,15,18,28–30]. Then, they were interviewed with several statements related to five indicators of resilience scale by CD-RISC. One of the interview questions was "during the care of children with ADHD, how often have you felt that you were burnt out and stressed?" (this question is related to indicator 1: "personal competence"—precisely it is related to interpersonal skills to maintain stress), and "since knowing that you have to provide care for children with ADHD, how often have you adapted to the new behaviour that can make you feel anxious?" (this question is related to indicator 3: "positive acceptance of change"). Participants were instructed to rate on a 5-point scale (0 = never; 4 = very often). A higher mean score indicated a higher level of resilience. The Cronbach's alpha was 0.76 in this study. It means that the major of participants felt burnt out and anxious to adapt with changing behaviour when providing care for children with ADHD. Interviews were held to determine whether the caregivers gave honest response and fulfilled their duty as research participants.

Data analysis

SPSS version 14.0 was used and the significance level was set out to 0.05. First, socio-demographic as participants' background were described using statistic descriptive. Caregivers who signed the ethic were collecting their data filled online before the first meeting began. During the meetings, we collected the data from surveys and interviews and began to analyze pre- (before intervention) and post-assessment (after intervention) using CD-RISC questionnaire to get the data of caregiver resilience. Second, we conducted regression analysis to find the path between HAPA constructs and caregivers' resilience as behaviour determinant. Cronbach alpha was used as parameter of statistics measurement. The analysis was done qualitatively because the number of sample size was small.

Ethical consideration

Participants were undertaken the ethical form that has been supervised by Social Health Committee of Faculty in our University. There were 19 of 24 caregivers that has signed the ethic and attended the study until the end. The consent form was consisted of rights, schedules, consideration, anonymous side of participants, and legal obligation.

Results

Among 24 first respondents, there were the 19 participants who signed the consent for the study. Five caregivers refused to participate because of several reasons, namely: 1) one did not have sufficient time to participate, 2) two doubted they had time time and capacity between taking care of their children to join the four straight meetings in four weeks, 3) one did not feel safe to tell her caregiving stories to other people, and 4) one was subtly busy to learn new knowledge regarding HAPA. Participants who withdrew were housewives who take care of their own ADHD children (parents/family or filial member of care receivers). Of the 19 caregivers, 12 (were families (consisting of parents, grandparents, in laws, or blood-related families) and 7 were non-families caregivers. Table 1 shows the socio-demographic background of caregivers.

Caregivers were mostly middle-aged individuals, and were eleven females and eight males. They had different educational attainment. Most of them had university degrees (10) which means they know how to access medical providers for children with ADHD. The also probably knew how to maintain their mental health and resilience while nursing and caring children with ADHD. The results showed that care-givers experienced emotional outburst, anxiety, and were mentally exhausted from knowing that they need to take care of children with ADHD, while giving care, and after they delegated the process to someone else. Meanwhile, there were risk factors that accompany the clinical mental health of caregivers. The highest rate of risk factors was social disadvantage, debt, or poverty (12) and the least factor to possess is experiencing discrimination or racism (2). The study then continued with collecting data pre- and post-intervention using CD-RISC. Table 2 shows the data of caregiver resilience pre- and post-intervention. The assessment was done twice before and after four weeks of intervention. The results of caregiver resilience data before and after intervention were slightly different. Range of the indicators data were 0-4 according to the options scale of CD-RISC (0 = never; 4 = very often). However, each indicator of

Table 1: Socio-demographic background of participants

Characteristics	Indicator	n (N = 19)
Socio-demographic	Age, years	21-55
	Sex, n	
	Female	11
	Male	8
	Highest educational attainment	
	Less than high school	2
	High school	5
	Trades certificate	1
	College	1
	University	10
Clinical, n (% yes)	Referral indication	
	Emotional outburst	19
	Panic attack	12
	Anxiety	19
	Sleep problem	14
	Weight or appetite change	9
	Feeling guilty or worthless	14
	Extreme mood changes	7
	Mentally exhausted	19
	Withdrawal from social activities	11
	Risk factors	
	Childhood abuse	5
	Social isolation	6
	Experiencing discrimination or racism	2
	Social disadvantage, debt, or poverty	12
	Long-term physical health problem	11
	Sever long-term stress	6

Table 2: Caregiver resilience pre- and post-intervention using CD-RISC

Characteristics of caregiver resilience	Indicators	Overall (N = 19) Pre-intervention (Median)	Post-intervention (Median)
	Personal competence	11	15
	Trust in one's instincts and tolerance of negative effect	9	12
	Positive acceptance of change	10	18
	Control	6	13
	Spiritual influences	17	19

caregiver resilience has increased. The most increased indicator was "positive acceptance of change". It is in line with HAPA construct that support adaptability of behaviour change. Before and after taking care of ADHD children have led to the caregivers' adaptability skills. Whereas "trust in one's instincts and tolerance of negative effect" indicator has the lowest increase. It influences by the burden of caregiver when providing care of ADHD children. This result of descriptive statistics based on CD-RISC of caregiver resilience pre- and post-intervention was adjusted with cross-check using interview on caregivers.

Indicator of resilience 1: Personal competence

Personal competence related to basic and advanced of giving care to other people. This shows that caregiver able or unable to take care of ADHD children. In several interviews' answers, participants have the same point of view that said:

"When I have to do personal care for specifically ADHD children, what I thought first was how can I make them obey the rules and be discipline. The constant tantrum and hyperactivity make me doubt my competence. Do I have to stricken my caring or do I need to soften it? I only can posit myself as carers or I can be their friends? What I know for sure is that I need to master new coping style because the situation is new to me."

The participants mentioned that training ADHD children is different than normal children, especially when it comes to daily habit. As caregiver of ADHD children, they must have the competence of "being a teacher".

Indicator of resilience 2: Trust in one's instincts and tolerance of negative effect

Trust in one's instincts and tolerance of negative effect is related to position the burden of social image of ADHD children that often degrade caregivers' social status. One of the participants addressed the powerful impact of negative effect:

"ADHD children are challenging when it comes to expect the worst case scenario. One day they go out and pick a fight with their teacher of neighbour, go home and we get the direct impact. If I normalize it, I will become the monster of raising my ADHD children and otherwise I accept the blame, but I will be a social victim again and again. Neither is good. Sometimes I accept the coercive attempt of other people blaming my children and the failed parent label. It is horrible."

The other participants have addressed the other issue that they have to maintain extra patience caring for ADHD children and existing in social circle. Any negative effect threw at them will have to filtered so they did not have long period of burnouts.

Indicator of resilience 3: Positive acceptance of change

The first moment caregivers caring for their ADHD children is tough position. They have to adapt a lot because their current living arrangement will be different. Fifteen of nineteen participants stated the same experience:

"I knew that my life will be hard since then. I decided to be fully caregiver of my ADHD children because no one knows their true nature other than me. Even though it is challenging, I tend to stay positive and sane. There were days when I blame the fate for this, but then I realize that this is my own children. They are not 'burden', they are miracle. I am the one who has to be fully aware to change my behaviour according to their symptoms."

Several participants have stated that they quit their job to stay at home with their kids. Others, who were not family related, addressed that they experienced difficult time adjusting with the children behavior. They have to adapt and change their habitual in line with ADHD children so that they can achieve their capacity.

Indicator of resilience 4: Control

Control is hard to achieve especially in the first months they get the children diagnosed with ADHD. They have to adapt and put some control over few things. In example, when participants wanted to teach how to use footwear or shoes, ADHD children tend to throw the them or play with them:

"It is hard to gain control over everything. I spent four months teaching my child to use a pair of shoes. They played or tossed them away, sometimes rode them like toys. Even if I coerce my method of parenting, it will gain nothing. From HAPA knowledge, I now know that is a part of maintain my self-efficacy. I have to re-adjust my planning and coping planning if I want them to follow my lead. The relapse of me being 'it's okay parent' is now over. Either I have to focus my intention or focus on my plan recovery."

Participants who well aware of HAPA constructs then stated that they learnt to be more flexible parents. They adapt, they cope, and they start over. Those are the keys of being resilient as caregivers of ADHD children. They cannot oppress the control, they adapt so ADHD children will share their control to the caregivers.

Indicator of resilience 5: Spiritual influences

In Indonesia, spiritual influences added major of social interaction. From the time being, having ADHD children created social stigma that blame the parents for not being spiritually good:

"I remembered when my big family and neighbour started to blame me having ADHD child because I

was lazy going to the mosque. When I tried to explain from biology aspects, they said I am a secular person. Genetics have nothing to do with spiritual, but they just won't listen."

Other than that, living in poverty also influenced the social status of family with ADHD children. They were shamed for having ADHD children so that they were afraid to join any religious event and that made the gap even bigger.

Discussion

Changing behaviour of caregivers of children with ADHD

When discussing changing behaviour, the first question that must be addressed is the level of motivation a person has to achieve certain behavioural targets. If someone has no intention to carry out the behaviour in question, the individual may not be motivated to change. According to the HAPA, this support can involve motivational constructs such as whether an action is effective (task self-efficacy), the benefits of changing behaviour or expectations of positive outcomes, and awareness of the risks of not changing (relapse of old habits). Conversely, if someone has formed the intention to participate in the behaviour in question, then he is already motivated to achieve the goal of the behaviour. Such people will most likely not benefit from motivational support, but will most likely need behavioural support to overcome the barriers that prevent them from turning their good intentions into action. This support can involve volitional constructs such as recovery self-efficacy, planning and self-monitoring. Apart from that, if the person's behaviour returns to previous behavioural patterns (relapse of old habitual), the strategy that needs to be implemented is to instill optimistic self-confidence to restart actions such as building recovery self-efficacy.

Inappropriate parenting patterns for children with ADHD are risk factors in the development of various health and behavioural problems in childhood which can develop into bad outcomes in adulthood. Strategies to support parents are recognized as an effective ways to improve the health, well-being and the development of chilchildren's health, well-being and development. Parenting is influenced by many factors including the child's behaviour and characteristics, the psychological health and well-being of the parents, and the contextual influences of stress and support. Difficulty in raising children is a major source of stress for parents. An article entitled "Parenting Self-Efficacy, Parenting Stress, and Child Behaviour Before and After a Parenting Program" in the Journal Primary Health Care Research & Development found that one of the factors that accounts for parenting patterns for children with ADHD is self-efficacy[31]. The self-efficacy factor in parenting has been proven to be important for overcoming stress in parenting children with ADHD. The correlation between parenting stress and parenting self-efficacy shows that when self-efficacy increases, the level of parenting stress decreases. This clearly shows that parents who feel less confident in parenting their children also experience higher levels of stress, and have greater self-confidence with less stress. These results were found both at baseline and at follow-up three months after the intervention.

A study entitled "Access to Diagnosis, Treatment, and Supportive Services Among Pharmacotherapy-Treated Children/Adolescents with ADHD in Europe: Data from the Caregiver Perspective on Pediatric ADHD Survey" in the Journal *Neuropsychiatric Disease and Treatment* reported experiences of caregivers/nurses regarding ADHD diagnosis, behavioural therapy, and supportive care for children/adolescents with ADHD across countries in Europe[15]. The caregiver perspective was similarly examined in our research. Th results showed that caregivers' backgrounds, the length of time they received training, and the socio-economic conditions under which they work underlie their work as caregivers. Studies on caregiver perspectives, especially regarding the mental burden borne by caregivers when caring for children with ADHD has never been conducted in Indonesia. This is because the scope of education and care for ADHD children in Indonesia is still considered 'large' or cannot be reached by all social classes[1]. Our research was intended to cover this aspect, with the expected output designed to contribute to the literature on changes in caregiver behaviour when caring for children with ADHD and their parenting patterns.

The presence of an ADHD child in a family certainly has a psychological impact on other family members, namely parents, siblings and relatives outside the nuclear family. The discussion about psychological impacts is further examined through a

resilience framework. It is important to campaign about resilience in activities held by health facilities[32]. Related to this, the basic theory that underlies resilience in facing various health problems can be analyzed based on the diversity and socioeconomic complexity of families in facing challenges. Focusing more on the presence of family members who have ADHD, resilience needs to be optimised so that target care does not decrease. In the book entitled *Strengthening Family Resilience*, was resilience was described as being especially important in mental health problems experienced by one or more family members because it is related to adaptation to change[33].

There is no doubt that the presenting symptoms of ADHD, for example, excessive activity, impulsivity, inability to complete tasks, and persistent resistance to discipline, present significant challenges to parents and families[34]. Mothers and fathers of children with ADHD experience considerable stress in their roles as parents[35]. This is a consideration that parents are 'unable' to care for their ADHD children without a professional person assisting them in this case a caregiver specifically for ADHD children. Meanwhile, parents who pay attention to their child's care will think of the cost of treating children with ADHD, which tends to be expensive. This means that parents have to continue working and cannot supervise their ADHD children 24/7, so the choice to employ caregivers in health services is an important decision to make. The existence of quasi-delegation of power from parents to non-family caregivers to care for their children who have ADHD is an important focus of our research because there has not been much literature on non-family caregivers in caring for children with ADHD.

HAPA constructs applied to caregivers of children with ADHD

Perception of health threats is often seen as an important prerequisite for individuals to be motivated to change their risk behaviour[21]. In relation to resilience, risk perception is a potential trigger or that makes a person tough in facing a challenge, an example being resilience in parenting children with ADHD. If the caregiver is able to perceive the risks he or she will bear when caring for an ADHD child, then he or she can map out his or her intentions in carrying out appropriate parenting patterns for the child's health. For example, caring for an ADHD child is certainly more tiring than an ordinary child. The intentions the parents hold will determine their level of resilience during the parenting process.

Outcome expectations in caring for children with ADHD also determine the caregiver's intentions during the caregiving process. By analogy with the expectation of results, if a caregiver can care for an ADHD child so that they can grow optimally according to the child's growth and development stages, then self-confidence will arise because they have succeeded in surpassing the challenge. This self-confidence will support the caregiver's resilience to do the job well. The more the expectations of results are reflected in a person's behavioural process, the better their resilience will be. A strong personality is not formed instantly, but is a repeated process for it to be sustainable.

There are three types of self-efficacy in the HAPA construct. These types of self-efficacy can specifically describe each stage of HAPA in mapping and planning changes in caregiver behaviour in caring for children with ADHD. Task self-efficacy shows the intention of why caregivers care for children with ADHD (for example: for purely work reasons, financial reasons, or reasons for liking humanitarian work). Maintaining self-efficacy shows awareness that caring for an ADHD child means being responsible for the life needs, so parenting patterns must be right on target according to the condition of the ADHD child being cared for. Maintaining self-efficacy is directly related to planning and controlling actions that lead to resilience in caregivers of children with ADHD. Recovery self-efficacy anticipates new behavioural shifts being formed, so that the process remains on track[36].

The connection with resilience, action planning, and coping planning leads to individual resilience in the aspect of "preparation" in facing the obstacles that occur and the resources they have. If the caregiver has a good plan for dealing with an ADHD child, then their resilience during the caregiving process will also be good and can last until the caregiving process is finished (for example: not feeling bored or burn out or even feeling depressed due to mental fatigue)[37].

Action control is a self-regulatory strategy to encourage maintenance of behaviour carried out through continuous monitoring and evaluation of behaviour against desired behavioural standards[38].

Unlike self-efficacy and planning strategies, which are generally acquired before a behaviour is carried out, action control is carried out retrospectively or simultaneously with a behaviour each time the behaviour is repeated, where ongoing behaviour is continuously evaluated based on behavioural standards. According to the interview results, one of the participants stated that religious perspective holds the biggest influence on nurturing ADHD children (indicator 5: "spiritual influences"). Even though caregiver has emanated optimum action control to the action and coping planning, the obstacle of uninvolved in the religious activities may led to misunderstanding. The people from caregivers of ADHD children neighbourhood gave a perspective that ADHD children were born from parents who were not religious—somehow people around them said that they were cursed and not blessed by the God.

Barriers and resources include events, resources, supports, or other factors that hinder or facilitate behavioural change. Social support and social norms are two factors that reflect the obstacles and resources that are part of the HAPA model. Social support is a resource, while a lack of resources can be an obstacle in the process of changing behaviour. Situational obstacles as well as opportunities must be considered. If situational cues are too numerous, meta-cognitive skills fail to protect the individual and the temptation to return to old behaviour (relapse of old habitual) cannot be resisted. Actions are not only a function of intention and cognitive control, but are also influenced by perceived and actual environments. From resilience scale results, indicator 1 "personal competence" is related with interpersonal skills. Caregivers who were partake in this study stated that stress, anxiety, and burnout were the main barriers to overcome and they were still undertaken this with struggle. A new perspective of HAPA carried out in this study helped them to have new knowledge nurturing and providing care for ADHD children in a better way.

Conclusions

The results of this study indicate that if the caregiver is able to perceive the risks he or she will bear when caring for an ADHD child, then he or she can identify specific intentions in implementing appropriate parenting patterns for the child. The adaptive function of future orientation in response to caregivers' resilience to change behaviour as care providers perceive a significant outcome as behaviour determinant. Importantly, the link between resilience and reduced stress could be mitigated by encouraging caregivers to be stronger and more responsive.

Limitation

This study cannot cover all of caregivers of ADHD children in Indonesia because the number of samples was small. Thus, the results can become a new knowledge that HAPA constructs might be helping caregivers to provide a better understanding of behavior change and adaptability to their current condition. Large scale of study and bigger sample size will help to emphasize this study in the future.

Contribution of authors

The author Meilina Ratna Dianti provided data to analyze and initial intervention for study purposes. Author also made the conceptual framework of the research in order to preserve the flow of the study and interviewed the subjects, in this case the caregivers who provide care for children with ADHD. The second author Ira Nurmala helped designing the questionnaires and interviews. The third author Nunik Puspitasari emphasized on data analysis and suggested to qualitative understanding.

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