

Age group-based interventions to improve psychological outcomes in people living with HIV: A systematic review

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Literature Review

ABSTRACT

ARTICLE INFO

Keywords:

Age group,
psychology,
HIV,
experiment

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DOI: 10.20885/JKKI.Vol14.Iss3.art14

History:

Received: March 17, 2023

Accepted: December 9, 2023

Online: December 30, 2023

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People living with HIV (PLWH) experience higher psychological distress than the general population. Interventions to improve PLWH's psychological condition need to be adjusted to their age as each age group's cognitive abilities are different. This systematic review aims to demonstrate age group-based interventions to improve psychological outcomes in PLWH. A search on articles (2014-2022) focused on experimental studies was conducted on Scopus, SAGE Journal, Science Direct, and PubMed. The searched articles tested interventions to improve psychological outcomes in PLWH and were published in English. The Joanna Briggs Institute (JBI) guidelines were used to assess their eligibility, and PRISMA diagram was used to compile the results of the search. Fifteen studies that matched the inclusion criteria were obtained, and they had experimental study designs. Several types of interventions were identified from the obtained literature. These interventions were designed according to their research subjects, and had been proven to have a significant effect on improving psychosocial conditions and quality of life in PLWH. Further research about age group-based interventions to improve psychological outcomes in PLWH is necessarily suggested. Future research is expected to be able to design interventions that focus on building resilience in individuals. The resilience is to make individuals manage their stress optimally. This may improve not only their psychosocial status but also their adherence to treatment and quality of life.

Orang yang hidup dengan HIV (ODHIV) mengalami tekanan psikologis yang lebih tinggi dibandingkan populasi umum. Intervensi untuk memperbaiki kondisi psikologis ODHIV perlu disesuaikan dengan usia karena kemampuan kognitif setiap kelompok usia berbeda. Tinjauan sistematis ini bertujuan untuk menggambarkan intervensi berbasis kelompok usia untuk meningkatkan hasil psikologis pada ODHIV. Pencarian studi menggunakan database Scopus, SAGE Journal, Science Direct, dan PubMed, dengan desain studi eksperimental dalam bahasa Inggris yang diterbitkan antara tahun 2014-2022 dan menguji intervensi untuk meningkatkan hasil psikologis pada ODHIV. Kelayakan artikel dinilai menggunakan JBI Checklist dan hasil pencarian disusun dalam diagram PRISMA. Hasil penyaringan artikel didapatkan lima belas studi yang cocok dengan kriteria inklusi. Semua artikel memiliki desain studi eksperimental. Beberapa jenis intervensi diidentifikasi dari hasil pencarian literatur. Intervensi ini dirancang sesuai dengan karakteristik subjek penelitian, dan telah terbukti memberikan pengaruh yang signifikan terhadap peningkatan kondisi psikososial dan kualitas hidup ODHIV. Diperlukan penelitian lebih lanjut tentang intervensi berbasis kelompok usia untuk meningkatkan luaran psikologis pada ODHIV. Penelitian selanjutnya diharapkan mampu merancang intervensi yang berfokus untuk membangun resiliensi pada individu. Terbentuknya resiliensi dapat memungkinkan individu melakukan manajemen stres secara optimal. Hal ini dapat meningkatkan status psikososial, serta kepatuhan terhadap pengobatan dan kualitas hidup.

INTRODUCTION

Human immunodeficiency virus (HIV) is an infectious disease with case numbers that are still

increasing every year. Despite significant progress in HIV treatment, more than 1.5 million people in the world were newly infected with HIV in 2021.¹

This increase also occurred in Indonesia, reaching 427,201 people in 2021, higher than the previous year (2020) with 409,857 new cases.² Several studies have shown that PLWH experience higher psychological distress, such as depression and anxiety, than the general population. In addition, PLWH also often face interpersonal difficulties in the form of social stigma and discrimination. These difficulties are associated with poor health behaviours such as poor medication adherence and low visitation frequency.³ Based on the Indonesian Ministry of Health's report on HIV care and antiretroviral therapy in 2021, of 269,289 PLWH undergoing ARV therapy, 68,508 people (26%) were lost to follow-up (LFU).⁴ The LFU rate influences PLWH's quality of life, including in the physical (63.0%), psychological (58.0%), social (54.0%), and environmental (33.0%) domains.⁵

Patients with chronic diseases, including HIV, experience uncertainty about their health condition. This can result in mental stress, thereby affecting the physical, social, spiritual, psychological, and economic dimensions of their daily activities.⁶ Based on psychological perspective, PLWH face various limitations in their social and cultural environment, and this is usually a stressful experience. Serious social and psychological consequences due to HIV are important factors contributing to the spread of the virus. HIV status disclosure is a constant challenge and potential stressor, and its impact can be a social stressor.⁷ Individual abilities and emotional responses in stress management and adaptive coping are needed to improve the PLWH's psychological conditions and quality of life.^{8,9} Resilience-related resources are needed to improve behaviour and better health outcomes, which are potential to help the PLWH overcome their adversity's negative effects.^{8,10} The resilience-forming process in PLWH can have obstacles due to inadequate coping ability and self-regulation. Self-regulation has an influence on self-control and improve the quality of life, which is a key to managing HIV/AIDS.¹¹

Stress, depression, and other psychological disorders are experienced not only by adults with HIV but also by children who suffer from HIV from their parents. In addition, these children's mental health is indirectly affected by the quality of care they receive. Caregivers who care for children with HIV often provide suboptimal care, thus affecting

the burden of care and the child's quality of life. These conditions explain the need for interventions that address factors at various environmental ecological and age levels to improve these adults and children's psychological status.¹² Several previous studies have explained that family-based interventions are appropriate and can significantly reduce depressive symptoms in children aged 6-14 years living with HIV-positive mothers in the United States.¹³ Meanwhile, several studies with adult subjects with HIV found individual interventions useful, such as cognitive therapy to mindfulness-based therapy.^{3,7,14-16} Several studies and reviews have previously only explained interventions' effectiveness in one age group. No studies have explained interventions to improve psychological outcomes in different age groups, especially in subjects with HIV. This systematic review aims to demonstrate age group-based interventions to improve psychological outcomes in PLWH.

METHODS

This systematic review was conducted using a standard methodology published by IOP Introductory guide for authors. We followed the Preferred Reporting Item for Systematic Reviews and Meta-analyses (PRISMA) guidelines.¹⁷ This systematic review was made in such a way to obtain answers about the age group-based interventions to improve psychological outcomes in PLWH.

Information sources and search strategy

The literature search was conducted in 01 November-31 December 2022. The data used in this study were secondary data obtained from previous studies and were not direct observation. The secondary data were obtained from reputable international journal articles with a predetermined theme. The literature was obtained from the Scopus database, SAGE of Journal, Science Direct, and PubMed.

Study eligibility and selection criteria

In this section, the obtained articles were selected based on predetermined keywords. The PICOS (P: problem or population, I: intervention, C: control or comparison, O: outcome, S: study design) format was used as an indicator for the articles' suitability assessment. The PICOS criteria

can be seen in Table 1. The keyword search was performed by using MeSH terms. The specific keywords used to search for the articles are in Table 2.

Selection of study

All authors (NL, N, and RI) scanned the academic databases. Then we conducted the selecting process of the articles (NL, N and RI). The total number of studies from the initial database search was 607 articles. These articles were then checked, and the duplicates were removed. Next, we independently reviewed the titles and abstracts yielded by this comprehensive search and then selected articles based on the predetermined inclusion and exclusion criteria. Titles and abstracts were screened to include articles that first referred to interventions in HIV patients and any terms related to psychological responses (as listed in the search terms above). We found 41 relevant studies from the main

database and independently read them in full text. Subsequently, disagreements between us, the reviewers, were resolved by consensus or by the decision of a third independent reviewer. A level of consensus of 80.0% or higher was considered to represent strong agreement.¹⁸ Finally, 15 studies were included in this systematic review (Figure 1).

Data extraction, analysis, and synthesis

The data extraction process used a Microsoft Excel sheet. The data were obtained from each article that met the inclusion criteria. All the articles were read, and we extracted the data independently. Then any discrepancies were discussed and resolved consensually. When differences could not be resolved, a third opinion would be sought, which might prove unnecessary. Given the apparent heterogeneity among studies in types of psychological interventions, length of interventions and study designs, a meta-analysis was impossible. Thus, we only conducted a

Table 1. PICOS criteria

Criteria	Inclusion	Exclusion
Population	Studies comprised of HIV patients	Discussing about caregivers or family with HIV
Intervention	All type of interventions for HIV patients	Interventions only in caregivers or family with HIV
Comparison	No comparator	No comparator
Outcome	All of psychological outcomes (e.g., stress, depression, coping, and resilience)	Discussing only the physical outcomes or other dimensions
Study design & publication type	RCT, quasi-experimental, and pilot study	Article reviews, cross-sectional
Publication year	After 2014	Before 2014
Language	English	Languages other than English

PICOS (Problem or population, I intervention, C: Control or comparison, O: outcome, S: study design; HIV: Human Immunodeficiency Virus; RCT: Randomized Controlled Trial)

Table 2. Search strategy

Source	Search strategy	Hits retrieved
SCOPUS	HIV OR Human Immunodeficiency Virus OR Acquired Immunodeficiency Syndrome Virus OR AIDS AND Psychological outcomes OR Stress OR Depression AND RCT OR randomized controlled trial AND experimental study	34
SAGE of Journal	HIV OR Human Immunodeficiency Virus OR Acquired Immunodeficiency Syndrome Virus OR AIDS AND Psychological outcomes OR Stress OR Depression AND RCT OR randomized controlled trial AND experimental study	320
Science Direct	HIV OR Human Immunodeficiency Virus OR Acquired Immunodeficiency Syndrome Virus OR AIDS AND Psychological outcomes OR Stress OR Depression AND RCT OR randomized controlled trial AND experimental study	82
PubMed	HIV OR Human Immunodeficiency Virus OR Acquired Immunodeficiency Syndrome Virus OR AIDS AND Psychological outcomes OR Stress OR Depression AND RCT OR randomized controlled trial AND experimental study	171

RCT: Randomized Controlled Trial, AIDS: acquired immunodeficiency syndrome

narrative review of the findings. We analysed the data by using PICO Synthesis. The stages of the synthesis began with identifying the characteristics of the study (population, intervention, comparison, outcome, and study design) in each article obtained, and then grouping them based on the Cochrane Handbook for Systematic Reviews.¹⁹

Risk of biases and study quality

The authors identified study quality by considering the risk of biases. This assessment aimed to assess a study's methodological quality and to determine the extent to which a study has overcome possible biases in its design, implementation, and analysis. To identify the risk of biases, this systematic review used the JBI Critical Appraisal tool following the research design.²⁰ Then we assessed the articles that had been selected. The scoring results were then

categorized by the percentage, which was $\geq 75\%$ = Good, 50-75% = Fair, and $<50\%$ = Poor.²⁰

RESULTS

Based on the literature search results, 607 articles were found and matched the keyword search, such as articles from the Scopus database (n=34), SAGE Journal (n= 320), Science Direct (n=82), and PubMed (n=171). Article duplication checks were performed on the 607 articles. There were 25 duplicates found, which were excluded from the search results, and 179 records were removed for other reasons, thereby remaining 403 articles. After further screening, the remaining articles were screened based on title (n=373), abstract (n=41), and full text (n=15). Based on the eligibility screening based on the inclusion and exclusion criteria, 15 articles could be used in this review.

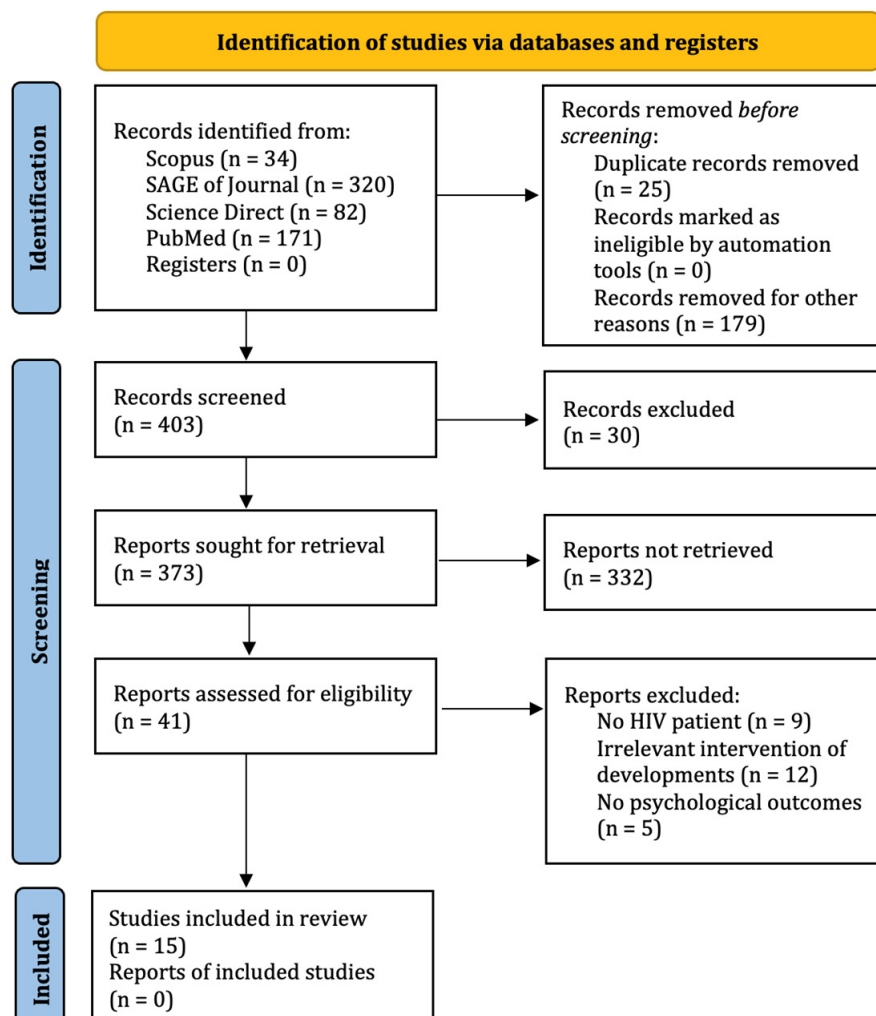


Figure 1. Flowchart Used in Selecting Studies by Using PRISMA (Preferred Reporting Items for Systematic Review and Meta-Analyses), HIV: Human Immunodeficiency Virus

Table 3. Checklist for Randomized Control Trial (RCT) and Non-Randomized Control Trial from The Joanna Briggs Institute

Studies Included: Randomized Control Trial (RCT) 13 Questions															
Author	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Total Score	Category
Aghaie, N. et al. ³	Y	N	Y	N	N	Y	N	Y	Y	N	Y	Y	Y	8/13	61.5% (Fair)
Eloff et al. ²¹	Y	N	Y	N	N	Y	N	Y	Y	Y	Y	Y	Y	9/13	69.2% (Fair)
Dow et al. ²²	Y	N	Y	N	N	Y	N	Y	Y	Y	Y	Y	Y	9/13	69.2% (Fair)
Rodkjaer et al. ⁷	N	N	Y	N	N	N	N	Y	Y	Y	Y	Y	Y	7/13	53.8% (Fair)
Jiang et al. ¹²	Y	Y	Y	N	N	Y	N	Y	Y	Y	Y	Y	Y	10/13	76.9% (Good)
Vreeman et al. ²³	Y	N	Y	N	N	Y	N	Y	Y	Y	Y	Y	Y	9/13	69.2% (Fair)
Li X, et al. ²⁴	Y	Y	Y	N	N	Y	N	Y	Y	Y	Y	Y	Y	10/13	76.9% (Good)
Harding et al. ²⁵	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	12/13	92.3% (Good)
Hecht et al. ¹⁵	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	12/13	92.3% (Good)
Bogart et al. ²⁶	Y	N	Y	N	N	Y	N	Y	Y	Y	Y	Y	Y	9/13	69.2% (Fair)
Studies Included: Non-Randomized Control Trial 9 Questions															
Author	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Total Score		Category			
Fazeli et al. ²⁷	Y	Y	N	N	Y	Y	N	Y	Y	6/9		66.6% (Fair)			
Mirzapour et al. ⁶	Y	N	N	Y	Y	Y	Y	Y	Y	7/9		77.7% (Good)			
Pokharel & Settigar. ²⁸	Y	Y	N	Y	Y	Y	Y	Y	Y	8/9		88.8% (Good)			
Samhkaniyan et al. ¹⁴	Y	Y	Y	Y	Y	Y	Y	Y	Y	9/9		100% (Good)			
Paulus et al. ¹⁶	Y	Y	N	N	Y	Y	Y	Y	Y	7/9		77.7% (Good)			

Note: Y: Present; NA: Not Applicable; N: Not Present; RCT: Randomized Control Trial; Non RCT: Non-Randomized Control Trial.

Table 4. Description of study characteristics

Indicator	Category	(n =15)	Percentage (%)
Study design	Randomized Controlled Trial (RCT)	10	66.7
	Non-Randomized Controlled Trial	5	33.3
Country	United States	4	26.7
	African continent (Tanzania and Kenya)	4	26.7
	Iran	3	20.0
	China	2	13.4
	Denmark	1	6.6
	India	1	6.6
	Intervention type	Mindfulness-based stress reduction (MBSR)	3
Resilience intervention		2	13.3
Child-caregiver- advocacy resilience (ChildCARE) intervention		2	13.3
Combination of Cognitive Based Therapy (CBT)		2	13.3
Mental health intervention Sauti ya Vijana (SYV; The Voice of Youth)		1	6.7
HADITHI ('Helping AMPATH Disclose Information and Talk about HIV Infection')		1	6.7
Memory work drawn on narrative therapy		1	6.7
Mind-body intervention		1	6.7
Acceptance and commitment therapy (ACT)		1	6.7
Individual counselling		1	6.7

Respondents' characteristics

This study classified interventions in groups of children and adolescents, as well as groups of adults and the elderly. Six studies included children and adolescents as participants, while the other nine studies involved adults and the elderly. Among the studies on children and adolescents, the youngest participant was 6 years old and the oldest was 17 years old. Meanwhile, the adult and elderly groups consisted of participants aged at least 18 years. The respondents' genders also varied, but in several studies, the majority of respondents were male. The patients' period of time living with HIV was also one of the respondents' inclusion characteristics. These patients had HIV histories of more than 10 years (especially in the adult group). Meanwhile, in the child and adolescent groups, HIV had been existed since their birth.

Study characteristics

Based on the articles reviewed above, more than half of the articles had a randomized controlled trial (RCT) study design (n=10), while the remaining studies were non-randomized controlled trial (n=5). The studies included in this systematic review were from studies in various countries across the world. The majority of studies included in this review were from the United States (n=4) and the African continent, specifically Tanzania and Kenya (n=4). Other countries consisted of Iran (n=3), China (n=2), Denmark (n=1), and India (n=1). Based on the review results, the majority of interventions in children with HIV involved parents or caregivers in their intervention sessions. Meanwhile, in studies with adult and elderly subjects, the interventions were more individual and involved some dimensions, such as the body and mind, to manage their psychological status.

Interventions in child and adolescent groups

Six studies discussed interventions to improve psychological status and mental health of children with HIV.^{12,15,22,23,29,30} Of the six studies, five included parents or caregivers in the intervention phases.^{12,21-23,29} In implementing the interventions, the children still needed help and assistance from adults and those closest to them. The types of the interventions provided also varied, but were adjusted to increase children's interest through methods such as the memory work drawn therapy

intervention.³⁰ In this intervention, children were asked to explore their life stories through artwork written in a "memory book". In addition, the children were also asked to compile a "tree of life", which contained not only painful and sad experiences but also positive values they had, such as courage, survival skills, and hope. Another artwork was a "hero book" which aimed to help children find solutions to their personal and social challenges, especially those related to illness.

Other than games and artwork, interventions for children and adolescents were also performed through mental health interventions. These helped to identify children's concerns about their HIV condition. The mental health intervention was quite simple; it could be done by doing deep breathing relaxation and mindfulness activities aimed to coping with the distress. In addition, the adolescents were also taught cognitive behavioural therapy (CBT) to identify and change negative thoughts, feelings, and behaviours, and also to understand and cope with their HIV-related stress.²² The frequency of interventions for children varied. Most studies had interventions lasting 10 meeting sessions,^{12,22,29} while the other two studies consisted of five to 14 sessions.^{15,23} The intervention duration or length in each session was also considered to prevent the children from feeling bored and help them stay focused. All the meetings were between 75-120 minutes. The final outcomes measured in the child and adolescent groups were depression and severe stress prevention, early coping and resilience formation, and improved ability to perform health behaviours.

Intervention in the form of games, that can be done at home, makes the children feel more comfortable and helps children to identify social support around them, especially parents and caregivers.³⁰ Meanwhile, individual-based interventions such as CBT, mindfulness and breathing relaxation help to regulate individual emotion regulation, manage stress, and prevent ongoing depression.^{12,22,29} These two types of intervention allow optimal building of resilience in the children and adolescents. This is in accordance with the resilience theory expressed by Kumpfer (2002) which explains that individual resilience is influenced not only by personal factors but also by interactions to individuals, the environment, and society.³¹

Through the resilience model developed by Kumpfer, the resilience process must be activated when stress or unexpected challenges (chronic illness) occur and create an imbalance in the individual's homeostasis. In the resilience process, external context (i.e., society's stigma towards chronic infectious diseases: one of which is HIV/AIDS) can interact with a person's internal characteristics (i.e., internal locus of control, emotional intelligence, hope, optimism, and self-efficacy). The interaction between external context and internal characteristics are then buffer the negative impact of stressors, and produce positive outcomes (i.e., adaptation to chronic disease).³¹

Interventions in adult and elderly groups

Nine interventions were given to the adult and elderly groups, with the majority of the interventions being mind-based, such as mindfulness therapy^{3,7,14-16} and cognitive therapy.^{16,26} One type of interventions, namely mindfulness therapy, was treated in groups of five participants.³ The three main components taught in mind-body therapy were warrior/victim behaviour, personal limits and boundaries, and techniques to address fear/stress management. What distinguished child-adolescent interventions and adult-elderly interventions were the techniques. In the adult group, the intervention techniques were more in the form of discussions among participants to develop their emotional intelligence and accurate thinking, better known as reflective discussions.⁷

In addition to mind and body-based interventions, interventions in the form of health counselling²⁸ were also performed in the adult with HIV. In the individual health counselling intervention that conducted by²⁸, PLWH were facilitated to have counselling related to diet. Then, dietary assessments were measured on each individual over the course of three days. The counselling's outcome increased knowledge, attitude and practice (KAP), and nutritional status in PLWH. One study entitled "RISE: Resilience Intervention for Successful Aging Enhancement" focused on elderly HIV patients as research subjects.²⁷ The study was conducted to increase the elderly's resilience by promoting healthy living behaviours both physically and psychologically. Its ultimate goal was to prevent double depression caused by HIV and old age. The media used in

RISE consisted of four video-based modules which discussed several topics, including "Transforming Stress into Resilience", "Taking Responsibility", "Focusing on Empowering Interpretations", and "Creating Meaningful Connections". The treatment frequency in the adult and elderly groups was shorter than in the child and adolescent groups. The majority of the interventions were given in eight sessions.^{3,6,14,15,26} One study intervention by²⁷ was done in only one session in a longer duration of 210 minutes, while other interventions by^{3,6,7,14,15} were only around 60-150 minutes. The psychological outcomes measured on adult and elderly subjects in previous studies were more complex, including personal competence, trust, acceptance, control and spiritual influence.⁷ Whereas in the subject of children and adolescents, psychological outcomes are more focused on preventing stress and depression caused by HIV disease. In addition to adult subjects, it is hoped that the interventions can improve PLWH's self-management abilities in treatment adherence and prevention of opportunistic infections.³²

Comparison of interventions in child/adolescent groups and adult/elderly groups

Interventions in groups of children and adolescents are compared with groups of adults and the elderly based on several indicators such as the types and media of intervention used, subjects involved in the interventions, duration of the interventions, and the final outcome to be achieved in PLWH. A summary of this comparison is explained in the Table 6.

DISCUSSION

The purpose of this study is to explain age group-based interventions to improve psychological outcomes in PLWH. Its results demonstrate that psychological outcomes in PLWH can be achieved through providing interventions that are appropriate to the stage of human development. In the child and adult age groups, the use of interactive media and group games is able to increase children's ability, to socialize, and to improve their behaviour; therefore, they no longer feel lonely and discriminated against by the environment. Interventions in the adult group focus more on improving quality of life and the ability to build resilience when facing various stressors in social life.

Table 5. Descriptive summary of age group intervention

Title	Subjects' Age	Study Design (Sample Size)	Intervention Program	Session Frequency (Session Duration)	Variables	Results
Intervention in Children and Adolescents						
A Randomized Clinical Trial of an Intervention to Promote Resilience in Young Children of HIV-Positive Mothers in South Africa. ²¹	6-10 years old	RCT (E: 199; C: 191) follow up at 6, 8, 12 months	Resilience intervention	14 sessions in separate groups and 10 interactive sessions (75 minutes)	Depression, coping, anxiety, behavioural problems	The intervention in the children reported a temporary increase in anxiety, but did not report differences in depression or emotional intelligence.
Building resilience: a mental health intervention for Tanzanian youth living with HIV. ²²	12-24 years old	RCT (Wave I: 9 girls, 10 boys; Wave II: 10 girls, 9 boys; Wave III: 9 girls, 11 boys)	Mental health intervention Sauti ya Vijana (SYV; The Voice of Youth)	10 group sessions, two individual sessions (90 minutes)	Stressful events, coping, resilience (social support, safe and healthy environment)	SYV promoted youth resilience in new coping skills, improved peer and caregiver relationships, reduced stigma, and improved confidence to live positively according to their personal values.
Effects of a Multilevel Resilience-Based Intervention on Mental Health for Children Affected by Parental HIV: A Cluster Randomized Controlled Trial. ¹²	6-17 years old	RCT (E: child only: 200; child and caregiver: 198; child, caregiver, and community: 197; C: 195)	Child-caregiver-advocacy resilience (ChildCARE) intervention	10 sessions (120 minutes)	Depressive symptoms, anxiety, loneliness	The intervention provided some support for the promise of multilevel resilience-based interventions in improving the mental health of children affected by parental HIV.
Evaluating a patient-centred intervention to increase disclosure and promote resilience for children living with HIV in Kenya. ²³	10-14 years old	RCT (E: 143; C: 142)	HADITHI ('Helping AMPATH Disclose Information and Talk about HIV Infection')	Two-year intervention	Disclosure status, mental and behavioural health, viral load	Between 0 and 6 months, disclosure prevalence increased in intervention groups.
A randomized controlled trial of a resilience-based intervention on psychosocial well-being of children affected by HIV/AIDS: Effects at 6- and 12-month follow-up. ²⁹	6-17 years old	RCT (E: child only: 200; child and caregiver: 198; child, caregiver, and community: 197; C: 195)	Child-caregiver-advocacy resilience (ChildCARE) intervention	10 sessions (120 minutes)	Resilience-related outcomes (self-reported coping, hopefulness, emotional regulation, and self-control)	Intervention groups demonstrated improvements in several resilience-related outcomes at the 6- and 12-month follow-ups, including self-reported coping, hopefulness, emotional regulation, and self-control.
Improving psychological outcomes for orphans living with HIV in Tanzania through a novel intervention to improve resilience: findings from a pilot RCT. ³⁰	14-18 years old	Pilot RCT with nested focus group (FGD) (E: 24; C: 24) follow up at 2 and 9 weeks	Memory work drawn on narrative therapy	Five sessions (90 minutes)	Resilience (ability to do activities better) and psychological outcomes (symptoms, self-worth, and mental health)	The intervention improved resilience outcomes in terms of symptoms management, self-worth, and mental health.

Title	Subjects' Age	Study Design (Sample Size)	Intervention Program	Session Frequency (Session Duration)	Variables	Results
Intervention in Adult and Elderly						
Effectiveness of mindfulness-based stress reduction training on resilience in Iranian HIV-positive women: A clinical trial. ³	18-45 years old	RCT (E: 43; C: 44) follow up at 4 and 8 weeks	Mindfulness-based stress reduction (MBSR)	Eight sessions (60 minutes)	Resilience	There was an increase in individual resilience in terms of personal competence, trust, acceptance, control and spiritual influence.
The Effect of a Mind-Body Intervention on Mental Health and Coping Self-Efficacy in HIV-Infected Individuals: A Feasibility Study. ⁷	At least 18 years old	RCT (E: 15; C: 14) follow up at 3, 6, and 9 months	Mind-body intervention	3-day residential course plus two single-day/8-h follow-up events	Coping, self-efficacy and mental health	At the 6th month follow-up, significant differences were found in the levels of depression, coping, self-efficacy, stress and personal growth.
Examining the Acceptability of a Resilience Building Intervention among Adults Aging with HIV. ²⁷	At least 40 years old	Feasibility study (n = 14)	RISE: Resilience intervention for successful aging enhancement	One session (210 minutes)	Resilience, depressive symptoms and ability to manage HIV	The intervention improved respondents' resilience, mood, and ability to manage HIV.
Comparison of the Effectiveness of Positive Thinking Group Training and Acceptance and Commitment Therapy on Psychological Wellbeing and Risky Behaviours of Patients with HIV. ⁶	At least 18 years old	Quasi-experimental (E: positive thinking: 15; ACT: 15; C: 15)	Acceptance and commitment therapy (ACT)	Eight sessions (90 minutes)	Quality of life and resilience	The positive thinking group training was effective in promoting quality of life and resilience.
A randomized, controlled trial of mindfulness-based stress reduction in HIV infection. ¹⁵	At least 18 years old	RCT (E: 89; C: 88) Follow up at 3, 6, and 9 months	Mindfulness-based stress reduction (MBSR)	Eight sessions (150 minutes)	Immunological (ie, CD4+ t-cell counts) and resilience-related outcomes	Intervention groups demonstrated improvements in several resilience-related outcomes at the 6- and 12-month follow-ups.
Impact of counselling in knowledge, attitude and practice and association of nutritional status with CD4 count and opportunistic infections of HIV patients of Udipi, India. ²⁸	20-55 years old	Quasi-experimental (E: 33; C: 33)	Individual counselling	One visit counselling and three days dietary assessment	Knowledge, attitude, and practice (KAP)	There was an increase in knowledge, attitude, and practice (KAP) and nutritional status after the intervention.
The effectiveness of mindfulness-based cognitive therapy on quality of life and loneliness of women with HIV. ¹⁴	20-45 years old	Quasi-experimental (E: 12; C: 12)	Mindfulness-based cognitive therapy intervention	Eight sessions (120 minutes)	Quality of life, loneliness	Mindfulness-based cognitive theory increased the mean quality of life and decreased loneliness.
Pilot Randomized Controlled Trial of an Intervention to Improve Coping with Intersectional Stigma and Medication Adherence Among HIV-Positive Latinx Sexual Minority Men. ²⁶	At least 18 years old	RCT (E: 33; C: 33)	Combination of CBT and dialectical behaviour therapy (DBT)	Eight sessions (duration not explained)	Adherence, coping, medical mistrust, and internalized stigma	The intervention significantly decreased negative religious coping beliefs in response to stigma and medical mistrust of respondents.
Trajectory of change in anxiety sensitivity in relation to anxiety, depression, and quality of life among persons living with HIV/AIDS following transdiagnostic cognitive-behavioural therapy. ¹⁶	18-65 years old	Feasibility Study (n = 35)	Cognitive behavioural therapy (CBT)	Six sessions (duration not explained)	Anxiety, depression, and quality of life	Results indicated that reductions in anxiety sensitivity were significantly related to changes in anxiety, depression, and quality of life

Table 6. The comparison of interventions

Indicators	Child/Adolescent Groups	Adults/Elderly Groups
Type and media of intervention	<ul style="list-style-type: none"> • The type of intervention is mostly in the form of group sessions which aim to enable children to socialize with peers. • The use of media such as games and drawing activities are used to teach children and adolescent about what they can do when they experience an unpleasant event. 	<ul style="list-style-type: none"> • Interventions are performed individually and focused on the problems faced by each individual. • The types of intervention used are more about focusing the mind and increasing concentration in PLWH such as mind-body therapy.
Subject of intervention	<ul style="list-style-type: none"> • The subject's intervention, apart from children with HIV, also include parents and/or caregivers, especially for children who do not yet know their HIV status. • Parents or caregivers are taught how to manage stress in children, and are provided with assistance to manage the burden of care. 	Interventions are performed directly on PLWH without involving other parties or people closest to the patients.
Duration of intervention	The duration of the interventions provided was almost the same. However, in the child and adolescents group the intervention sessions provided were slightly longer. This is because the initial intervention session is aimed more at establishing comfort in children and the process of introducing them to the intervention environment that will be performed.	
Psychological outcomes	The outcomes to be achieved focus on improving children's behaviour by increasing self-confidence and teaching them how to socialize.	The outcomes to be achieved are more directed towards improving the quality of life and resilience in facing other stressors encountered every day, one of which is socio-economic problems.

PLWH: People living with HIV

The potential number of psychological dimensions that could be relevant for clinical outcomes and quality of life in the chronic diseases is large enough. Based on the available literature, the recommended key domains for psychological assessment are depression, stress, self-efficacy, coping, and resilience. Interventions to improve individual psychological conditions need to be treated in children and adolescents. Children and adolescents who suffer from HIV often experience stress and depression because of this inherited disease. Several previous studies have used more adult subjects of PLHW than children and adolescents because of adults' better ability to follow a series of scheduled interventions. Media interventions that are integrated with drawing games are more interesting for children and make them feel more open and freer to express their feelings. One of the interventions developed is memory work therapy (MWT). The MWT's goal is to create a "safe space" in which an orphaned child can explore their life story in an individual or group setting. The MWT draws on narrative therapy, which helps individuals to find and live out empowering parts of the stories that make up their lives.³⁰

Parental HIV infection has profound impacts on a child's psychosocial well-being. Unsurprisingly, many impacted children indicate impaired psychopathologies; previous studies identified increased depression rates, increased problem externalization, poorer social competence, and poorer sense of control in the affected children. Current findings suggest that a resilience-based program tailored to unique needs of this group may—at least initially—yield psychosocial benefits that help to buffer these risks.^{15,29} Several interventions in groups of children and adolescents involve parents or caregivers in the process of interventions. Parent training can empower caregivers of children to learn more effective strategies for resolving conflicts, communicating effectively, and meeting the children's unique emotional and developmental needs. The caregivers themselves may also see improved psychosocial functioning as a result of participation. This may yield better psychological health, improve feelings of support, and reduce stress among caregivers.²⁹

Psychosocial status interventions in the adult and elderly groups focus more on achieving the maximum quality of life. Hence, the interventions

given make more use of individual brain/mind functions combined with body therapy or other cognitive functions. Giving interventions based on mind and body therapy can increase calmness in individuals and reduce cortisol production in the body. Mindfulness can directly increase HIV patients' quality of life through changes in patient behaviour, such as diet, smoking, medication adherence, etc. Additionally, decreasing the negative psychological signs in HIV patients leads to an increase in their quality of life. These psychological signs include stress, depression, and anxiety, which can be overcome through mindfulness therapy.¹⁴ Masoomian et al. also explained similar findings in relation to patients with chronic pain. It was found that mindfulness in reducing patients' response to distressing thoughts and feelings has contributed to improved psychological state. The increase in their physical self-monitoring and bodily awareness resulted in improved physical mechanisms and care. In addition, similar to traditional relaxation training, mindfulness meditation is associated with an increased parasympathetic activation, which may lead to the muscles' deep relaxation and reduce tension and arousal; all of these factors could affect the patients' quality of life. Moreover, the studies' findings revealed that this therapy had a significant positive impact on reducing HIV patients' loneliness.^{3,15,26}

CONCLUSION

Interventions given to PLWH to improve psychological outcomes need to consider age groups. In the child and adolescent groups, interventions will be more effective by playing and providing media in accordance with the children's developmental tasks, as well as involving parents and caregivers to ensure that the burden of care they feel does not affect the children's psychological condition. Meanwhile, interventions in the adult age group are more individualized by utilizing various cognitive functions and individual abilities in responding to stress. It is suggested to combine HIV medication treatment with interventions designed to increase psychological outcomes in PLWH.

CONFLICT OF INTEREST

There is no conflict of interest.

ACKNOWLEDGEMENT

The authors extend their gratitude to the academic authorities (Faculty of Nursing, Universitas Airlangga) for their support and contributions to this study.

AUTHOR CONTRIBUTION

NL: conceiving the manuscript, acquisition, analysing data, drafting the manuscript, and revising the manuscript for important intellectual content. N and RI: supervising, conceiving the manuscript, analysing data, and reviewing the manuscript. All authors provide final approval of the manuscript to be published.

LIST OF ABBREVIATION

HIV: human immunodeficiency virus; PLWH: people living with HIV; JBI: Joanna Briggs Institute, LFU: lost follow up; PRISMA: preferred reporting item for systematic reviews and meta-analyses; PICOS: population, intervention, comparison, outcome, study design; RCT: randomized controlled study; MBSR: Mindfulness-based stress reduction; CBT: Cognitive Based Therapy; ACT: Acceptance and commitment therapy; KAP: knowledge, attitude and practice; MWT: memory work therapy

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