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A systematic review of multi-level intervention to enhance the quality of life patient with human immunodeficiency virus

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ABSTRACT

Human immunodeficiency virus (HIV) and acquired immunodeficiency syndrome (AIDS) are still challenges worldwide. Improvement in quality of life (QoL) is crucial for HIV-infected people. The QoL of HIV-infected patients has been improved by the use of multilevel interventions in various circumstances. This study evaluates the evidence for interventions that target the quality of life of persons with HIV. A systematic review was performed according to the PRISMA guidelines. Science Direct, the Cochrane Library database, and Pubmed were also searched. Three independent reviewers extracted the data. Searches were conducted for articles published from 2013 to 2023. Searching procedures and data abstraction techniques were standardized. The 27 research examined the effects of interventions on HIV-infected people's quality of life. China is the most frequently mentioned country in the 27 studies, appearing as the setting in 8 (29.6%). Following South Africa (14.8%), New York (11.11%) and Kenya (7.4%) were the next most often mentioned countries. For analysis purposes, the interventions used in the 27 reviewed studies were classified into three main categories: individual intervention, family-community intervention, and health service intervention. Significant intervention innovations in quality-of-life research combining several interventions, including individual, family, community, and health system intervention, show the most promising results.

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1. INTRODUCTION

Human immunodeficiency virus (HIV) and acquired immunodeficiency syndrome (AIDS) are still challenges worldwide. This virus attacks the immune system, which causes a decrease in immunity for sufferers so that they are susceptible to infectious diseases and malignancies that can cause death. Based on data from UNAIDS 2019, there are 37.8 million people infected with HIV in the world, and Southeast Asia ranks second in the world for the number of populations with HIV [1]. People living with HIV/AIDS (PLWHA) face physical and economic health problems and severe social problems such as rejection, neglect, criticism, and stigma. HIV/AIDS will negatively affect their quality of life. Health status and quality of life are critical indicators to assess patient adherence and the success of treatment interventions [2], [3].

According to the current WHO definition, a person's view of their position in relation to the culture and value system in which they now live as well as their objectives, standards, expectations, and ambitions constitutes their quality of life [4].

Previous studies have shown that HIV treatment needs to be done comprehensively, starting from individual, family, community, and policyholder approaches [5]. However, little research has examined policy and multilevel approaches to HIV care. Only a few studies have focused on government policy interventions and community-based interventions [6]. HIV services in Indonesia currently consist of prevention efforts, new case finding, diagnosis enforcement, opportunistic infection discovery, prevention, HIV TB co-infection management, chronic care, antiretroviral (ARV) administration, mother-to-child HIV transmission, and sexually transmitted infections (STI) control and treatment [7], [8]. Treatment of HIV/AIDS to develop strategies with approaches from individuals, communities, and policymakers. Multilevel strategy is a system that describes the influence of each level that can be used to improve the quality of life of people living with HIV (PLHIV) [9].

Current literature shows that quality of life in PLHIV is influenced by physical well-being, the health effects of antiretroviral therapy (ART), psychosocial conditions, comorbidities, and the level of social support received. Thus, each intervention aims to influence the physical, psychological, and mental aspects of PLHIV's well-being, impacting their quality of life [10]. Several studies have shown the relationship between ART adherence and quality of life [11], [12], the relationship between quality of life and social support [13]–[15] the relationship between health education and quality of life [16], the relationship between mobile phone use/technology and quality of life [17], [18] and policies to limit social stigma that are positive for quality of life [19].

HIV/AIDS as an infectious disease that affects physical, psychological, and psychosocial needs holistic handling and comprehensive treatment. A multilevel strategy for HIV/AIDS management is expected to improve the health status of patients with HIV/AIDS and prevent the transmission of the virus. Therefore, this study aims to model a multilevel strategy in addressing the challenges of HIV/AIDS in Indonesia.

2. METHOD

The research searched the literature in the Cochrane Library database, PubMed, and Science Direct from 2013 to May 30, 2023. The search strategy focused on four keywords: HIV, interventions, medication, and quality of life. The search strategy was as: search strategy HIV/HIV Infection/human immunodeficiency virus/people living with HIV/PLWH, intervention strategy/social, drug/medication/clinical, and quality of life/health-related quality of life (HRQoL).

The following inclusion criteria were used to include the manuscript in the review: original research papers published in English-language, peer-reviewed journals. This review included studies whose research design was a randomized control trial. Studies involving people living with HIV (PLWH) adolescents and adults were included in this review. There were no specific limitations concerning the setting of the studies to be investigated. Thus, studies in hospitals, clinics, health centers, or community settings were also included. Exclusion criteria focused on quality of life about specific comorbidity/treatment side effects and excluded abstracts presented at conferences, seminars, newsletters, and editor letters. PRISMA diagram of the systematic review flow of this research is shown in Figure 1.

This research categorized the interventions based on a conceptual framework. The framework consists of several levels that we developed, namely the individual level, family level, community level, and health facility level. We developed the framework based on theory and adopted Tantut Susanto's model of interventions for patients with HIV/AIDS [20]. Using the conceptual framework, we categorized the interventions that we obtained through a literature review. We categorized the interventions based on the target of the intervention. The conceptual framework and study characteristics of this research are shown in Figure 2 and Table 1 (see appendix).

3. RESULTS AND DISCUSSION

3.1. Result

The results showed that of the 1478 unique titles discovered, 92 studies detailed and evaluated an HIV care cascade intervention and were subjected to full-text review, and 27 met the inclusion criteria. China is the most frequently mentioned country in the 27 studies, appearing as the setting in 8 (29.6%). Following South Africa (14.8%), New York (11.11%) and Kenya (7.4%) were the next most often mentioned countries. Composition of interventions for analysis purposes, the interventions used in the 27 reviewed studies were classified into three main categories: individual intervention (7), family-community intervention (6), and health service intervention (14).

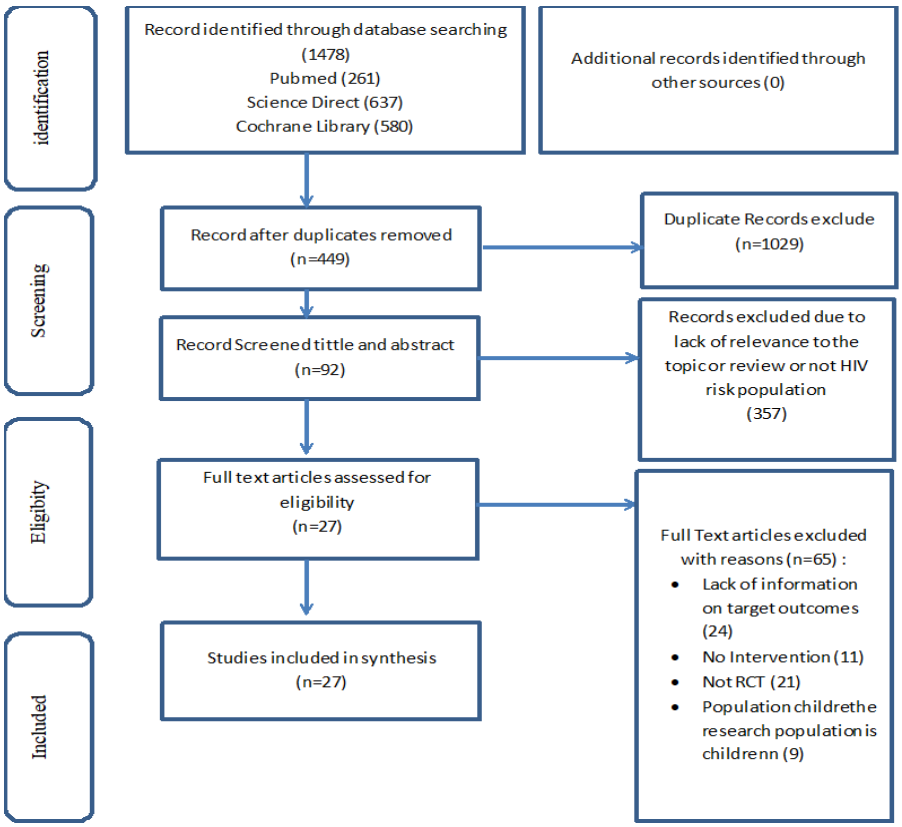

Figure 1. PRISMA diagram

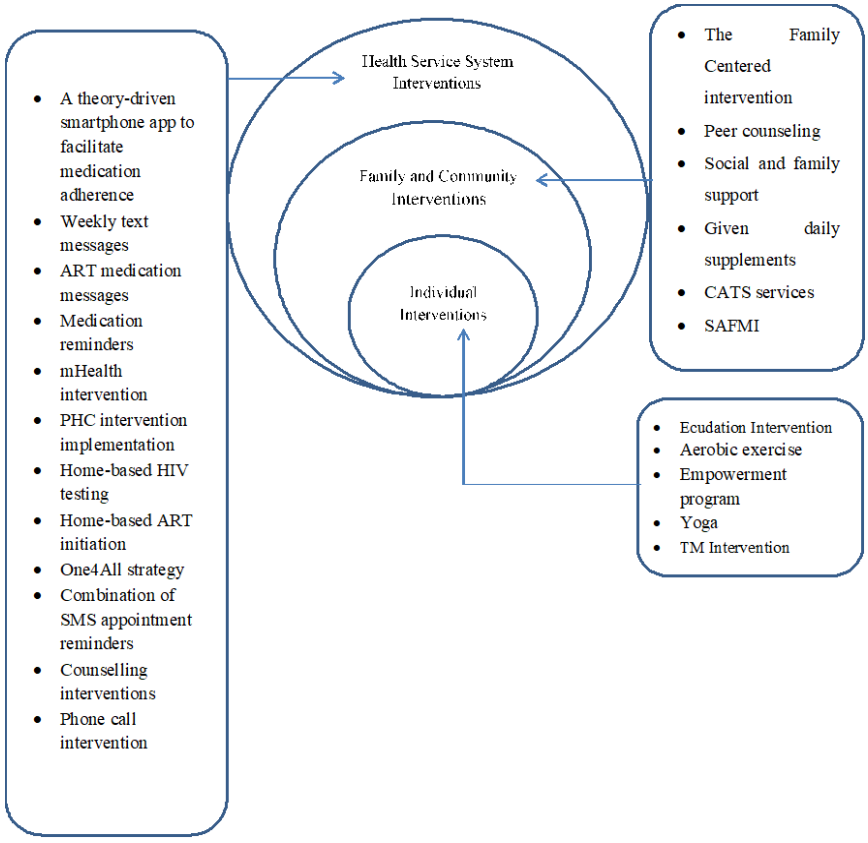

Figure 2. Conceptual framework

3.1.1. Individual intervention

Individual interventions that can be done to improve the quality of life include educational intervention [21], empowerment program [22], yoga [23], transcendental meditation [24], exercise program [25], and aerobic exercise [26], [27]. Health education can be provided through face-to-face communication, augmented by leaflets and follow-up telephone calls for two weeks [18]. The empowerment intervention focused on autonomy and community activism, self-worth and self-efficacy, self-care, optimism, control over the future, family and social relationships, powerlessness, stress management, righteous anger, stigma and discrimination issues, legal provisions, and human and health rights [28]. Participants in the yoga intervention can take 60-minute yoga lessons three times each week. The yoga program featured common hata yoga practices such as asanas (physical poses or postures), meditation (dhyana), breathing exercises, the study of introspection of self-study, and spiritual discourse [23]. Transcendental meditation is a behavioral stress-reduction technique that integrates the mind and body and has been shown to improve outcomes by lowering stress [24]. The intensive phase of transcendental meditation consisted of five consecutive sessions of two hours each day. The exercise program improves the standard of living for HIV-positive people. Participants in the exercise program underwent a lower limb progressive-resisted exercise (PRE) intervention (quadriceps, hamstring, tibialis anterior, and gastrocnemius). Warm-up exercises, stretching, and PRE made up the workout routine. At the physical therapy facility, the aerobic exercise consisted of three 40-minute sessions of moderately intense treadmill work. Exercise is beneficial to the general health and well-being of the HIV population [26].

3.1.2. Family and community intervention

Community and peer interventions focused on the motivational aspect of behavior change. Based on literature studies, interventions that can improve quality of life are family-centered intervention [28], peer counseling [29]–[31], social and family support [32] and community adolescent treatment supporters (CATS) service [33]. The baseline and ongoing assessment of the physical, medical, social, and psychological requirements, volunteer assistance, advance care planning, care coordination, and support for transitions between clinical levels of care are all components of community navigation intervention [31]. Community treatment supporter interventions improve linkage, retention in care, psychosocial well-being, and adherence to ART. The program's interventions comprised a weekly home visit during which the designated CATS informed participants about HIV and ART, offered counseling, and kept track of participant adherence. CATS additionally supported caregivers with information and counseling. The authorized peer counselor would send a message to the participants in the peer counseling intervention via social media or a mobile device [32]. A 60-minute discussion on specific high-risk behavior modification took place during the peer counseling session, including how to cut back on male and female sexual partners, condom-free anal/oral sex, commercial sex, illegal drug usage, alcohol drunkenness, and many concurrent relationships. Family and social support were provided with material, social, emotional, informative, and evaluation support [34], [35].

3.1.3. Health system intervention

Health system intervention must be developed to deal with health problems, including health offices, public health center (PHCs), and the community [20]. Providing education through smartphone apps [33], weekly text messages [36], supplements, and whey or soya [37], messaging on taking ART, reminders to take ART, peer education, and participation in online discussion [31], [38]. The information-motivation-behavioral skills paradigm of ART adherence will serve as the foundation for a four-part health intervention. articles with instructional content, private online messaging with case managers, details on assistance services, and reminders for medical visits [39], PHC intervention [40], home-based HIV testing and immediate ART initiation [41], a bundle of interventions intended to streamline the HIV care cascade [42], a combination of phone call intervention, tailored peer support, psychosocial counseling, and SMS appointment reminders [18], [30].

3.1.4. Multilevel intervention to improve quality of life

Research on structural barriers, policy-level challenges and enablers of HIV clinical research recruiting is still lacking. A few of the initiatives sought to raise. The majority of the participants' diversity was concentrated on getting beyond personal obstacles that prevented them from taking part in the study. As a result, creating an HIV/AIDS intervention model that focuses the relationships between various social factors through a local sociocultural approach is essential. The socio-ecological approach can serve as a roadmap for creating community-based health promotion initiatives [43]. However, every aspect of a society can be optimized in the treatment of HIV/AIDS. A multi-level intervention strategy based on the socioecological approach might be built as an innovation to address the issues presented by HIV/AIDS in the community. In order to achieve community-based rehabilitation, this multi-level model concentrates on the

role of elements at each level of citizen components in the community to manage HIV/AIDS challenges. These goals include improving patient quality of life, lowering the risk of transmission, and doing away with the stigma associated with HIV/AIDS patients in the socio-cultural context of the society [20].

3.2. Discussion

The 27 studies in total fit the criteria in this research. There is an opportunity and need to develop a strategy model for treating HIV/AIDS to improve the quality of life PLWH. Multilevel strategies incorporating individual, community-level, and health system levels, for instance. higher standard of living emphasizing encouragement and inspiration for habit change. The results of individual intervention methods were more mixed. Health education and empowerment intervention is effective in improving their quality of life [22], [44]. The most efficient and economical interventions for PLWH are health education and counseling. Additionally, they increase patients' knowledge and comprehension of the illness [45]. Additionally, good health education and counseling can give PLWH access to health information. Exercise and yoga are the other interventions we can use to improve our quality of life [46]. A significant increase in CD4 cell counts of aerobic and resistance exercises was found in several studies [26], [35]. The most prevalent symptoms among those infected and signs of a poor quality of life are anxiety and depression [47], [48]. Patients benefit greatly from self-management since it allows them to control their behavior and learn disease management techniques. Setting goals based on PLWH's condition and accomplishing them through personal effort will increase PLWH's confidence in themselves [49], [50].

Family involvement can alter an HIV-infected person's psychological state and increase their confidence in their ability to manage the disease. Family members may help patients and keep an eye on their condition at the same time. However, family support is crucial for reducing mental stress, encouraging role adjustment, and enhancing the quality of life for PLWH [15]. Adequate social support, including emotional, practical, and educational help, improves the lives of HIV-positive individuals while also reducing their symptoms of hopelessness, anxiety, and pain [51], [52]. Treatment literacy, treatment reminders, coping mechanisms, and support from family or friends are elements that increase adherence to PLWH [53]. Peers are well placed to provide this due to this shared experience and understanding. A PLWH's psychological state can affect their family members' mental health or well-being; family members' coping mechanisms and mental health might also affect a PLH's psychological state at the same time. The idea of a multilayer intervention was built on the premise that because individual behavior is entangled with several layers, treatments that incorporate tactics for dealing with these layers can concurrently have a bigger overall influence.

Most studies show that technology utilization produces significant quality-of-life improvement results. Mobile health technology (mHealth), such as using a phone, is a brand-new, innovative choice in healthcare [54]–[56]. It can get beyond obstacles like stigma, invasion of privacy, and transportation issues brought on by conventional interventions [57], [58]. Mobile phone technology allows for voice calls, information sharing, prescription reminders via short messaging service, and interaction with medical personnel [59]. A key consideration in the delivery of medical care and treatments is quality of life. In China, home visits and a telephone intervention were the subjects of an intervention study that revealed higher levels of physical, mental health, social interaction, and environmental quality of life [60].

4. CONCLUSION

Significant intervention innovations in quality-of-life research combining several interventions, including individual, family, community, and health system intervention, show the most promising results. This study's quantitative comparison of interventions is restricted by the diversity of intervention designs and the fact that many therapies are multivariate. Additionally, there was no direct cross-comparison or multivariable analysis, hence this study was unable to detect regional differences in quality-of-life improvement initiatives.

APPENDIX

Table 1. Study characteristic (*Continue*)

Author	Research design	Population/ sample	Intervention	Outcome measures
Individual intervention				
[19]	RCT	180 people with HIV	30-minute in-person meeting a booklet, an educational intervention, and a follow-up phone call in two weeks	The treatment of pain, quality of life, and career motivation can be improved with the help of a pain education intervention

Table 1. Study characteristic (*Continue*)

Author	Research design	Population/ sample	Intervention	Outcome measures
[24]	RCT	82 PLWH	In this trial, the intervention group exercised on a moderate-intensity treadmill for 40 minutes three times a week for 12 weeks in the physical therapy section of the hospital.	The four quality-of-life domains showed a considerable improvement, while CD4 cell counts also showed a significant improvement.
[22]	RCT	22 PLWH	Two phases make up the TM intervention, which was led by a licensed instructor. The intensive phase was divided into five days of two-hour sessions that were held back-to-back. Biweekly sessions for the first three months of the follow-up phase were followed by three months of monthly sessions. Throughout the trial, participants were required to practice TM twice daily for 20 minutes each.	Retention rates were 100% for the TM group and 91% for the control group, showing that the intervention was both feasible and well-accepted. Perceived stress was lower in the TM group at the follow-up than at baseline, but it was largely unchanged in the control group. The SF-36 role affective, energy, mental health, social function, and general health domains all indicated improvement for the TM group.
[20]	RCT	120 Women with HIV	After the sample was taken, the participants were separated into three groups at random using a table of random numbers. Each group got the educational intervention, empowerment program, and standard procedures provided by the center, and each group was then monitored by having the questionnaires filled out again. After the operation, 12 weeks	This study shows that providing HIV-positive women with empowerment training is successful in raising their quality of life.
[21]	RCT	22 medically stable PLWH	For 12 weeks, members of the yoga group attended group-based 60-minute Hatha yoga courses three times per week at a yoga studio.	The medical outcome study HIV (MOS-HIV) cognitive sub-scale scores, as well as the depression and HRQOL sub-scales, all significantly improved in the yoga group.
[23]	RCT	80 participants	Participants in the experimental group underwent a lower limb PRE intervention (quadriceps, hamstring, tibialis anterior, and gastrocnemius), whereas those in the control group were instructed to perform routine tasks and activities. The exercise regimen included stretching, PRE, and warm-up.	This study shows that PREs improve HR-QOL for persons with DSP due to HIV/AIDS.
[26]	RCT	1,447 PLWH	Two trainers with graduate degrees in public health at the national level led all of the intervention sessions. The intervention was provided by a facilitator using interactive learning exercises, brainstorming sessions, buzz sessions, lectures, and discussion tactics. Participants were inspired and motivated to interact and converse with various individuals regarding HIV prevention, treatment, and disclosure problems.	An intervention's impact on social support, stigma, and quality of life was significantly impacted by time and group with low and high levels of empowerment. The empowerment intervention proved successful in raising the quality of life for HIV-infected individuals.
Family and community intervention				
[27]	Two-arm controlled clinical trial	288 PLWH	Two in-person sessions with a professional facilitator make up the family-centered intervention arm: Disease-Specific Advance Care Planning Respecting Choices (Session 1) Interview; second session: finishing the advance direction. The control arm for healthy living is Developmental/Relationship History Session 1; and Nutrition Session 2. Following the intervention, follow-up data will be gathered 3, 6, 12, and 18 months later.	Interventions improve patient quality of life, improve patient-centered communication with a surrogate decision-maker regarding end-of-life treatment preferences over time, and save healthcare costs.
[28]	Randomized Intervention Study	367 HIV-Positive	Clinic professionals provided high-risk behavior reduction therapy to standards of care (SOC) members. Participants in the intervention got peer counseling as well as SOC.	Over time, condomless vaginal sex with women, condomless anal sex with males, and illicit drug usage all decreased more significantly with peer counseling.
[50]	RCT	70 Women With HIV	The control group only received minimal care, while the experimental group received full social and familial support. The changes in fertility rate, fertility number, and fertility interval were compared to the improvements in QoL), self-rating anxiety scale (SAS), and self-rating depression scale (SDS) scores between the two groups.	Support from friends and family for HIV-positive women can help them become more fertile, have more children, and have babies sooner. It can also help them deal with anxiety, depression, and other emotional issues. These benefits merit widespread application and social promotion. Following the intervention, the experimental group's QOL scores were noticeably higher than those of the control group.

Table 1. Study characteristic (*Continue*)

Author	Research design	Population/ sample	Intervention	Outcome measures
[37]	RCT	282 PLWH	In Jimma, Ethiopia, three ART clinics housed in public health institutions underwent a randomized controlled study. Throughout the first three months of ART or the following months if they were PLHIV eligible to start ART with a body mass index greater than 17 kg/m, participants received daily supplements of 200 g of LNS containing whey or soya (2).	The first three months of ART should include the use of lipid-based nutritional supplements (LNS), which enhance PLHIV's quality of life.
[31]	RCT	94 HIV-Positive adolescents	47 individuals received conventional care, while 47 further received CATS services.	The intervention group reported an increase in confidence, self-worth, self-esteem, and quality of life that was statistically significant.
[30]			Self- and family management intervention (SAFMI): biofeedback for relaxation: family support; anxiety, stress, and depression management; cognitive-behavioral management skills; and psycho-education	SAFMI: skills in cognitive-behavioral management, family support, managing stress, anxiety, and depression. Biofeedback for relaxation.
Health service intervention				
[58]	RCT	425 HIV patient	Both the intervention group (238 patients) and the control group (187 patients) participated in 1- and 3-month follow-up visits after receiving routine medical consultations. Patients in the intervention group received a theory-driven smartphone app to help HIV patients be more self-sufficient and stick to their medications.	When compared to the control group, the adherence score in the intervention group significantly increased after one month, while the self-efficacy of HIV adherence increased after three months.
[20]	Randomized parallel-group study	700 PLWH	Randomly chosen participants were given the option of receiving the intervention (WelTel) in addition to standard medical care or standard medical care only. To check on patients' well-being and provide them the chance to say whether assistance was needed, the WelTel service sent them texts once a week. Participants in the intervention group receive text messages every Monday morning from a short message service (SMS) gateway. Participants were told to reply to the communication within 48 hours after receiving it. All participants who reported a problem or did not answer were telephoned by the research nurses, who noted the concerns and the reasons for each participant's absence.	The retention of patients receiving early HIV care did not increase as a result of this weekly text message program. The intervention may play a little influence in enhancing the quality of life that people with HIV get in environments similar to those in which they receive care.
[29]	RCT	576 participants HIV positive	Block randomization was used to assign them in a 1:1 ratio to the intervention arm or control arm, and within each arm, there were three groups based on the type of message. The participants' favorite digital tactics were taken into consideration while dividing the groups. The intervention group participated in online chats and received ART medication notifications, reminders, and peer education. Health behavior and nutrition messages were delivered to the control arm.	Following the intervention, a greater percentage of participants in the intervention arm than in the control arm had achieved optimal ART adherence. ART adherence was dramatically increased by the tailored digital intervention. One-to-one instant message-based interventions significantly increased ART adherence, according to subgroup analysis.
[39]	RCT	300 men who have sex with men (MSM) patients	Eligible MSM who are just beginning ART will be randomly allocated to either an intervention group (standard-of-care case management with mHealth intervention) or a control group (standard-of-care case management). The information-motivation-behavioral skills paradigm of ART adherence will be the foundation for the development of the mHealth intervention, which will have four components: articles with instructional content, private online messaging with case managers, knowledge of available support services, and hospital visit reminders	Mobile health services work well and can be included in standard case management. The patient management services for other chronic illnesses can also be modified to use these mHealth treatments.
[40]	RCT	500 PLWH	Three distinct goals are included in the public health center (PHC) evaluation. Identifying whether the PHC intervention reduces viral load (VL) more than what patients experience with normal therapy is the first objective. Aim 2 is to analyze PHC implementation over time to track changes in the PHC implementation context. Aim 3 involves doing a cost analysis to determine the incremental cost of implementing the PHC intervention in the clinic setting, excluding costs associated with conducting research.	PHC was created with the idea of being widely shared in mind. Its flexible and upgradeable digital strategy enables access to a range of platforms and devices. This strategy makes PHC a potentially crucial intervention tool to promote public health in places with high rates of HIV infection.

Table 1. Study characteristic (*Continue*)

Author	Research design	Population/ sample	Intervention	Outcome measures
[41]	RCT	278 PLWH	The participants were randomly assigned to receive usual care (n=140), which included a referral to the nearest medical facility for initial counseling, the start of ART, and subsequent monthly follow-up visits, or same-day home-based ART initiation (n=138), which was followed by check-ins at intervals of 1.5, 3, 6, and 12 months after treatment started at the medical facility.	In a randomized clinical trial involving 278 adults in rural Lesotho, home-based HIV testing and the start of ART were significantly more effective than usual care and standard clinic referral in increasing linkage to care at three months and HIV viral suppression at 12 months.
[61]	RCT	240 participants	The therapies were given by bilingual study counselors (BA and MA levels). The baseline intervention's 30-minute visit time was distributed equally across the three conditions. For all three illnesses, the treatment duration lasted a total of 60 days. Counselors participated in weekly supervision sessions and underwent MI training and certification. Counselor drift was avoided by audiotaping and reviewing MI sessions for quality control. After the baseline intervention session, participants came back twice every 30 days for evaluations and a quick boost session (10–15 minutes) with the study counselor. Visits for follow-up evaluations took place 3, 6, and 12 months after the initial assessment.	After treatment, non-injection drug use (NIDU) frequency and quantity fell across all groups, with the Motivational Interviewing (MI)-Only group experiencing noticeably larger decreases. A twelve-month post-treatment checkup revealed that MI + HealthCall (HC) and MI alone continued to outperform controls.
[42]	Cluster Randomized Controlled Trial	180 participants	A two-arm, cluster-randomized, controlled trial comparing the One4All approach (intervention arm) to the standard of care (SOC; control arm) in Guangxi, China, including 12 county hospitals. While patients in control hospitals underwent the normal SOC cascade, patients in intervention hospitals underwent point-of-care CD4 testing and in-parallel viral load (VL) testing after that. The primary performance indicator was the number of tests completed within 30 days after a positive first HIV screening result. Testing was deemed finished when all tests, test results, and post-test advice were received.	The One4All approach, a collection of initiatives aimed at streamlining the HIV treatment cascade in China, will offer convincing proof of the advantages of a streamlined HIV care cascade for expediting diagnosis, complete clinical evaluation, and ART introduction.
[62]	Cluster Randomized Controlled Trial	752 PLWH	In the North West Province of South Africa, we randomized 17 government clinics to one of three conditions: SMS-only (6), SMS+PN (7), or standard of care (SOC; 4). Participants in SMS-only clinics received SMS check-ins every two months, every two weeks, and messages about healthy living. Participants in SMS+PN clinics received SMS appointment reminders, messages on healthy living, and at least twice-monthly talks with peer navigators (PLHIV receiving care) to explore barriers to care.	SMS appointment reminders along with individualized, peer-delivered support worked well to increase retention in HIV care over a year.
[63]	Cluster Randomized Controlled Trial	302 PLWH	The intervention was created in light of published data showing that linkage to HIV care in sub-Saharan Africa (SSA) is frequently hampered by psychosocial issues.	Counseling significantly improves adult HIV-positive patients who have been identified using home-based HIV counselling and testing (HBHCT's) linkage to care, and it may also help to further efforts to expand the use of antiretroviral medication in sub-Saharan Africa.
[17]	RCT	196 PLWH	All patients got standard medical care, including counseling and medication for HIV/AIDS. The doctor at the clinic could be consulted on concerns and medical issues. Patients in the intervention group also received a hospital phone number and a cell phone number in addition to the standard care. Additionally included was the patient's mobile phone number. The patient's name would be mentioned at the beginning of the call before any conversation started. The discussion would take place in a cordial and private setting. A semistructured dialogue was utilized to gather information about the causes and challenges of going to the hospital, treatment side effects, adherence to therapy, and challenges with medication intake. Patients were encouraged to ask whatever questions they had about their medications, health, and other related topics. Every phone	The findings indicate that both patients who are new to therapy and those who are experienced with it can maintain high levels of self-reported adherence with a phone call intervention. Among patients who had never received treatment, significant QoL gains were seen after three months in the areas of physical health, level of independence, environment, and spirituality.

Table 1. Study characteristic (*Continue*)

Author	Research design	Population/ sample	Intervention	Outcome measures
[64]	RCT	40 PLWH	Self-management techniques given throughout this 10-week group-based intervention were in line with the social-ecological paradigm. Participants would meet for an hour each week in a classroom-style setting to acquire practical skills and make minor adjustments to their daily routines. Utilizing a variety of exercises to teach the participants how to make little environmental adjustments that would have an impact on their health management, participatory learning strategies were applied.	In comparison to controls, participants' overall spiritual well-being increased by 11.5 points, their religious well-being by 6.3 points, their existential well-being by 4.8 points, and their general optimism by 0.8 points.
[65]	RCT	222 PLWH	Participants in the intervention group received the HIV/AIDS Symptom Management Manual and a 30-minute appointment with the research nurse to obtain individualized education on how to use it.	Within the intervention group, depressive symptom frequency, intensity, and impact varied significantly over time; they were significantly lower at one month but not at two months, showing that self-care techniques are effective in reducing depressive symptoms, though results may only be transient.
[66]	RCT	300 PLWH	The intervention's participants received customized cognitive-behavioral stress management for three months through the WeChat platform.	A mHealth intervention using social media raised the psychological well-being and quality of life of PLWH.

Note: RCT= randomized controlled trial

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