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PEER-CARE MODEL DEVELOPMENT (PEER SUPPORT–BASED COMMUNITY NURSING) TO IMPROVE TREATMENT ADHERENCE AND QUALITY OF LIFE IN PEOPLE LIVING WITH HIV

Yosep Purnairawan*, Iwan Permana, Herlina Lidiyawati, Erdina Yuli Agustin, Kayla Ivanka Salsabila
School of Nursing, Sekolah Tinggi Ilmu Kesehatan Sukabumi, Jl. Karamat No.36, Karamat, Kab. Sukabumi, Kota Sukabumi, Jawa Barat 43122, Indonesia
*yoseppurnairawan@dosen.stikesmi.ac.id

ABSTRACT
The management of Human Immunodeficiency Virus (HIV) remains suboptimal, particularly in terms of treatment adherence and quality of life, calling for community-based solutions to strengthen social support for people living with HIV. This study aimed to develop the PEER-CARE Model to improve treatment adherence and quality of life among people living with HIV within the community. This study employed a one-group pre-test and post-test design involving 15 people living with HIV in Region IV of Sukabumi Regency, selected using purposive sampling. Data were collected using the MMAS-8, WHOQOL-HIV BREF, and MSPSS, which have demonstrated satisfactory validity and reliability in previous validation studies. Data were analysed using a paired-samples t-test, with effect size calculated using Cohen's d. There was a statistically significant increase in treatment adherence, quality of life and perceived social support following the intervention ($p<0.05$). The PEER-CARE Model had a significant effect on treatment adherence and quality of life among people living with HIV.

Keywords: adherence; HIV; peer-care; quality of life; social support

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INTRODUCTION

The Human Immunodeficiency Virus (HIV) remains a public health challenge in Indonesia despite various intervention efforts. The persistently high burden of the HIV epidemic in Indonesia reflects that HIV response efforts have not yet been optimal, particularly in terms of treatment adherence and quality of life for people living with HIV (PLHIV). Valid data from the Indonesian Ministry of Health indicate an estimated 564,000 PLHIV by 2025, but only about 68% are aware of their status, 67% are receiving antiretroviral therapy (ART), and only 56% have achieved viral suppression—a treatment success indicator that reduces the risk of transmission and clinical complications (Kementerian Kesehatan Republik Indonesia, 2025). Data from the Sukabumi Regency Health Office for 2025 indicate that the number of people living with HIV/AIDS has reached nearly 400 out of a total population of 2,828,024, spread across 17 subdistricts, with Cibadak and Palabuhanratu subdistricts having the highest number of cases. Furthermore, HIV cases in Sukabumi Regency have also shown an increase among the working-age population and adolescents, posing a serious challenge to community-based HIV control efforts.

This issue is further complicated by challenges such as social stigma, discrimination, and limited social support and service systems that are responsive to the psychosocial needs of people living with HIV. The problem of low adherence to antiretroviral (ARV) treatment has had adverse effects not only on clinical disease control—such as the risk of drug resistance, progression to AIDS, and increased mortality rates—but also on patients' social and psychological well-being (Rahmadani et al., 2023; Dinta et al., 2024; Kristia, Djannah and Wardani, 2025). These conditions highlight the widespread negative impact on the community and present a major challenge in achieving the 2030

HIV elimination target—a commitment made by the government through the global "Triple 95" strategy (95% aware of their status, 95% on treatment, 95% with viral suppression) (Kementerian Kesehatan Republik Indonesia, 2025).

There is an urgent need for intervention approaches that can bridge the gap between formal clinical services and the need for social support in the community. In many regions, access to health facilities alone is not enough without long-term support that enables people living with HIV to consistently adhere to their treatment and feel socially accepted (Frey, Johnston and Siegler, 2023; Fuster‐RuizdeApodaca et al., 2023; Guaraldi et al., 2024; Manu et al., 2024). On the other hand, there is great potential in community support models already in place in some regions; for example, community-led monitoring involving community volunteers has been shown to improve access to services and support for diagnosis (Ibiloye et al., 2022; Maskew et al., 2022; Ngcobo et al., 2022; Blake et al., 2025; Elendu et al., 2025). This also presents a strategic opportunity to design an approach that synergizes professional nursing care with the strengths of peer support groups.

In the context of national development and global commitments, efforts to improve treatment adherence and the quality of life for people living with HIV align with the achievement of several Sustainable Development Goals, particularly SDG 3 (Good Health and Well-Being) and SDG 10 (Reduced Inequalities). SDG 3 aims to end epidemics such as HIV/AIDS as a public health threat by 2030, while SDG 10 emphasizes reducing inequalities in access to health services among different social groups. The development of the Peer Support–Based Community Nursing Model (PEER-CARE Model) is expected to make a tangible contribution toward both of these targets while also supporting the spirit of Asta Cita Indonesia in realizing a healthy, empowered, inclusive society free from discriminatory stigma.

Previous research has shown that key issues among people living with HIV include adherence to antiretroviral therapy, quality of life, stigma, and service and social barriers. A literature review highlights the importance of strategies to re-engage patients lost to follow-up (Insiano, Widjanarko and Putro, 2023), the effectiveness of peer support in improving health-related quality of life and psychological well-being (Misutarno et al., 2022; Lailiah and Indarwati, 2023), as well as stigma-reduction interventions as a key factor in the success of HIV care (Zhang et al., 2025). The quality of life of people living with HIV (PLHIV) is influenced by multidimensional factors, including physical, psychological, and social aspects (Listyarini and Cahyani, 2023), while treatment adherence still faces barriers related to suboptimal health services and access (Angraeni and Ardhiyanti, 2025). At the system level, the challenges of HIV/AIDS control in Indonesia are related to key population determinants, policies, and cross-sectoral coordination (Rahma, Yulia and Handiny, 2024; Asrina et al., 2025), as well as structural barriers such as access to employment and social acceptance (Prasetio et al., 2025). Community education initiatives and the use of health technology have begun to be developed, including HIV education at Adolescent Health Posts (Posyandu Remaja) and electronic-based monitoring of antiretroviral (ARV) adherence (Rani et al., 2025), however, most studies remain fragmented and have not yet been integrated into a comprehensive and sustainable community nursing model based on peer support (Budhiana, Ratiningsih and Purnairawan, 2025).

To date, HIV/AIDS research has been dominated by biomedical approaches and epidemiological modeling that focus on the mechanisms of infection, the immune response, and the prediction of disease risk and outcomes. This clearly indicates that peer-support-based interventions for people living with HIV have not yet been widely developed within an integrated, participatory, and contextual community nursing approach tailored to the needs of local communities. In fact, the peer support approach is considered relevant because people living with HIV often face psychosocial barriers, stigma, and a lack of sustained support, all of which can affect treatment adherence and quality of life. These findings highlight a research gap in the development of community-based interventions, which forms the basis for the novelty of this study through the development of the

PEER-CARE Model to improve treatment adherence and quality of life among PLHIV. This study aims to examine the effect of the PEER-CARE Model on improving treatment adherence and quality of life among PLHIV.

METHOD

This study employed a one-group pre-test and post-test design. The study was conducted in Region IV of Sukabumi Regency. The study population and sample consisted of 15 people living with HIV who were selected using purposive sampling. Data were collected using a standardized instrument. Medication adherence was measured using the Morisky Medication Adherence Scale (MMAS-8), which consists of 8 items. The MMAS-8 instrument has internal reliability with a Cronbach's alpha of 0.83, while its construct validity is supported by factor analysis results showing a minimum factor loading of 0.425 (Ashur et al., 2015). Quality of life was measured using the World Health Organization Quality of Life-HIV BREF (WHOQOL-HIV BREF), which consists of 31 items. This instrument has demonstrated adequate content validity, concurrent validity, known-group validity, and construct validity; in the validation study, correlations between domains and general indicators of quality of life and health status ranged from r = 0.40 to 0.67, with some correlations for the spirituality domain ranging from r = 0.33 to 0.36. The overall internal reliability was reported as Cronbach's alpha = 0.93, with values per domain ranging from 0.66 to 0.85 (Zhu, Liu and Qu, 2017). Perceived social support was measured using the Multidimensional Scale of Perceived Social Support (MSPSS), which consists of 12 items. The construct validity of the Indonesian version was supported by a CFA analysis, with factor loadings ranging from 0.49 to 0.80 (Laksmita et al., 2020). The data were analyzed using a paired samples t-test. The effect size was calculated using Cohen's d. The research ethics approval was issued by the STIKES Sukabumi Ethics Committee under number: 003349/KEP STIKES SUKABUMI/2026.

RESULT

This study involved 15 respondents. Table 1 shows that most respondents were in the early adulthood category (18–40 years) (60.0%), male (66.7%), had a senior high school education (53.3%), were unmarried (46.7%), were employed (60.0%), and had been diagnosed with HIV for either 3–5 years or 6 months–2 years (33.3% each).

Table 1.
Respondent characteristics (n=15)

Characteristics	f	%
Age		
Late adulthood (>60 years)	1	6.7
Early adulthood (18–40 years)	9	60.0
Middle adulthood (40–60 years)	5	33.3
Gender		
Male	10	66.7
Female	5	33.3
Education		
Higher education	4	26.7
Senior high school	8	53.3
Junior high school	3	20.0
Marital status		
Unmarried	7	46.7
Widowed/divorced	2	13.3
Married	6	40.0
Employment status		
Employed	9	60.0
Unemployed	6	40.0
Duration of HIV diagnosis		
<6 months	2	13.3
6 months–2 years	5	33.3
3–5 years	5	33.3
>5 years	3	20.0

Table 2 presents the level of medication adherence, quality of life, and perceived social support before and after the intervention. Before the intervention, most respondents had low medication adherence (53.3%), low quality of life (60.0%), and low perceived social support (60.0%). After the intervention, the proportion of respondents in the high category increased for all three variables: medication adherence (46.7%), quality of life (46.7%), and perceived social support (60.0%).

Table 2.
Level of medication adherence, quality of life, and perceived social support before and after the intervention (n=15)

Variable	Category	f	%
Medication adherence – pre-test	Low	8	53.3
	Moderate	6	40.0
	High	1	6.7
Medication adherence – post-test	Low	2	13.3
	Moderate	6	40.0
	High	7	46.7
Quality of life – pre-test	Low	9	60.0
	Moderate	4	26.7
	High	2	13.3
Quality of life – post-test	Low	2	13.3
	Moderate	6	40.0
	High	7	46.7
Perceived social support – pre-test	Low	9	60.0
	Moderate	4	26.7
	High	2	13.3
Perceived social support – post-test	Low	2	13.3
	Moderate	4	26.7
	High	9	60.0

A normality test was conducted prior to bivariate analysis. The Shapiro-Wilk test showed that all pre- and post-test data for medication adherence, quality of life, and perceived social support were normally distributed ($p>0.05$), so the paired sample t-test was used to examine differences before and after the intervention (Table 3).

Table 3.
Normality test of pre-test and post-test data (Shapiro-Wilk)

Variable	Statistic	df	P
Medication adherence – pre-test	0.948	15	0.500
Medication adherence – post-test	0.917	15	0.106
Quality of life – pre-test	0.939	15	0.370
Quality of life – post-test	0.949	15	0.512
Perceived social support – pre-test	0.965	15	0.774
Perceived social support – post-test	0.925	15	0.229

Table 4 shows that there was a statistically significant increase in medication adherence, quality of life, and perceived social support after the intervention. The mean medication adherence score increased with a mean difference of 2.33 ($t=-5.137$; $p=0.000$). The mean quality of life score increased with a mean difference of 122.53 ($t=-2.682$; $p=0.018$). The mean perceived social support score increased with a mean difference of 7.53 ($t=-2.716$; $p=0.017$). These findings indicate that the intervention had a significant effect on improving medication adherence, quality of life, and perceived social support among respondents ($p<0.05$).

Table 4.
Differences in medication adherence, quality of life, and perceived social support before and after the intervention (Paired sample t-test)

Variable	Mean difference	SD	t	df	P
Medication adherence (pre-post)	2.33	1.76	-5.137	14	0.000
Quality of life (pre-post)	122.53	176.96	-2.682	14	0.018
Perceived social support (pre-post)	7.53	10.74	-2.716	14	0.017

DISCUSSION

The results of the study showed a significant increase in treatment adherence after the implementation of the model, with a mean difference of 2.33 (SD = 1.76), $t(14) = -5.137$, $p < 0.001$. This suggests that the presence of a peer group can serve as a social factor supporting people living with HIV (PLHIV) in adhering to their treatment regimen. Peer groups provide PLHIV with opportunities to interact with others who share similar experiences of living with HIV, including experiences with taking antiretroviral (ARV) medications, managing side effects, overcoming treatment fatigue, and dealing with stigma (Nursalam et al., 2024).

The relationship between peer groups and adherence to ARV treatment can be fostered through the social support provided by fellow group members. Peer groups can serve as a source of motivation, reminders, a space for sharing experiences, and a source of information regarding the importance of taking ARVs on schedule (Budhiana, Ratiningsih and Purnairawan, 2025). When PLHIV face barriers to treatment such as forgetting to take their medication, feeling bored with long-term treatment, or worrying about side effects interactions with peer group members can help them develop strategies to overcome these barriers (Kristia, Djannah and Wardani, 2025).

Living with HIV is often associated with stigma and concerns about social acceptance, leading some PLHIV to limit their openness about their health status. A peer group that provides a safe and supportive environment allows PLHIV to share their experiences without feeling judged. This environment can enhance psychological well-being and encourage people living with HIV to be more proactive in maintaining healthy behaviors, including adherence to ARV therapy (Nurfita et al., 2025).

The results of the study indicate that the implementation of the PEER-CARE Model significantly improves the quality of life for people living with HIV. Quality of life scores showed a significant increase after implementation, with a mean difference of 122.53 (SD = 176.96), $t(14) = -2.682$, $p = 0.018$. This is consistent with the findings of Misutarno et al. (2024), who found that the application of peer group support based on the Chronic Care Model had a significant impact on the quality of life of people living with HIV/AIDS. Another study by Fuster-RuizdeApodaca et al. (2023) also demonstrated positive improvements in various factors related to health-related quality of life after participants completed a peer intervention program delivered in phases, beginning at diagnosis and continuing for several months after starting antiretroviral therapy. Furthermore, Usman & Kadar (2021) reported a strong association between peer support and the quality of life of people living with HIV/AIDS, with individuals who did not receive peer support having a higher risk of experiencing a poorer quality of life.

The improvement in quality of life following the implementation of the PEER-CARE Model can be understood through a support process that enables participants to gain experiences and information from individuals facing similar health conditions. Peer relationships can provide a space to share experiences regarding treatment, cope with challenges that arise while living with HIV, and receive emotional support without feeling judged. Findings from research on the peer support experiences of people living with HIV indicate that peer support can complement health care resources by offering support that is more closely aligned with the service recipients' lived experiences (Chang et al., 2024). This aligns with community-based research in Indonesia showing that peer workers can help PLHIV connect with health services, access information and counseling, and support improvements in their health and daily activities (Iryawan et al., 2022).

Within the context of the PEER-CARE Model, peer support serves not only as a source of emotional support but is also embedded within a community nursing framework that enables more targeted and sustained support. This approach is relevant because HIV management requires individuals to engage in long-term care, including adhering to treatment and staying connected to health services. Research in China shows that people living with HIV who receive community-

based support led by peers have better ART adherence and service retention compared to those who do not receive such support (Meng et al., 2023). On the other hand, a study by Nursalam et al. (2024) indicates that peer-group support integrated with the Chronic Care Model can enhance self-care capabilities among people living with HIV. Thus, the integration of peer support and community nursing in PEER-CARE can help participants become more active in managing their health conditions, maintain engagement in treatment, and build better coping skills.

The study results show that the implementation of the PEER-CARE Model significantly increased peer social support among people living with HIV. The mean MSPSS score showed a significant increase after implementation, with a mean difference of 7.53 (SD = 10.74), $t(14) = -2.716$, $p = 0.017$. These findings reinforce the evidence that peer support is a crucial approach in fostering social connectedness and the psychosocial well-being of PLHIV. Syamsir et al. (2026) demonstrated that interactions within peer support groups provide emotional strength, motivation, and a sense of belonging to PLHIV through shared experiences and supportive interpersonal relationships. In line with this, Han et al. (2023) emphasize that peer support can provide emotional, informational, instrumental, affiliative, and appraisal support, thereby helping individuals feel understood, accepted, and not left to face their health conditions alone.

This improvement can be understood through the implementation of Safe-Space Engagement and Empathy Dialectics, which are core components of the PEER-CARE Model. Through group meetings and experience-sharing sessions, the model provides a space that allows PLHIV to express their experiences, receive emotional validation, and build relationships with individuals who have had similar experiences. These conditions are crucial because meaningful social support is formed when social interactions foster a sense of safety, acceptance, and shared understanding. Han et al. (2023) demonstrate that peer support operates through various complementary forms of support including emotional support, affiliation, and appraisal which strengthen interpersonal relationships and perceptions of the availability of support. Recent findings also indicate that sharing experiences with fellow PLHIV can strengthen a sense of belonging, provide emotional strength, and increase motivation to face life's challenges with HIV (Syamsir et al., 2026).

Strengthening peer social support is also closely linked to the PEER-CARE Model's ability to address the stigma and social isolation experienced by PLHIV. In the early stages, participants expressed anxiety about their HIV status, feelings of shame, and concerns about the possibility of disclosing their status to their families, while internal stigma served as a significant barrier to seeking support. When PLHIV interact with individuals who have similar experiences in a supportive environment, experiences that were previously felt individually can be understood as shared experiences. This process has the potential to strengthen self-acceptance, reduce feelings of isolation, and enhance connectedness with peers. Empirical evidence indicates that stronger social support is associated with lower levels of HIV-related stigma among PLHIV (Dessie and Zewotir, 2024). Furthermore, the experiences of PLHIV in peer support groups indicate that a sense of belonging and emotional resilience can develop through relationships with individuals who share similar life experiences (Syamsir et al., 2026).

The role of peer supporters further strengthens this process because the PEER-CARE Model positions peer support as an integral part of community nursing through the involvement of PLHIV, peer supporters, and community nurses. During the implementation phase, the collaboration of peer supporters and community nurses with PLHIV creates a support ecosystem that enables more targeted and sustainable support. Peer supporters who share similar experiences with those receiving support can serve as a source of closeness, understanding, and role modeling that is difficult to achieve through conventional healthcare relationships. Han et al. (2023) emphasize that sustained relationships, support tailored to individual needs, and the mentoring and capacity-building of peer supporters are key elements in realizing the benefits of peer support. In the context of PEER-CARE, this approach is reinforced through the role of community nurses as facilitators

who ensure the continuity of the support process. This integration of peer experience and professional facilitation allows social support to evolve from interpersonal interactions into a more structured, responsive, and sustainable support system.

CONCLUSION

This study demonstrates that the implementation of the PEER-CARE Model significantly improves treatment adherence, quality of life, and perceived social support among people living with HIV (PLHIV). Peer support, delivered through structured group interaction and integrated into a community nursing framework, enables PLHIV to share experiences, receive emotional validation, and access practical strategies for managing their treatment. These findings confirm that peer-based interventions can serve as an effective, low-cost, and sustainable strategy to strengthen self-management and psychosocial well-being among PLHIV, particularly in community settings where continuous professional support may be limited. Nurses and community health providers are encouraged to integrate peer support components, such as the PEER-CARE Model, into routine HIV care programs to enhance treatment outcomes and quality of life.

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