Received: 05 May 2025 / Accepted: 08 August 2025 / Published online: 30 October 2025

DOI 10.34689/SH.2025.27.5.013

UDC 616.98:615.281.8:578.8

ASSESSMENT OF QUALITY OF LIFE IN HIV-INFECTED PATIENTS RECEIVING ANTIRETROVIRAL THERAPY USING THE STANDARDIZED SF-36 INSTRUMENT

Gulbarshyn D. Mukasheva[1], https://orcid.org/0000-0003-3490-5628
Kuralai T. Sadvakasova[1], https://orcid.org/0009-0001-2420-824X
Saule B. Maukayeva[1], https://orcid.org/0000-0002-2679-6399
Nazym K. Kudaibergenova[1], https://orcid.org/0000-0002-6165-7677
Murat N. Lepesbayev[1], https://orcid.org/0009-0006-9810-9232
Zhanargyl K. Smailova[1], https://orcid.org/0000-0002-4513-4614
Saule K. Kozhanova[1], https://orcid.org/0000-0003-3807-9765
Dinara A. Mukanova[1], https://orcid.org/0000-0001-5186-2346
Saulesh A. Apbassova[1], https://orcid.org/0000-0001-6650-4971
Farida S. Rakhimzhanova[1], http://orcid.org/0000-0003-1711-2167

[1] **NCJSC «Semey Medical University»,**
Semey, Republic of Kazakhstan.

Abstract

Background: With the advancement of antiretroviral therapy (ART), HIV infection has shifted from being a fatal disease to a chronic and manageable condition. In this context, not only the virological response but also the patients' quality of life becomes an important indicator of treatment effectiveness. Studying this aspect allows for a comprehensive assessment of the health status of people living with HIV and helps identify key areas that require additional medical and psychosocial support.

Objective: To assess the quality of life of HIV-positive patients receiving antiretroviral therapy, with an emphasis on physical, mental, and social well-being, and to identify factors limiting daily and professional activities.

Materials and Methods: The study included 70 patients with a confirmed diagnosis of HIV infection who had been on ART for at least 6 months. The standardized SF-36 questionnaire was used to assess eight key domains of quality of life. Data were analyzed using descriptive statistics with Microsoft Excel and SPSS. The study was approved by the Ethics Committee, and all participants signed informed consent forms.

Results: The analysis revealed that the overall quality of life of HIV-positive patients can be considered satisfactory. The highest average scores were observed in the domains of physical functioning (79.2 ± 20.9), role limitations due to physical health (79.7 ± 26.5), and emotional role functioning (79.5 ± 28.6), indicating relatively preserved physical and social activity. The lowest scores were recorded in general health perception (49.7 ± 11.3) and mental health (71.5 ± 16.3), suggesting psychological distress and emotional exhaustion. Moderate scores in vitality (63.9 ± 16.9) also indicate frequent fatigue. Emotional and physical challenges affected the performance of daily and work-related tasks for some participants, despite overall maintained social involvement.

Conclusion: The quality of life of HIV-positive patients on ART is generally satisfactory; however, the identified challenges in mental and general health emphasize the need for a comprehensive care approach. It is recommended to expand psychosocial support and physical rehabilitation programs to improve overall well-being and daily functioning.

Keywords: *HIV, antiretroviral therapy, quality of life, SF-36.*

For citation:

Mukasheva G.D., Sadvakasova K.T., Maukayeva S.B., Kudaibergenova N.K., Lepesbayev M.N., Smailova Zh.K., Kozhanova S.K., Mukanova D.A., Apbassova S.A., Rakhimzhanova F.S. Assessment of quality of life in HIV-infected patients receiving antiretroviral therapy using the standardized SF-36 instrument // *Nauka i Zdravookhranenie* [Science & Healthcare]. 2025. Vol.27 (5), pp. 103-111. *doi 10.34689/SH.2025.27.5.013*

Резюме

ОЦЕНКА КАЧЕСТВА ЖИЗНИ ПАЦИЕНТОВ С ВИЧ-ИНФЕКЦИЕЙ, НАХОДЯЩИХСЯ НА АНТИРЕТРОВИРУСНОЙ ТЕРАПИИ, С ИСПОЛЬЗОВАНИЕМ СТАНДАРТИЗИРОВАННОГО ИНСТРУМЕНТА SF-36

Гүлбаршын Д. Мукашева[1], https://orcid.org/0000-0003-3490-5628
Куралай Т. Садвакасова[1], https://orcid.org/0009-0001-2420-824X
Сауле Б. Маукаева[1], https://orcid.org/0000-0002-2679-6399
Назым К. Кудайбергенова[1], https://orcid.org/0000-0002-6165-7677
Мурат Н. Лепесбаев[1], https://orcid.org/0009-0006-9810-9232
Жанаргуль К. Смаилова[1], https://orcid.org/0000-0002-4513-4614
Сауле К. Кожанова[1], https://orcid.org/0000-0003-3807-9765
Динара А. Муканова[1], https://orcid.org/0000-0001-5186-2346
Саулеш А. Апбасова[1], https://orcid.org/0000-0001-6650-4971
Фарида С. Рахимжанова[1], http://orcid.org/0000-0003-1711-2167

[1] **НАО «Медицинский университет Семей»,**
г. Семей, Республика Казахстан;

Введение: С развитием антиретровирусной терапии (АРТ) ВИЧ-инфекция из фатального заболевания превратилась в хроническое, контролируемое состояние. При этом важным показателем эффективности лечения становится не только вирусологический ответ, но и качество жизни пациентов. Изучение этого аспекта позволяет комплексно оценить состояние здоровья ВИЧ-положительных лиц и выявить ключевые области, требующие дополнительной медицинской и психосоциальной поддержки.

Цель: Оценить качество жизни ВИЧ-положительных пациентов, находящихся на антиретровирусной терапии, с акцентом на физическое, психическое и социальное здоровье, а также определить факторы, ограничивающие повседневную и профессиональную активность.

Материалы и методы: В исследование включены 70 пациентов с подтвержденным диагнозом ВИЧ-инфекции, находящихся на АРТ не менее 6 месяцев. В качестве инструмента оценки использовался стандартизированный опросник SF-36, охватывающий восемь ключевых доменов качества жизни. Обработка данных проводилась с использованием описательной статистики в Microsoft Excel и SPSS. Исследование было одобрено этическим комитетом, все участники подписали информированное согласие.

Результаты: Анализ показал, что общее качество жизни ВИЧ-положительных пациентов можно охарактеризовать как удовлетворительное. Наивысшие средние баллы зафиксированы по шкале физического функционирования (79,2 ± 20,9), роли физического состояния (79,7 ± 26,5) и роли эмоционального состояния (79,5 ± 28,6), что свидетельствует о хорошей сохранности физической и социальной активности. Наименьшие средние значения были зафиксированы по шкале общего состояния здоровья (49,7 ± 11,3) и психического здоровья (71,5 ± 16,3), что может свидетельствовать о наличии эмоционального выгорания и психологического напряжения. Показатели жизнеспособности (63,9 ± 16,9) указывают на склонность к быстрой утомляемости. Несмотря на сохранение социальной активности у большинства участников, эмоциональные и физические трудности оказывали влияние на выполнение ими повседневных и профессиональных обязанностей.

Выводы: Качество жизни ВИЧ-положительных пациентов на АРТ в целом является удовлетворительным, однако выявленные проблемы в сфере психического и общего здоровья подчеркивают необходимость внедрения комплексного подхода к ведению таких пациентов. Рекомендуется расширить программы психосоциальной поддержки и физической реабилитации для повышения общего уровня здоровья и адаптации к повседневной жизни.

Ключевые слова: *ВИЧ, антиретровирусная терапия, качество жизни, SF-36.*

Для цитирования:

Мукашева Г.Д., Садвакасова К.Т., Маукаева С.Б., Кудайбергенова Н.К., Лепесбаев М.Н., Смаилова Ж.К., Кожанова С.К., Муканова Д.А., Апбасова С.А., Рахимжанова Ф.С. Оценка качества жизни пациентов с ВИЧ-инфекцией, находящихся на антиретровирусной терапии, с использованием стандартизированного инструмента SF-36 // Наука и Здравоохранение. 2025. Vol.27 (5), С.103-111. *doi 10.34689/SH.2025.27.5.013*

Түйіндеме

АНТИРЕТРОВИРУСТЫҚ ТЕРАПИЯ ҚАБЫЛДАП ЖҮРГЕН ВИЧ-ИНФЕКЦИЯСЫ БАР ПАЦИЕНТТЕРДІҢ ӨМІР САПАСЫН SF-36 СТАНДАРТТАЛҒАН ҚҰРАЛЫН ҚОЛДАНА ОТЫРЫП БАҒАЛАУ

Гүлбаршын Д. Мукашева[1], https://orcid.org/0000-0003-3490-5628
Куралай Т. Садвакасова[1], https://orcid.org/0009-0001-2420-824X
Сауле Б. Маукаева[1], https://orcid.org/0000-0002-2679-6399
Назым К. Кудайбергенова[1], https://orcid.org/0000-0002-6165-7677
Мурат Н. Лепесбаев[1], https://orcid.org/0009-0006-9810-9232
Жанаргуль К. Смаилова[1], https://orcid.org/0000-0002-4513-4614
Сауле К. Кожанова[1], https://orcid.org/0000-0003-3807-9765
Динара А. Муканова[1], https://orcid.org/0000-0001-5186-2346
Саулеш А. Апбасова[1], https://orcid.org/0000-0001-6650-4971
Фарида С. Рахимжанова[1], http://orcid.org/0000-0003-1711-2167

[1] «Семей медицина университеті» КеАҚ,
Семей қ., Қазақстан Республикасы.

Кіріспе: Антиретровирустық терапияның (АРТ) дамуы ВИЧ-инфекциясын өлімге әкелетін аурудан созылмалы және бақыланатын жағдайға айналдырды. Бұл жағдайда емнің тиімділігінің маңызды көрсеткіші ретінде тек вирологиялық жауап қана емес, сонымен қатар пациенттердің өмір сапасы да қарастырылады. Осы аспектіні зерттеу ВИЧ-пен өмір сүретін адамдардың денсаулық жағдайын кешенді бағалауға және қосымша медициналық әрі психоәлеуметтік қолдауды қажет ететін маңызды салаларды анықтауға мүмкіндік береді.

Мақсаты: Антиретровирустық терапия қабылдап жүрген ВИЧ-позитивті пациенттердің өмір сапасын физикалық, психикалық және әлеуметтік жағдайларына көңіл бөле отырып бағалау және олардың күнделікті және кәсіби қызметіне әсер ететін шектеуші факторларды анықтау.

Материалдар мен әдістер: Зерттеуге ВИЧ диагнозы расталған және АРТ қабылдап жүрген, кемінде 6 ай емделіп жатқан 70 пациент қатысты. Өмір сапасын бағалау үшін SF-36 стандартталған сауалнамасы қолданылды, ол сапаның сегіз негізгі саласын қамтиды. Мәліметтер Microsoft Excel және SPSS бағдарламалары арқылы сипаттамалық статистика әдістерімен өңделді. Зерттеу этикалық комитет тарапынан мақұлданып, барлық қатысушылар жазбаша түрде келісім берді.

Нәтижелер: Талдау нәтижелері бойынша ВИЧ-позитивті пациенттердің жалпы өмір сапасы қанағаттанарлық деп бағаланды. Ең жоғары орташа көрсеткіштер физикалық функция (79,2 ± 20,9), физикалық жағдай әсері (79,7 ± 26,5) және эмоционалдық жағдай әсері (79,5 ± 28,6) шкалаларында тіркелді, бұл физикалық және әлеуметтік белсенділіктің сақталғанын көрсетеді. Ал денсаулықты жалпы қабылдау (49,7 ± 11,3) және психикалық денсаулық (71,5 ± 16,3) шкалаларында ең төмен баллдар тіркелді, бұл психологиялық күйзеліс пен эмоционалдық шаршауды білдіреді. Тіршілік қабілетінің орташа көрсеткіші (63,9 ± 16,9) шаршағыштықтың жиі кездесетінін көрсетті. Кейбір пациенттерде эмоционалдық және физикалық қиындықтар күнделікті және кәсіби міндеттерді орындауға әсер етті, дегенмен әлеуметтік белсенділік негізінен сақталған.

Қорытынды: АРТ қабылдайтын ВИЧ-позитивті пациенттердің өмір сапасы жалпы алғанда қанағаттанарлық. Дегенмен психикалық және жалпы денсаулық салаларындағы анықталған мәселелер бұл пациенттерді кешенді түрде қолдау қажеттігін көрсетеді. Психоәлеуметтік көмек пен физикалық оңалту бағдарламаларын кеңейту ұсынылады, бұл пациенттердің жалпы жағдайын жақсартуға және күнделікті өмірге бейімделуіне мүмкіндік береді.

Кілт сөздер: *ВИЧ, антиретровирустық терапия, өмір сапасы, SF-36.*

Дәйексөз үшін:

Мукашева Г.Д., Садвакасова К.Т., Маукаева С.Б., Кудайбергенова Н.К., Лепесбаев М.Н., Смаилова Ж.К., Кожанова С.К., Муканова Д.А., Апбасова С.А., Рахимжанова Ф.С. Антиретровирустық терапия қабылдап жүрген ВИЧ-инфекциясы бар пациенттердің өмір сапасын SF-36 стандартталған құралын қолдана отырып бағалау // Ғылым және Денсаулық сақтау. 2025. Vol.27 (5), Б. 103-111. *doi 10.34689/SH.2025.27.5.013*

Introduction

Human immunodeficiency virus (HIV) remains one of the leading threats to global public health. Since the beginning of the epidemic, more than 42.3 million people have died from HIV-related illnesses, and transmission of the virus continues in many parts of the world [2, 21]. According to the World Health Organization (WHO), by the end of 2022, an estimated 39 million people were living with HIV globally, with 25.6 million of them residing in the African Region [2].

UNAIDS reports that in 2023 alone, 1.3 million new HIV infections were recorded, and 630,000 deaths were attributed to HIV/AIDS-related causes [21]. WHO notes that a significant proportion of new infections—approximately 65%—occurs among key populations and their sexual partners. The epidemic has a particularly severe impact on women and girls: in sub-Saharan Africa, young women aged 15–24 account for a quarter of all new infections, despite representing only 10% of the region's population [21].

According to UNAIDS, since the first detection of HIV, a total of 88.4 million infections have been reported worldwide, with 42.3 million deaths resulting from HIV-related diseases. As of 2023, approximately 39.9 million people globally are living with HIV, and 30.7 million of them are receiving antiretroviral therapy (ART). That same year, 1.3 million new infections and 630,000 AIDS-related deaths were recorded [22].

Thanks to the development and widespread use of ART, HIV infection has transitioned from a fatal disease to a manageable chronic condition. Effective ART significantly reduces viral load, increases CD4+ lymphocyte counts, and consequently improves clinical outcomes and patient survival [18, 5]. Today, the primary goal of treatment is not only to extend life expectancy but also to enhance quality of life.

However, the effectiveness of therapy is not limited to viral suppression alone. Modern treatment approaches also prioritize improving patients' quality of life (QoL), which has become a key component in the comprehensive assessment of the health status of people living with HIV [7, 11].

The quality of life of HIV-positive individuals is influenced by a variety of factors, including ART-related side effects, the level of social support, experiences of stigma, mental and emotional well-being, socioeconomic status, and adherence to therapy [17, 8].

The concept of quality of life reflects a patient's overall physical, psychological, and social well-being and serves as an important indicator of treatment success. Studies have shown that QoL among people living with HIV is affected by a wide range of factors, including adverse effects of ART, social support systems, psychological health, stigma, and economic conditions [7, 8].

The most reliable tools for assessing QoL are standardized questionnaires such as the WHOQOL-HIV BREF and SF-36. These instruments are widely used across countries and have demonstrated strong associations between clinical, behavioral, and social factors and the quality of life in people living with HIV [11].

Evaluating QoL is becoming increasingly important in the current epidemiological context, where HIV is increasingly regarded as a chronic condition requiring a systematic and integrated approach. As noted in the study by Zhuravlyova I.V. (2023), integrating QoL assessment into clinical practice enables a more comprehensive evaluation of treatment success and the quality of care provided [3].

In this context, the present study aims to assess the quality of life of HIV-positive patients receiving antiretroviral therapy, with particular attention to their physical, psychosocial, and social well-being.

Materials and Methods

The study included patients with a confirmed diagnosis of HIV infection who had been receiving antiretroviral therapy (ART) for at least six months. Inclusion criteria were age over 18 years and the provision of written informed consent to participate in the study.

Data collection was conducted using the standardized SF-36 (Short Form Health Survey), a 36-item questionnaire designed to assess eight key domains of quality of life: physical functioning, role limitations due to physical health, bodily pain, general health perception, vitality, social functioning, role limitations due to emotional problems, and mental health. Each domain was scored on a scale from 0 to 100, with lower scores indicating poorer quality of life and higher scores reflecting better well-being.

The questionnaire was linguistically and methodologically adapted and validated for use in Russian by the Institute for Clinical and Pharmacological Research (St. Petersburg), ensuring its appropriateness in the Russian-speaking context. During the study, participants completed the survey, after which the responses were compiled, systematized, and prepared for statistical analysis.

Statistical Analysis

All data were presented as absolute numbers (n) and percentages (%). Descriptive statistics were used for data analysis. Proportions, category summaries, and result interpretation were presented in tabular form. Statistical analysis was conducted using Microsoft Excel and SPSS software.

Ethical Considerations

The study was approved by the Ethics Committee of the Semey Medical University (Protocol No. 1b, dated October 25, 2024) and conducted in accordance with the principles of the Declaration of Helsinki. All participants provided written informed consent prior to completing the questionnaire. Anonymity and confidentiality of participant data were strictly maintained.

Results

The analysis of SF-36 scores indicated that the overall quality of life among HIV-positive patients can be considered generally satisfactory. The highest mean scores were observed in the domains of Physical Functioning (PF – 79.2 ± 20.9), Role Limitations due to Physical Health (RP – 79.7 ± 26.5), and Role Limitations due to Emotional Problems (RE – 79.5 ± 28.6), reflecting a relatively preserved level of physical activity and capacity for social engagement. However, lower scores were recorded in the domains of General Health Perception (GH – 49.7 ± 11.3) and Mental Health (MH – 71.5 ± 16.3), suggesting the presence of emotional strain, a reduced subjective perception of health, and possible psycho-emotional exhaustion. Moderate scores in the Vitality domain (VT – 63.9 ± 16.9) further indicate fatigue and diminished energy levels.The mean SF-36 domain scores are presented in Table 1.

Table 1.

Mean SF-36 Scores Among HIV-Positive Patients.

SF-36 Components	Mean Score (M ± SD)
Physical Functioning (PF)	79.2 ± 20.9
Role Limitations due to Physical Health (RP)	79.7 ± 26.5
Bodily Pain (BP)	76.0 ± 22.9
General Health (GH)	49.7 ± 11.3
Vitality (VT)	63.9 ± 16.9
Social Functioning (SF)	74.5 ± 20.5
Role Limitations due to Emotional Problems (RE)	79.5 ± 28.6
Mental Health (MH)	71.5 ± 16.3

Table 2 reflects the extent of physical activity limitations among the participants. Specifically, 44.3% reported that moderate physical tasks, such as house cleaning, cause only minor difficulties, while 17.1% experienced significant challenges when performing heavy physical activities. At the same time, the majority of respondents did not report limitations in performing everyday tasks: 68.6% were able to lift grocery bags without difficulty, 77.1% could climb one flight of stairs with ease, and 68.6% reported no issues with taking long walks. Most participants also indicated no difficulty with personal hygiene and dressing, with only 10% reporting significant limitations in these basic self-care activities.

Table 2.

Health Assessment and Physical Activity Limitations Among Study Participants.

Type of Physical Activity	Response Option	n	%
Heavy physical activities (e.g., running, lifting heavy objects)	Severely limited	12	17.1%
	Slightly limited	31	44.3%
	Not limited	27	38.6%
Moderate physical activities (e.g., moving furniture, vacuuming, berry picking)	Severely limited	5	7.1%
	Slightly limited	18	25.7%
	Not limited	47	67.1%
Lifting or carrying a grocery bag	Severely limited	6	8.6%
	Slightly limited	16	22.9%
	Not limited	48	68.6%
Climbing several flights of stairs	Severely limited	4	5.7%
	Slightly limited	22	31.4%
	Not limited	44	62.9%
Climbing one flight of stairs	Severely limited	6	8.6%
	Slightly limited	10	14.3%
	Not limited	54	77.1%
Bending, kneeling, or squatting	Severely limited	6	8.6%
	Slightly limited	10	14.3%
	Not limited	54	77.1%
Walking more than 1 kilometer	Severely limited	3	4.3%
	Slightly limited	19	27.1%
	Not limited	48	68.6%
Walking several blocks	Severely limited	8	11.4%
	Slightly limited	22	31.4%
	Not limited	40	57.1%
Walking one block	Severely limited	6	8.6%
	Slightly limited	18	25.7%
	Not limited	46	65.7%
Bathing or dressing yourself	Severely limited	7	10.0%
	Slightly limited	4	5.7%
	Not limited	59	84.3%

Table 3 illustrates the impact of participants' physical and emotional health on their ability to carry out daily activities and professional responsibilities over the past four weeks. Regarding physical health, 84.3% of respondents reported that it did not affect the amount of time they spent on work. However, 25.7% stated they accomplished less than they would have liked, and 18.6% reported being limited in the types of work they could perform. Emotional difficulties affected 20% of participants by reducing the amount of time they could dedicate to tasks, while 31.4% completed less than they intended. Nonetheless, 82.9% indicated that their emotional state did not affect the accuracy or quality of their work.

Table 3.

Impact of Physical and Emotional Health on Work and Daily Activities.

Question	Response Option	n	%
Had to reduce time spent on work or activities (physical condition)	Yes	11	15.7%
	No	59	84.3%
Did less than desired (physical condition)	Yes	18	25.7%
	No	52	74.3%
Were limited in the type of work or activities performed	Yes	13	18.6%
	No	57	81.4%
Had difficulties performing work or daily tasks (physical condition)	Yes	15	21.4%
	No	55	78.6%
Had to reduce time spent on work or activities (emotional condition)	Yes	14	20.0%
	No	56	80.0%
Did less than desired (emotional condition)	Yes	22	31.4%
	No	48	68.6%
Work or daily tasks were performed less carefully (emotional condition)	Yes	12	17.1%
	No	58	82.9%

Table 4 presents data on how frequently participants experienced feelings of vigor, nervousness, depression, calmness, energy, fatigue, discouragement, happiness, and tiredness over the past four weeks. According to the survey results, 40% of respondents reported feeling happy all the time, while 22.9% felt vigorous most of the time. Additionally, 42.9% indicated they had not experienced feelings of depression or sadness at all. Negative emotions were reported less frequently: 44.3% experienced nervousness only occasionally, and 24.3% reported episodic feelings of depression. Over the last four weeks, 24.3% of participants did not feel fatigued, and 35.7% did not experience feelings of discouragement. Moreover, 34.3% of respondents felt calm and at peace most of the time, while 21.4% experienced a surge of energy and strength.

Table 4.

Frequency of Various Emotional States and Moods in the Past 4 Weeks

Question	Most of the Time	All the Time	Sometimes	Rarely	Often	Never
Did you feel vigorous?	16 (22.9%)	13 (18.6%)	21 (30.0%)	2 (2.9%)	15 (21.4%)	3 (4.3%)
Did you feel very nervous?	3 (4.3%)	3 (4.3%)	31 (44.3%)	18 (25.7%)	6 (8.6%)	9 (12.9%)
Did you feel so depressed that nothing could cheer you up?	3 (4.3%)	3 (4.3%)	17 (24.3%)	20 (28.6%)	2 (2.9%)	25 (35.7%)
Did you feel calm and peaceful?	24 (34.3%)	12 (17.1%)	6 (8.6%)	8 (11.4%)	15 (21.4%)	5 (7.1%)
Did you feel full of energy and strength?	15 (21.4%)	15 (21.4%)	15 (21.4%)	8 (11.4%)	15 (21.4%)	2 (2.9%)
Did you feel worn out?	2 (2.9%)	3 (4.3%)	17 (24.3%)	17 (24.3%)	7 (10.0%)	24 (34.3%)
Did you feel downhearted and blue?	3 (4.3%)	1 (1.4%)	14 (20.0%)	22 (31.4%)	-	30 (42.9%)
Did you feel happy?	13 (18.6%)	28 (40.0%)	9 (12.9%)	5 (7.1%)	15 (21.4%)	-
Did you feel tired?	7 (10.0%)	3 (4.3%)	29 (41.4%)	14 (20.0%)	9 (12.9%)	8 (11.4%)

Table 5 describes how respondents assess various aspects of their health. The majority of participants (30%) reported that their physical or emotional condition never interfered with social interactions, while 27.1% experienced this sometimes, and 31.4% rarely. Only 8.6% of respondents stated that their condition interfered with socializing most of the time. Regarding health perception, 44.3% of participants believe they are definitely not prone to illness, whereas 31.4% mostly disagree with this statement. Meanwhile, 28.6% firmly believe their health is no worse than that of most acquaintances, while 21.4% consider this statement definitely untrue. At the same time, more than half of the participants (51.4%) do not expect their health to worsen in the future, and 41.4% consider their health to be excellent.

Table 5.

Impact of Physical or Emotional Health on Social Interaction and Health Perception.

Statement	Definitely True (%, n)	Mostly True (%, n)	Don’t Know (%, n)	Mostly False (%, n)	Definitely False (%, n)
I feel that I am more prone to illness than others	2.9% (2)	4.3% (3)	17.1% (12)	31.4% (22)	44.3% (31)
My health is no worse than that of most of my acquaintances	28.6% (20)	18.6% (13)	20.0% (14)	11.4% (8)	21.4% (15)
I expect my health to get worse	1.4% (1)	5.7% (4)	24.3% (17)	17.1% (12)	51.4% (36)
I have excellent health	41.4% (29)	34.3% (24)	11.4% (8)	8.6% (6)	4.3% (3)

Discussion

Our analysis, conducted using the SF-36 questionnaire, showed that the overall quality of life (QoL) of HIV-positive patients receiving antiretroviral therapy (ART) is generally satisfactory, particularly in the domains of physical functioning and social activity. However, low scores in general health and mental health indicate the presence of psychological distress and chronic fatigue in some patients. Many participants experience limitations in performing physically demanding work, as well as emotional difficulties affecting their daily and professional activities.

The results of our study align with numerous scientific data indicating that initiation and continuation of ART lead to significant improvements in QoL across most SF-36 domains: physical health, general health, social and psychological functioning. The most pronounced positive changes are observed within 6–12 months after starting therapy [9,13].

For example, in a prospective study conducted in Brazil (2016–2018) using SF-36 and HAT-QoL scales, 91 patients (mean age 35.3 ± 10.7 years, 78% male) demonstrated significant improvement at 12 months after ART initiation in scales such as Physical Function, General Health, Social Functioning, and Mental Health (all $p < 0.001$), as well as Mental Component Summary ($p = 0.004$). Significant changes in HAT-QoL were observed in domains including Overall Function, Life Satisfaction, Sexual Function, and Provider Trust. Multiple regression analysis revealed that gender, age, income level, and presence of a partner influence physical and mental components of QoL [9].

Similar findings are supported by other studies, including work by Kariwala et al. (2022), which assessed QoL changes before and after therapy initiation using SF-36. Significant improvement across all scales was observed just 6 months after starting ART [13].

In two large international clinical trials involving more than 1,050 patients, it was found that mean QoL scores for physical and mental components improved within 1–4 months of therapy and remained stable over one year. Patients with high adherence (≥95%) demonstrated significantly better SF-36 domain scores compared to those with adherence below 80%, who instead showed worsening QoL [16].

The study by *Pimentel et al.* (2020) in Brazil also demonstrated substantial improvement in most QoL domains after 6 months of ART. Factors such as religious beliefs, cohabitation, and low levels of anxiety and depression positively influenced these outcomes. Conversely, the presence of therapy side effects was associated with worsened QoL, highlighting the need for a comprehensive approach in managing HIV patients, including psychological support and monitoring for adverse reactions [19].

A 2023 study published in *The Lancet HIV*, including a cohort of 206,891 patients receiving long-term ART in Europe and North America, showed that the expected life expectancy for women who started therapy after 2015 is 39 years, and 37 years for men (at age 40). For patients who began therapy before 2015, these figures were significantly lower. Moreover, patients with low CD4+ counts at therapy initiation had a reduced life expectancy, emphasizing the importance of early detection and treatment initiation [20].

The Strategic Timing of Antiretroviral Therapy (START) study demonstrated that immediate initiation of ART in patients with CD4+ counts above 500 cells/μL leads to more significant improvements in quality of life (QoL) compared to deferred therapy. Over an average follow-up period of three years, patients who started treatment immediately showed significant improvements in perceived general health as well as physical and mental QoL components compared to the deferred group. These improvements were consistent across all demographic and clinical subgroups, underscoring the robustness of the effect. Although patients experiencing primary adverse events had lower QoL scores, excluding such patients from the analysis did not change the overall positive trend favoring immediate treatment initiation [15].

In 2009, the New England Journal of Medicine published results of the CIPRAHT001 study conducted among 816 HIV-infected residents of Haiti. Patients were randomized into two groups: immediate therapy initiation and deferred therapy. Participants in the deferred group had twice the incidence of tuberculosis and four times higher mortality, confirming the importance of timely treatment initiation [12]. Additional large studies (SMART, NA-ACCORD) also demonstrated that delayed ART groups had a fivefold higher risk of mortality and AIDS-defining illnesses; in NA-ACCORD, mortality was 94% higher [10,14].

Adherence to therapy is emphasized as a key factor in successful disease control. According to a Russian study by *V.D. Vasilyev et al.* (2021), patients with high adherence show significantly better SF-36 scores, especially in physical and mental functioning domains [6].

Further data highlight the importance of gender and social factors. For example, T.I. Kolesnikova (2019) reported that HIV-positive women of reproductive age require additional support programs, including psychological and reproductive care, which contribute to improved quality of life and social adaptation [1].

A review by *R.A. Tursunov et al.* (2018) emphasizes that timely ART initiation within the “treatment as prevention” strategy effectively reduces infection spread, especially among key populations [4].

Based on the findings, the implementation of integrated psychological support programs for people living with HIV is recommended due to the identified pronounced emotional difficulties and signs of psycho-emotional burnout. Early diagnosis and immediate ART initiation are crucial as they help reduce the risk of physical limitations and improve quality of life. Physical rehabilitation programs are also beneficial for those experiencing mobility issues. Regular monitoring of patients’ psycho-emotional status will allow timely detection and management of deteriorations. Maintaining patients’ social activity is important, as it contributes to better mood and overall quality of life.

Limitations

While our study provides valuable insights into the quality of life of HIV-positive patients on antiretroviral therapy, there are a few limitations to keep in mind. First, the sample size was relatively small and drawn from a specific population, which might limit how well the results apply to other groups or regions. Also, since the data relied on self-reported questionnaires, there’s always the chance of bias—people might overestimate or underestimate their symptoms or feelings. Another point is that the study was cross-sectional, so it gives a snapshot in time but doesn't capture changes over longer periods

Conclusion

The results of the present study indicate that the overall quality of life of HIV-infected patients receiving antiretroviral therapy can be considered satisfactory, with preservation of a significant portion of physical and social functions. At the same time, substantial psychological difficulties were revealed, including decreased general and mental health levels, as well as frequent complaints of fatigue and exhaustion. These data point to the need for a comprehensive approach to patient management that, alongside medication, should include psychotherapeutic support and interventions for physical rehabilitation. Such an approach may contribute not only to improved quality of life but also to better adaptation of patients to daily and professional activities.

Authors' Contributions. *All authors participated equally in the writing of this article.*

No conflicts of interest have been declared.

This material has not been previously submitted for publication in other publications and is not under consideration by other publishers.

There was no third-party funding or medical representation in the conduct of this work. Funding - no funding was provided

Литература:

1. *Васильев Д.В., Козлова Н.И., Самойлова А.О.* Приверженность АРТ и ее влияние на качество жизни ВИЧ-инфицированных пациентов. Журнал инфектологии. 2021. Том. 13, № 2. С. 35–41.

2. Всемирная организация здравоохранения. ВИЧ/СПИД: Информационный бюллетень. — https://www.who.int/ru/news-room/fact-sheets/detail/hiv-aids (дата обращения: 11.05.2025).

3. Журавлёва И.В. Качество жизни как показатель эффективности терапии ВИЧ-инфицированных. Вопросы социальной гигиены, здравоохранения и истории медицины. 2023. № 1. С. 29–33.

4. Колесникова Т.И. Особенности качества жизни женщин с ВИЧ в репродуктивном возрасте. Репродуктивное здоровье. 2019. №. 6. С. 58–61.

5. Олейник А.Ф., Фазылов В.Х. Причины иммунологической неэффективности антиретровирусной терапии у пациентов с ВИЧ-инфекцией. Казанский медицинский журнал. 2014. Том. 95, №4. С. 581–588.

6. *Турсунов Р.А., Канестри В.Г., Симонова Е.Г., Райчич Р.Р.* Антиретровирусная терапия – новая эпоха профилактики ВИЧ-инфекции. ВИЧ-инфекция и иммуносупрессия. 2018. Том. 10, №1. С. 37–46.

7. *Cooper V., Clatworthy J., Harding R., Whetham J.* Measuring quality of life among people living with HIV: a systematic review of reviews. Health and Quality of Life Outcomes. 2017. 15:220.

8. Degroote S., Vogelaers D., Vandijck D. M. What determines health-related quality of life among people living with HIV: an updated review of the literature. Archives of Public Health. 2014. T. 72. №. 1. C. 40.

9. Dutra B.S., Lédo A.P., Lins-Kusterer L. et al. Changes in health-related quality of life in HIV-infected patients following initiation of antiretroviral therapy: a longitudinal study. Brazilian Journal of Infectious Diseases. 2019. T. 23(4). C. 211–217.

10. Emery S., Neuhaus J.A., Phillips A.N. et al. Major clinical outcomes in ART-naive participants and in those not receiving ART at baseline in the SMART study. Journal of Infectious Diseases. 2008. Vol. 197(8). P. 1133–1144.

11. Group T. W. The World Health Organization quality of life assessment (WHOQOL): development and general psychometric properties. Social science & medicine. 1998. T. 46. №. 12. C. 1569-1585.

12. Juste M.A., Ambroise A., Eliacin L. et al. Early versus standard antiretroviral therapy for HIV-infected adults in Haiti. NEJM. 2010. Vol. 363(3). P. 257–265.

13. Kariwala P., Kandpal S.D., Singh A.K. et al. Quality of life of people living with HIV/AIDS before and after receiving antiretroviral therapy. Indian Journal of Community Health. 2022. T. 34(1). C. 94–100.

14. Kitahata M.M., Gange S.J., Abraham A.G. и др. Effect of early versus deferred antiretroviral therapy for HIV on survival. New England Journal of Medicine. 2009. Vol. 360, № 18. P. 1815–1826

15. Lifson A.R., Grund B., Gardner E.M. et al. Improved quality of life with immediate versus deferred initiation of antiretroviral therapy in early asymptomatic HIV infection. AIDS. 2017. T. 31(7). C. 953–963.

16. Mannheimer S.B., Matts J., Telzak E. et al. Quality of life in HIV-infected individuals receiving antiretroviral therapy is related to adherence. AIDS Care. 2005. T. 17(1). C. 10–22.

17. Miners A., Phillips A., Kreif N. et al. Health-related quality-of-life of people with HIV in the era of combination antiretroviral treatment: a cross-sectional comparison with the general population. The lancet HIV. 2014. T. 1. №. 1. C. e32-e40.

18. Oguntibeju O. O. Quality of life of people living with HIV and AIDS and antiretroviral therapy. HIV/AIDS - Research and Palliative Care. 2012. C. 117–124.

19. Pimentel G.S., Ceccato M.D.G.B., Costa J.D.O. et al. Quality of life in individuals initiating antiretroviral therapy: a cohort study. Revista de Saúde Pública. 2020. T. 54. C. 146.

20. Trickey A., Sabin C.A., Burkholder G. et al. Life expectancy after 2015 of adults with HIV on long-term antiretroviral therapy in Europe and North America: a collaborative analysis of cohort studies. The Lancet HIV. 2023. T. 10(5). C. e295–e307.

21. UNAIDS. Global AIDS Update 2021: Confronting Inequalities — Lessons for Pandemic Responses from 40 Years of AIDS. Geneva: Joint United Nations Programme on HIV/AIDS, 2021. 386 p. https://www.unaids.org/sites/default/files/media_asset/2021 ‑ global ‑ aids ‑ update_en.pdf. (accessed: 21.05.2025).

22. UNAIDS. Information bulletin. – Available at: https://www.unaids.org/ru/resources/fact-sheet (accessed: 21.05.2025).

References:

1. *Vasilyev D.V., Kozlova N.I., Samoylova A.O.* Priverezhennost' ART i yey vliyanie na kachestvo zhizni VICH-infitsirovannykh patsientov [ART adherence and its

impact on quality of life of HIV-infected patients]. *Zhurnal infektologii* [Journal of Infectology]. 2021. Vol. 13, № 2. P. 35–41. [in Russian]

2. World Health Organization. HIV/AIDS: Fact sheet. — https://www.who.int/ru/news-room/fact-sheets/detail/hiv-aids (accessed 11.05.2025).

3. *Zhuravlyova I.V.* Kachestvo zhizni kak indikator effektivnosti terapii VICH-infitsirovannykh [Quality of life as an indicator of treatment effectiveness in HIV-infected patients]. *Voprosy sotsial'noy gigieny, zdravookhraneniya i istorii meditsiny* [Issues of Social Hygiene, Healthcare and History of Medicine]. 2023. № 1. P. 29–33. [in Russian]

4. *Kolesnikova T.I.* Osobennosti kachestva zhizni zhenshchin s VICH v reproduktivnom vozraste [Features of quality of life of women with HIV of reproductive age]. *Reproduktivnoe zdorov'e* [Reproductive Health]. 2019. №. 6. – P. 58–61. [in Russian]

5. *Oleynik A.F., Fazylov V.Kh.* Prichiny immunologicheskoy neeffektivnosti antiretrovirusnoy terapii u patsientov s VICH-infektsiyey [Causes of immunological inefficiency of antiretroviral therapy in patients with HIV infection]. *Kazanskiy meditsinskiy zhurnal* [Kazan Medical Journal]. 2014. Vol. 95, №4. P. 581–588. [in Russian]

6. *Tursunov R.A., Kanestri V.G., Simonova E.G., Raichich R.R.* Antiretrovirusnaya terapiya – novaya epokha profilaktiki VICH-infektsii [Antiretroviral therapy – a new era of HIV prevention]. *VICH-infektsiya i immunosupressii [*HIV Infection and Immunosuppression]. 2018. Vol. 10, №1. P. 37–46. [in Russian]

Information about the authors:

Mukasheva Gulbarshyn Darynkyzy – PhD, Senior Teacher of the Department of Epidemiology and Biostatistics, NCJSC «Semey Medical University, Semey, Kazakhstan; E-mail: gulbarshyn_1_12@mail.ru; phone +7 775 220 07 45, https://orcid.org/0000- 0003-3490-5628;

Kuralai T. Sadvakasova – Master's student in Public Health, NCJSC «Semey Medical University», Semey, Kazakhstan; E-mail: diner1306@mail.ru; phone/WhatsApp: +7 747 902 81 13; ORCID: https://orcid.org/0009-0001-2420-824X

Maukayeva Saule Boranbayevna - Candidate of Medical Sciences, Professor of the Department of Infectious Diseases, Dermatovenerology and Immunology, NCJSC «Semey Medical University, Semey, Kazakhstan; phone: 8 705 529 66 75, e-mail: solly66@mail.ru, https://orcid.org/0000-0002-2679-6399;

Kudaibergenova Nazym Konyrovna - Candidate of Medical Sciences, Associate Professor of the Department of Infectious Diseases, Dermatovenerology and Immunology, NCJSC «Semey Medical University, Semey, Kazakhstan, phone: 8 705 188 0836, e-mail: nazym.kudaibergenova@smu.edu.kz, https://orcid.org/0000-0002-2679-6399;

Shabdarbayeva Dariya Muratovna – Doctor of Medical Sciences, Professor, Vice Rector for Science and Strategic Development", NCJSC «Semey Medical University, Semey, Kazakhstan, phone 8 707 365 82 71, e-mail: dariya_kz@bk.ru, https://orcid.org/0000-0001-9463-1935;

Smailova Zhanargyl Kaiyrgaliyevna - Candidate of Medical Sciences, Associate Professor, Vice Rector for Academic and Educational Work, NCJSC «Semey Medical University, phone 8 707 365 82 71, e-mail: zhanargul.smailova@smu.edu.kz; https://orcid.org/0000-0002-4513-4614;

Orazalina Ainash Saparovna - Head of the Department of Molecular Biology and Medical Genetics, NCJSC "Semey Medical University, Semey, Kazakhstan; E-mail: ainash-o@mail.ru; phone +77772354772; http://orcid.org/0000-0003-4594-0138;

Kozhanova Saule Keneskhanovna - Candidate of Medical Sciences, Associate Professor, Head of the Department of Anatomy, Histology and Topographic Anatomy named after Doctor of Medical Sciences, prof. N.A. Khlopov, NCJSC «Semey Medical University», Semey, Kazakhstan, phone: 8 707 721 55 68, e-mail: saule.kozhanova@smu.edu.kz, http://orcid.org/0000-0003-3807-9765;

Mukanova Dinara Adletovna - Candidate of Medical Sciences, Associate Professor, Head of the Department of Simulation and Educational Technologies, NCJSC «Semey Medical University», Semey, Kazakhstan, phone: 8 701 491 98 29, e-mail: dinara.mukanova@smu.edu.kz, http://orcid.org/0000-0001-5186-2346;

Apbassova Saulesh AKhatovna – Head of pathological anatomy and forensic medicine department named after Pruglo Y.V., NJSC "Semey Medical University", phone: 8 707 919 69 75, e-mail: apbasova65@mail.ru, https://orcid.org/0000-0001-6650-4971, Semey, Kazakhstan;

Rakhimzhanova Farida Sergazinovna – Head of the Department of Microbiology named after Professor M.M. Urazalin, NCJSC «Semey Medical University», Semey, Kazakhstan; E-mail: farida.rakhimzhanova@smu.edu.kz; phone: +7 775 830 01 73; ORCID: http://orcid.org/0000-0003-1711-2167

Corresponding Author:

Mukasheva Gulbarshyn Darynkyzy, PhD, Senior Lecturer of the Department of Epidemiology and Biostatistics, NCJSC «Semey Medical University», Semey, Republic of Kazakhstan.

Postal Address: Republic of Kazakhstan, 071400, Semey, Abay St., 103.

E-mail: gulbarshyn_1_12@mail.ru

Phone: +7 775 220 0745