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Quality of life of people with HIV/hepatitis C coinfection: a systematic review

Qualidade de vida de pessoas com coinfecção por HIV/hepatite C: revisão sistemática

Calidad de vida de las personas con coinfección por VIH/hepatitis C: revisión sistemática

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Abstract

Objective: To describe the quality of life of people with HIV/hepatitis C coinfection. Method: Systematic review guided by the question "How is the quality of life of people living with HIV//hepatitis C coinfection?" The PECO strategy was used to select descriptors in Portuguese, English, and Spanish, allowing the bibliographic search in April 2021 in the Embase, Scopus, PubMed, CINAHL, Academic Search Premier, SocINDEX, and LILACS databases without limitation of period of publication. Two independent reviewers performed study selection and data extraction. Results: A total of 1,536 publications were identified, of which 14 were included in this review. It was identified that people with HIV//hepatitis C coinfection have several domains with impaired quality of life, which is worse when compared to the general population without morbidities and people with HIV or hepatitis C monoinfection. It was also identified that the treatment for hepatitis C in people with coinfection has a positive impact on quality of life, especially in patients with a sustained virological response and in treatments free of interferon and ribavirin. Conclusion: The study showed that people with HIV/hepatitis C coinfection have impaired quality of life in aspects ranging from physical to social domains. Therefore, the approach to the quality of life of these people shall be implemented in health services to contribute to the redefinition of living with two chronic diseases and to reorient care towards the most affected aspects in these people.

Keywords: Quality of life; HIV; Hepatitis C; Coinfection.

Resumo

Objetivo: Descrever a qualidade de vida de pessoas com coinfecção por HIV e hepatite C. Método: Revisão sistemática norteada pela pergunta: “Como é a qualidade de vida de pessoas que vivem com coinfecção HIV/HCV?” Empregou-se a estratégia PECO para a seleção de descritores nos idiomas português, inglês e espanhol, permitindo a busca bibliográfica em abril de 2021 nas bases de dados Embase, Scopus, PubMed, CINAHL, Academic Search Premier, SocINDEX e LILACS sem delimitação de período de publicação. Dois revisores independentes realizaram a seleção dos estudos e extração de dados. Resultados: Foram identificadas 1.536 publicações, das quais 14 foram incluídas nesta revisão. Identificou-se que pessoas com coinfecção por HIV/HCV possuem diversos domínios da qualidade de vida prejudicados, sendo pior quando comparada à população geral sem morbidades, bem como às pessoas com monoinfecção por HIV ou hepatite C. Identificou-se também que o tratamento para hepatite C em pessoas com coinfecção apresenta um aspecto importante para a melhoria da qualidade de vida, especialmente em pacientes com resposta virológica sustentada e em tratamentos livres de interferon e ribavirina. Conclusão: O estudo mostrou que pessoas com coinfecção por HIV/hepatite C têm sua qualidade de vida prejudicada em aspectos que variam desde domínios físicos até sociais, portanto, a abordagem da qualidade de vida dessas pessoas deve ser implementada nos serviços de saúde, a fim de contribuir para a ressignificação de viver com duas doenças crônicas e reorientar a assistência para os aspectos mais afetados por estas pessoas.

Palavras-chave: Qualidade de vida; HIV; Hepatite C; Coinfecção.

Resumen

Objetivo: Describir la calidad de vida de las personas con coinfección por VIH/hepatitis C. Método: Revisión sistemática guiada por la pregunta "¿Cómo es la calidad de vida de las personas que viven con coinfección por VIH/hepatitis C?" Se utilizó la estrategia PECO para seleccionar descriptores en portugués, inglés y español, permitiendo la búsqueda bibliográfica en abril de 2021 en las bases de datos Embase, Scopus, PubMed, CINAHL, Academic Search Premier, SocINDEX y LILACS sin límite de período de publicación. Dos revisores independientes realizaron la selección de estudios y la extracción de datos. Resultados: Se identificaron 1536 publicaciones, de las cuales 14 se incluyeron en esta revisión. Se identificó que las personas con coinfección por VIH/hepatitis C tienen varios dominios de calidad de vida deteriorada, siendo peor en comparación con la población general sin morbilidades y las personas con monoinfección por VIH o hepatitis C. También se identificó que el tratamiento de la hepatitis C en personas con coinfección tiene un aspecto fundamental en la mejora de la calidad de vida, especialmente en pacientes con respuesta virológica sostenida y en tratamientos libres de interferón y ribavirina. Conclusión: El estudio mostró que las personas con coinfección tienen un deterioro de la calidad de vida en aspectos físicos y sociales. Por tanto, el abordaje de la calidad de vida de estas personas debe implantarse en los servicios de salud para contribuir a la redefinición de vivir con dos enfermedades crónicas y reorientar la atención hacia los aspectos más afectados en estas personas.

Palabras clave: Calidad de vida; VIH; Hepatitis C; Coinfección.

1. Introduction

Worldwide, it was estimated that, in 2019, 38 million people were living with the human immunodeficiency virus (PLHIV) (World Health Organization, 2020a). This population is more susceptible to viral hepatitis and, among these, to hepatitis C virus (HCV) infection, which in 2017 affected 71 million people worldwide. Estimates also indicate that HCV affects around 2 to 15% of PLHIV, resulting in 3.7 million people with HIV/HCV coinfection in 2015 (World Health Organization, 2020b).

HCV shares the same transmission routes as HIV, as the infection can occur parenterally, sexually, and vertically (Kauhl et al., 2015; Santos et al., 2017). HIV/HCV coinfection can lead to accelerated progression of liver fibrosis, cirrhosis, and hepatocellular carcinoma (Heffernan et al., 2018). Moreover, it is important to emphasize that, since they are two viruses that attack the body silently for years (van der Meer et al., 2012), their infection often results in late diagnosis and, consequently, in treatment delay, even in countries with free medication for both infections. Also considering the fact that they are two chronic conditions, this characteristic can also interfere with the prognosis and mortality of cases affected by coinfection and reduce the quality of life (QoL) of these people (Platt et al., 2016).

QoL has been recognized as an important way to assess and measure the burden of chronic diseases and involves the individual's perception of their position in life, in the context of the culture and value system in which they are immersed, considering their goals, expectations, standards, and concerns (The WHOQOL Group, 1995). This assessment is part of the individual's subjectivity and has a broad concept, interrelating the environment with physical and psychological aspects, level of independence, social relationships, and personal beliefs (Fleck, 2000).

In view of the above-mentioned, this study aims to carry out a systematic review of the literature to describe the QoL of people with HIV/HCV coinfection, looking for gaps in the knowledge produced on the subject and proposing intervention strategies to be implemented in health services to the improvement of the QoL of this population.

2. Methodology

A systematic review was carried out, which was conducted according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) (Page et al., 2021). This study consists of a systematic literature review, with methodology rigorously described by the quality of evidence, reproduction, impartiality and high sensitivity, to retain all imminent scientific articles related to the topic presented.

The following steps were then followed: formulation of the study question; production of research protocol; determination of inclusion and exclusion criteria; search for studies through specific strategies; selection of studies; assessment of methodological quality; data extraction; synthesis of data and assessment of the quality of evidence; publication of results (Donato & Donato, 2019).

Thus, the review was conducted based on these steps, considering the guiding question “How is the quality of life of people living with HIV/AIDS and hepatitis C coinfection? and the descriptors derived from it were identified through the PECO strategy (Moola et al., 2015) (Chart 1).

Chart 1. Preparation of the study question, according to the PECO strategy. Ribeirão Preto, SP, Brazil, 2021.

Acronym	Definition	Descriptors
P	Population	**People**
E	Exposure	**HIV/AIDS and Hepatitis C Coinfection***
C	Comparison	**-**
O	Outcome	**Quality of life**

*Descriptor not used in searches in databases, since it limited them. Source: Authors.

The descriptors in bold type included in Chart 1 are part of the controlled vocabulary found in the Health Sciences Descriptors (DeCS), which, consequently, helped to identify each one’s synonyms, as well as the equivalent terms in Spanish and Portuguese. For the identification of vocabulary in English, the *Medical Subject Headings* (MESH) was also consulted. In addition, preliminary searches were carried out in the databases to identify other terms that are part of the free vocabulary used in scientific productions on the subject.

Searches for scientific papers on the QoL of people with HIV/HCV coinfection were carried out in April 2021 in the following databases: Excerpta Medica dataBASE (Embase®); Scopus, an Elsevier domain; MEDLINE or Publisher Medlin (accessed through the PubMed platform); Cumulative Index to Nursing and Allied Health Literature (CINAHL), Academic Search Premier (ASP), and SocINDEX, which were accessed through the EBSCOhost platform on the website Periódicos CAPES. Such platform excludes the duplications found in these databases. For the search in these databases, controlled and free vocabularies in English were used. Subsequently, vocabularies in Portuguese, Spanish, and English were applied to search the Latin American and Caribbean Literature on Health Sciences (LILACS - accessed through the Regional Portal of the Virtual Health Library).

Searches were conducted without restriction of period and language of publication and included the use of Boolean operators AND and OR (Chart 2). It should be noted that the Boolean operator OR was used between words with equal meanings (“word” OR “word” OR ...) and the AND was used between the set of words with different meanings (“set of words with the same meaning 1” AND “set of words with the same meaning 2” AND “set of words with the same meaning 3”).

Chart 2. Search strategies for articles used for the systematic review of the literature on the quality of life of individuals with HIV/AIDS and hepatitis C coinfection. Ribeirão Preto, SP, Brazil, 2021.

Data base	Search Strategy
Embase®	(hiv:ti,ab,kw OR 'acquired immune deficiency syndrome':ti,ab,kw OR 'acquired immuno deficiency syndrome':ti,ab,kw OR 'acquired immuno-deficiency syndrome':ti,ab,kw OR 'acquired immuno-deficiency syndromes':ti,ab,kw OR 'acquired immunodeficiency syndrome':ti,ab,kw OR 'acquired immunodeficiency syndromes':ti,ab,kw OR 'acquired immunologic deficiency syndrome':ti,ab,kw OR aids:ti,ab,kw OR 'immunodeficiency virus':ti,ab,kw OR 'human immunodeficiency viruses':ti,ab,kw OR 'human immunodeficiency virus':ti,ab,kw) AND ('hepatitis c':ti,ab,kw OR hcv:ti,ab,kw) AND ('quality of life':ti,ab,kw OR 'life quality':ti,ab,kw OR hrqol:ti,ab,kw OR 'life style':ti,ab,kw OR 'sickness impact':ti,ab,kw)
Scopus	TITLE-ABS-KEY (hiv OR "Acquired Immunodeficiency Syndrome" OR "Acquired Immune Deficiency Syndrome" OR "Acquired Immuno Deficiency Syndrome" OR "Acquired Immuno-Deficiency Syndrome" OR "Acquired Immuno-Deficiency Syndrome" OR "Acquired Immuno-Deficiency Syndromes" OR "Acquired Immunodeficiency Syndrome" OR "Acquired Immunodeficiency Syndromes" OR "Acquired Immunologic Deficiency Syndrome" OR aids OR "Immunodeficiency Virus" OR "Human Immunodeficiency Viruses" OR "Human Immunodeficiency Virus") AND TITLE-ABS-KEY ("Hepatitis C" OR hcv) AND TITLE-ABS-KEY ("Quality of Life" OR "Life Quality" OR hrqol OR "Life Style" OR "Sickness Impact")
MEDLINE	((HIV[Title/Abstract] OR "Acquired Immunodeficiency Syndrome"[Title/Abstract] OR "Acquired Immune Deficiency Syndrome"[Title/Abstract] OR "Acquired Immuno Deficiency Syndrome"[Title/Abstract] OR "Acquired Immuno-Deficiency Syndrome"[Title/Abstract] OR "Acquired Immuno-Deficiency Syndrome"[Title/Abstract] OR "Acquired Immuno-Deficiency Syndromes"[Title/Abstract] OR "Acquired Immunodeficiency Syndrome"[Title/Abstract] OR "Acquired Immunodeficiency Syndromes"[Title/Abstract] OR "Acquired Immunologic Deficiency Syndrome"[Title/Abstract] OR AIDS[Title/Abstract] OR "Immunodeficiency Virus"[Title/Abstract] OR "Human Immunodeficiency Viruses"[Title/Abstract] OR "Human Immunodeficiency Virus"[Title/Abstract]) AND ("Hepatitis C"[Title/Abstract] OR HCV[Title/Abstract])) AND ("Quality of Life"[Title/Abstract] OR "Life Quality"[Title/Abstract] OR HRQOL[Title/Abstract] OR "Life Style"[Title/Abstract] OR "Sickness Impact"[Title/Abstract])
Academic Search Premier CINAHL SocINDEX	AB (HIV OR "Acquired Immunodeficiency Syndrome" OR "Acquired Immune Deficiency Syndrome" OR "Acquired Immuno Deficiency Syndrome" OR "Acquired Immuno-Deficiency Syndrome" OR "Acquired Immuno-Deficiency Syndrome" OR "Acquired Immuno-Deficiency Syndromes" OR "Acquired Immunodeficiency Syndrome" OR "Acquired Immunodeficiency Syndromes" OR "Acquired Immunologic Deficiency Syndrome" OR AIDS OR "Immunodeficiency Virus" OR "Human Immunodeficiency Viruses" OR "Human Immunodeficiency Virus") AND AB ("Hepatitis C" OR HCV) AND AB ("Quality of Life" OR "Life Quality" OR HRQOL OR "Life Style" OR "Sickness Impact")
LILACS*	(HIV OR "Síndrome de Imunodeficiência Adquirida" OR aids OR SIDA OR "Síndrome da Deficiência Imunológica Adquirida" OR "Síndrome da Imunodeficiência Humana" OR Soropositivo OR VIH OR "Síndrome de Inmunodeficiencia Adquirida" OR SIDA OR "Síndrome de Deficiencia Inmunológica Adquirida" OR HIV OR "Acquired Immunodeficiency Syndrome" OR "Acquired Immune Deficiency Syndrome" OR "Acquired Immuno Deficiency Syndrome" OR "Acquired Immuno-Deficiency Syndrome" OR "Acquired Immuno-Deficiency Syndrome" OR "Acquired Immuno-Deficiency Syndromes" OR "Acquired Immunodeficiency Syndrome" OR "Acquired Immunodeficiency Syndromes" OR "Acquired Immunologic Deficiency Syndrome" OR AIDS OR "Immunodeficiency Virus" OR "Human Immunodeficiency Viruses" OR "Human Immunodeficiency Virus") AND ("Hepatite C" OR "Hepatite Viral C" OR "Hepatitis Cronica C" OR "Hepatitis C" OR HCV) AND ("Qualidade de Vida" OR "Estilo de Vida" OR "Impacto da Doença" OR "Efeitos Psicossociais da Doença" OR "Calidad de Vida" OR "Impacto de Enfermedad" OR "Quality of Life" OR "Life Quality" OR HRQOL OR "Life Style" OR "Sickness Impact")

*In the Regional Portal of the Virtual Health Library, the title, abstract, and subject words were searched and the LILACS filter was used in the consulted databases. Source: Authors.

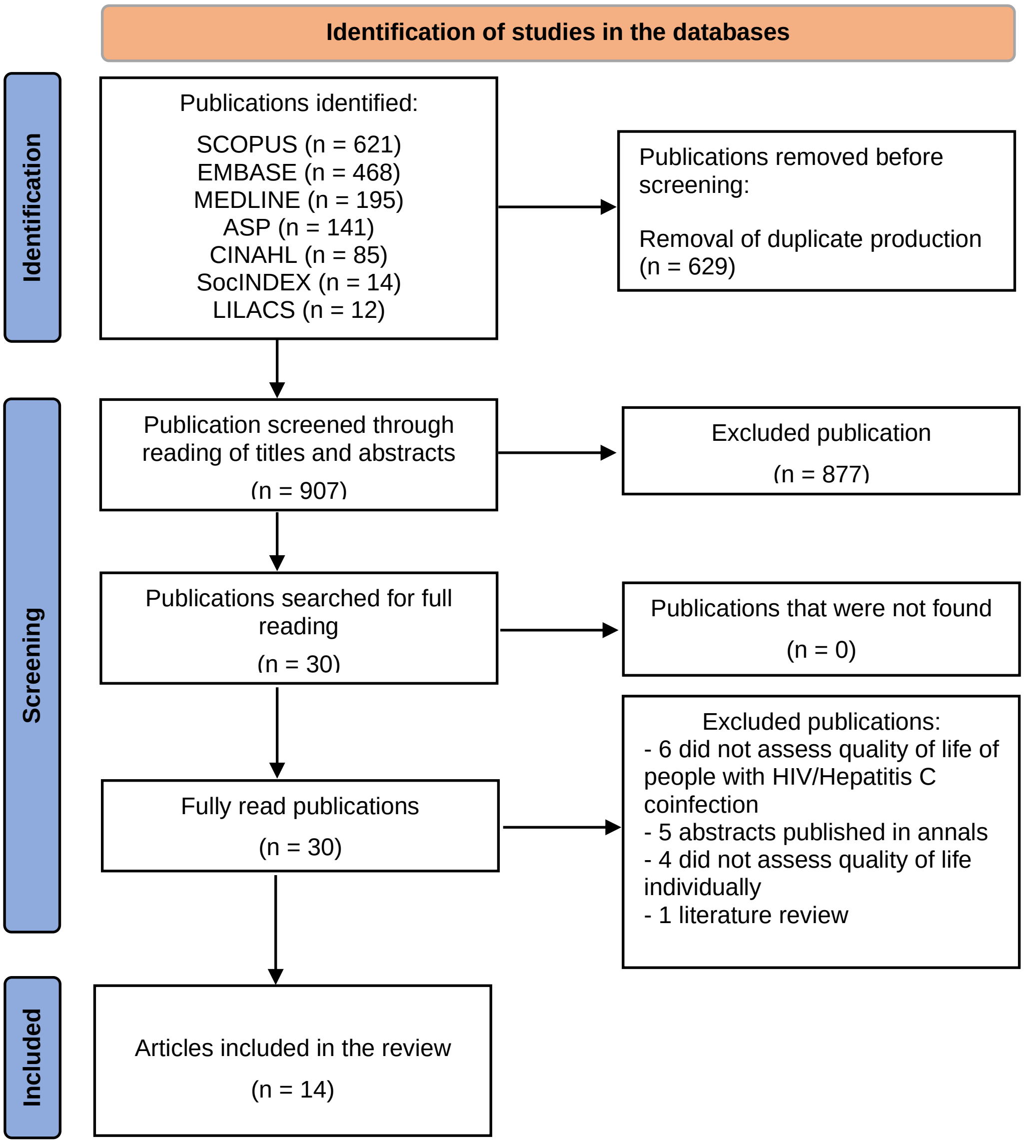
The identified references were exported to Qatar Computing Research Institute’s Rayyan QCRI online platform (Ouzzani et al., 2016). Then, duplicated references were excluded, and the abstracts and titles of the remaining were read by two independent reviewers. They selected publications according to four criteria: complete and observational primary studies; study population consisting of people with HIV/HCV coinfection; studies that answered the guiding question of the review, and studies using QoL assessment scales. Thus, articles were chosen to be read in full for a more accurate selection, and they were included in the final review sample.

The articles included underwent narrative synthesis, simultaneously with the extraction of data from the studies, using a specific instrument adapted from Ursi (2005), presenting the following variables: authors, year of publication, journal of publication, country of study, design of the study, objective, study population, measurement instruments, main results, assessment of methodological quality – (items well evaluated/number of items predicted), and main limitations. It should be noted that the methodological quality of the articles included in the review was assessed through the use of instruments recommended by The Joanna Briggs Institute (Moola et al., 2020), through which the number of items raised in the studies was identified according to the number of items predicted by the instruments to the type of study performed: for seven articles, an instrument assessing cohort studies was used, including those mentioning that they were prospective studies (11 items are predicted by this instrument),; for other four, the instrument assessing cross-sectional studies was used (8 items are predicted by this instrument), and for three, an instrument assessing case-control studies, including those that cited retrospective studies (10 items are predicted by this instrument).

3. Results

A total of 1,536 references was identified, of which 629 were excluded because they were duplicates. Among the remaining, 30 publications were considered eligible for full reading after consulting their titles and abstracts. Of these, 16 were excluded: six because they did not show the QoL results of people with HIV/HCV coinfection; five because they were abstracts; four because they limited the QoL assessment of individuals with HIV/HCV coinfection to isolated cases of injecting drugs users or those who had other comorbidities; and one because it was a review study (Figure 1). Through the 14 articles included, a manual search was also carried out in their references, in which no other studies that could be included in this review were found.

Figure 1. Flowchart of identification of eligible articles included in the systematic review on the quality of life of individuals with HIV/AIDS and hepatitis C coinfection, Ribeirão Preto, SP, Brazil, 2021.



Source: Adapted from Page et al. (2021)

Of the 14 articles (Braitstein et al., 2005; Fleming et al., 2004; Gillis et al., 2013; Kanwal et al., 2005; Kemmer et al., 2012; Marcellin et al., 2017; Pereira & Fialho, 2016; Sabouri et al., 2016; Saeed et al., 2018; Scheiner et al., 2016; Thein et al., 2007; Tillmann et al., 2006; Varescon et al., 2016; Yeung et al., 2015) selected for this review, 100% were published in English, four (28.6%) from Canada (Braitstein et al., 2005; Gillis et al., 2013; Saeed et al., 2018; Yeung et al., 2015), three (21.4%) from the United States (Fleming et al., 2004; Kanwal et al., 2005; Kemmer et al., 2012), two (14.3%) from France (Marcellin et al., al., 2017; Varescon et al., 2016), and five (35.7%) from countries that presented only one article: Portugal (Pereira & Fialho, 2016), Australia (Thein et al., 2007), Germany (Tillmann et al., 2006), Austria (Scheiner et al., 2016) and Iran (Sabouri et al., 2016). Regarding the year of publication, four (28.6%) articles were published in 2016 (Pereira & Fialho, 2016; Sabouri et al., 2016; Scheiner et al., 2016; Varescon et al., 2016), two (14.3%) in 2005 (Braitstein et al., 2005; Kanwal et al., 2005) and eight (57.1%) in the other years: 2004 (Fleming et al., 2004), 2006 (Tillmann et al., 2006), 2007 (Thein et al., 2007), 2012 (Kemmer et al., 2012), 2013 (Gillis et al., 2013), 2015 (Yeung et al., 2015), 2017 (Marcellin et al., 2017) and 2018 (Saeed et al., 2018) (Chart 3).

In the studies design and conduction, five general QoL scales were used: Medical Outcomes Study – Short Form 36 (MOS SF-36) (Braitstein et al., 2005; Gillis et al., 2013; Scheiner et al., 2016; Thein et al., 2007); Visual Analogue Scales (VAS) (Saeed et al., 2018; Thein et al., 2007; Yeung et al., 2015); World Health Organization Quality of Life Bref (WHOQOL-HIV Bref) (Marcellin et al., 2017; Pereira & Fialho, 2016); EuroQol Five Dimension Scale (EQ-5D) (Tillmann et al., 2006; Yeung et al., 2015); and EuroQoL Group – 5 Dimensional 3 Level Version (EQ-5D-3L) (Saeed et al., 2018). Seven specific QoL scales were also used for patients with HIV and Hepatitis, such as: Hepatitis Quality of Life Questionnaire (HQLQ) (Thein et al., 2007); HIV Cost and Services Utilization Study – Health Related Quality of Life (HCSUS-HRQOL) (Kanwal et al., 2005); Aids Clinical Trials Group Quality of Patient Life Reported Outcomes (ACTG QOL PRO) (Kemmer et al., 2012); HIV – Skalen zur Erfassung der Lebensqualitat (HIV-SELT) (Tillmann et al., 2006); Hepatitis Quality of Life (QualityMetric) (Fleming et al., 2004); Multidimensional Quality of Life Questionnaire for HIV/AIDS (MQOL-HIV) (Sabouri et al., 2016); and National Institute of Diabetes and Digestive and Kidney Disease Transplantation Quality of Life (NIDDK-QOL) (Varescon et al., 2016) (Table 3). The complementary file presents the description of the scales used in the studies, according to the QoL domains, as well as the scores and classification of their values.

It should be noted that Chart 3 also presents the objectives, population, and main results of the studies, as well as their critical evaluation. Through the chart, it was possible to notice that seven studies (Braitstein et al., 2005; Fleming et al., 2004; Gillis et al., 2013; Kanwal et al., 2005; Pereira & Fialho, 2016; Sabouri et al. , 2016; Tillmann et al., 2006) compared the QoL of people with HIV/HCV coinfection with individuals with HIV monoinfection and three studies (Fleming et al., 2004; Thein et al., 2007; Varescon et al., 2016) made such a comparison with HCV monoinfection. In the comparison to people with HIV monoinfection, studies reported worse QoL among people with HIV/HCV coinfection in all domains of the WHOQOL-HIV-Bref (Pereira & Fialho, 2016), HIV-SELT (Tillmann et al., 2006), and MOS SF-36 (Braitstein et al., 2005) scales, and in the physical (Gillis et al., 2013; Sabouri et al., 2016), mental (Gillis et al., 2013), and social support (Sabouri et al., 2016) domains of the MQOL-HIV scale. Still in relation to this comparison, worse QoL was also identified among people with coinfection when VAS was applied (Tillmann et al., 2006). In comparison to people with HCV monoinfection, worse QoL was identified in relation to the physical and psychological domains in people with coinfection (Varescon et al., 2016).

In the summary of the main results found in the articles included in the review (Chart 3), one study presented a score around 14 in the QoL of people with HIV/HCV coinfection on a scale of possibilities from 4 to 20 (Marcellin et al., 2017), while in another study it was 70 on a scale from 0 to 100 (Saeed et al., 2018) and 0.8 on a scale from 0 to 1 (Saeed et al., 2018). Worse QoL was also identified in all domains studied using the scales for people with coinfection when compared to the general population without morbidities (Scheiner et al., 2016), as well as people with HIV monoinfection (Braitstein et al., 2005; Gillis et al., 2005; Gillis et al., 2016). al., 2013; Pereira & Fialho, 2016; Tillmann et al., 2006). Such difference was also verified when applying visual scales (Tillmann et al., 2006). In another study, this difference occurred in only a few domains (physical functioning and social support) (Sabouri et al., 2016). Despite these results, some studies have identified no difference in QoL between individuals with HIV (Fleming et al., 2004; Kanwal et al., 2005) and HCV (Fleming et al., 2004) coinfection and monoinfection.

Chart 3. Description of articles included in the systematic review on the quality of life of individuals with HIV/AIDS and hepatitis C coinfection, Ribeirão Preto, SP, Brazil, 2020*.

Authors (year of publication)/journal/country	**Study design***	**Objective***	**Total n**	**Measuring instruments**	**Main results**	**Well-rated items/number of items (main limitations)**
Pereira & Fialho (2016)/Journal of Behavioral Medicine/Portugal	Quantitative/ Cross-sectional	Assess the QoL of patients with HIV/HCV and compare the QoL of patients with HIV monoinfection	248 HIV/HCV and 482 HIV	WHOQOL-HIV-Bref	Worse QoL was identified in coinfection cases when compared to HIV cases. This difference was worse in all domains: physical (especially in the items energy and fatigue, sleep and rest and symptoms of HIV/AIDS), psychological (especially in the item body image and appearance), level of independence (especially in the items of life activities of daily living and work capacity) and social relationships (especially in social support, sexual activity and social inclusion).	6/8 (convenience sample; confounding variables not identified).
Yeung et al. (2015)/HIV Clinical Trials/Canada	Quantitative/ Prospective Cohort	To examine changes in HRQoL among patients with HIV/HCV coinfection who started HCV treatment.	223 HIV/HCV	EQ-5D and VAS	Sustained virologic response (SVR) was significantly associated with better scores on the visual quality of life scale (VAS) after one year of HCV treatment. Health utility scores also improved for patients with SVR compared to those without. One year after completion of treatment, participants who progressed to SVR reported greater reductions related to difficulties with self-care and usual activities and reported less anxiety and depression.	8/11 (limited number of patients who received treatment; confounding variables were not identified; did not mention measures taken to minimize losses to follow-up)
Thein et al. (2007)/HIV Medicine/Australia	Quantitative/ Prospective Cohort	Examine cognitive function, mood and HRQOL in individuals infected with HCV and HIV/HCV, and explore the interrelationships between these outcomes.	15 HIV/HCV and 19 HIV	HQLQ, MOS SF-36, SF-6D, and VAS	There were no significant differences in mean SF-36 scale scores between individuals with HCV monoinfection and those with HIV/HCV coinfection. Drowsiness (75.1 vs 56.8; p=0.035) and suffering due to chronic HCV infection (76.7 vs 53.7; p=0.007) were significantly lower in the group of individuals with HCV monoinfection than in the group of people with HIV/HCV coinfection. Compared with Australian population standards, both individuals with HCV monoinfection (41.5 vs 50.1; P<0.001) and people with HIV/HCV coinfection (40.5 vs 50.1; P=0.001) had lower scores in relation to the mental components of the SF-36. However, there were no significant differences in physical component scores between groups and Australian population standards (HCV: 47.1 vs 49.7, p=0.133; and HIV/HCV: 48.2 vs 49.7, p=0.558). There were no significant differences in mean VAS-HRQOL, fatigue, anxiety, and	8/11 (limited sample size; confounding variables were not identified; did not mention measures taken to minimize losses to follow-up).

					depression scores or mean SF-6D utility scores between the HCV and HIV/HCV-infected groups. Among the perceived symptoms related to HCV, symptoms of abdominal pain (74% vs 33%; p=0.019), low concentration or memory (84% vs 47%; p=0.030) and irritability (84% vs 47%; p= 0.030) were significantly higher in the group of individuals with HCV monoinfection than in the group of people with HIV/HCV coinfection.	
Kanwal et al. (2005)/American Journal of Gastroenterology/USA	Quantitative/ Cohort	To analyze the association between QoL of individuals living with HIV and people with HBV/HIV and HCV/HIV coinfection.	34,466 HIV/HCV and 168,178 HIV	HCSUS-HRQOL	There was no difference at baseline in overall QoL between the groups of individuals with HIV monoinfection and people with HIV/HCV coinfection. The mean number of days of disability decreased over time for both groups, although this change was not statistically or clinically significant in either group.	6/11 (groups are not similar; secondary data collection; confounding variables were not identified; participants were not outcome-free at baseline; did not cite measures taken to minimize losses to follow-up)
Kemmer et al. (2012)/Journal of Viral Hepatitis/USA	Quantitative/ Prospective Cohort	To assess the HRQL profile of individuals with HIV-HCV coinfection, as well as its relationship with the subjects' levels of suffering and depression.	329 HIV/HCV	ACTG QOL PRO	Individuals without previous HCV treatment scored a mean of 6.16 points lower in their social function than those with previous HCV treatment (p=0.02). The overall mean HRQOL score decreased over the weeks in all scores and dimensions in people treated with interferon and ribavirin (IFN/RBV) and especially in general function and energy level, social function and pain scores and cognitive function. However, in people who had a rapid viral response, the general health, general function, and pain scores increased over time.	9/11 (did not compare with other groups; did not mention measures taken to minimize losses to follow-up)
Tillmann et al. (2006)/European Journal of Medical Research/Germany	Quantitative/ Retrospective	Describe the QoL of people with HIV/HCV coinfection and HIV-infected.	35 HIV/HCV and 154 HIV	HIV-SELT and EQ-5D	Patients with HIV/HCV coinfection had worse quality of life (p<0.05) in the total score and in all dimensions of the HIV-SELT when compared to cases of HIV-monoinfection. In the VAS, the QoL of people with coinfection was also considered worse than that of individuals with monoinfection.	7/10 (it is not possible to know whether exposures were similarly measured in the studied groups; confounding variables were not identified; it did not cite measures taken to minimize losses to follow-up).
Scheiner et al. (2016)/Medicine/Austria	Quantitative/ Retrospective	To investigate the impact of IFN-free and ribavirin (RBV) therapies on the QoL and fatigue of people with HIV/HCV coinfection.	33 HIV/HCV	MOS SF-36	At baseline (BL), the 2 global dimensions of HRQoL, physical and mental, were significantly impaired when compared to a general population without morbidities. Physical health significantly improved during direct-acting treatment for HCV without IFN/RBV. This improvement was sustained 3 months after treatment.	7/10 (limited sample size; confounding variables were not identified; follow-up time was not sufficient to lead to outcome; did not mention measures taken to

					In contrast, mental health did not show a statistically significant change during treatment or after treatment. Three subscales significantly improved QoL over the course of treatment: body pain; general health, and emotional status. There were no statistically significant changes in the other subscales of physical functioning, physical function, vitality, and social functioning. Interestingly, there was a significant deterioration in the mental health subscale from the beginning of treatment to the middle of treatment and after treatment.	minimize losses to follow-up).
Fleming et al. (2004)/Clinical Infectious Diseases/USA	Quantitative/ Cross-sectional	To assess the HRQL of patients with HIV/HCV coinfection and compare with patients infected with HIV only or only with HCV. The impact of coinfection on HRQoL and the variables that contributed to it were also assessed.	136 HIV/HCV, 110 HCV and 53 HIV	QualityMetric (includes SF-36, three generic QoL scales and two hepatitis- specific scales)	QoL was statistically similar for patients infected only with HCV, only with HIV, or with HIV/HCV coinfection on the 8 subscales of the SF-36 questionnaire and on both physical and mental health scores. In patients with HCV, HIV coinfection was associated with better mental QoL.	7/8 (confounding variables not identified).
Gillis et al. (2013)/Quality of Life Research/Canada	Quantitative/ Cohort	To compare the sociodemographic and psychosocial characteristics of individuals with HBV/HIV and HCV/HIV coinfection with individuals with HIV monoinfection.	112 HIV/HCV and 964 HIV	MOS SF-36	The group of patients with HIV/HCV coinfection had worse quality of life scores when compared to patients with HIV only. In the univariate analysis in all patients with HIV, coinfection showed a statistically significant association with lower physical and mental QoL.	8/11 (groups are not similar; there was no standardization to measure exposure; did not cite measures taken to minimize losses to follow-up).
Sabouri et al. (2016)/Nigerian Medical Journal/Iran	Quantitative / Cross-sectional	To compare the QoL of individuals with HIV monoinfection and people with HIV/HCV coinfection.	131 HIV/HCV and 83 HIV	MQOL-HIV	The results of the study showed that QoL scores were lower in those with HIV/HCV coinfection in the physical functioning and social support domains compared to those with HIV monoinfection. In the other domains (mental health, social functioning, cognitive functioning, financial situation, intimacy with a partner, sexual functioning, medical care), in the total score and in the MQOL-HIV index, there was no evidence of difference between the mean scores of the groups studied.	4/8 (participants and study site were not described in detail; confounding variables were not identified; results were not validly and reliably measured; statistical analysis used was not appropriate).
Marcellin et al. (2017)/European Journal of Gastroenterology & Hepatology/France	Quantitative / Cohort	To determine the association between anger and QoL dimensions in people with HIV/HCV coinfection.	536 HIV/HCV	WHOQOL-HIV-Bref	Considering scores from 4 to 20 on the scale used, the QoL of people with HIV/HCV coinfection in all domains had a median of around 14.	9/11 (confounding variables were not identified; did not mention measures taken to minimize losses to follow-up).

Saeed et al. (2018)/Journal of Viral Hepatitis/Canada	Quantitative / Cohort	To investigate the impact of successful direct-acting antiviral therapy (DAA) on the QoL of a cohort of individuals with HIV/HCV coinfection.	227 HIV/HCV	EQ-5D-3L and EQ VAS	At the start of treatment, the current health status (EQ VAS) was a median 70 (IIQ 60, 80) on a scale of 0 to 100 and the utility score (EQ-5D-3L) was a median 0.8 (IIQ 0.7, 1.0) on a scale of 0 to 1. Of the five health status, moderate to extreme anxiety/depression and pain/discomfort were the most prevalent at the beginning of the direct-acting treatment and remained constant during the period of pre-treatment in responders (SVR) and in those with treatment failure. On the other hand, in the post-treatment period, there was worsening in the QoL of people who did not respond to direct-acting treatment. In patients who responded to treatment, there was improvement in relation to health status (EQ VAS) and in the EQ-5D scale in relation to the pre-treatment period.	10/11 (confounding variables not identified).
Braitstein et al. (2005)/AIDS Care/Canada	Quantitative / Case-Control	To investigate the additional impact of hepatitis C infection on QoL, depression, and fatigue among HIV-positive individuals in a population-based HIV/AIDS Drug Treatment Program.	105 HIV/HCV and 379 HIV	MOS SF-36	Coinfected patients reported worse QoL than those with HIV monoinfection in all domains studied.	8/10 (it is not possible to know whether exposures were similarly measured in the groups studied; confounding variables were not identified).
Varescon et al.(2016) /Transplantation Research Journal/France	Quantitative/ Cross-sectional	Test the hypotheses that patients with coinfection, in a cross-sectional analysis, have significantly higher anxiety and depression scores and lower self-reported QoL and social support than patients with HCV.	13 HIV/HCV and 15 HIV	NIDDK-QOL	Patients with HIV/HCV reported greater severity of physical symptoms (mean 46.5(4.3) vs 31.6 (11.9) $p<0.05$) and psychological (mean 12.6(12.3) vs 9.5(3.6) $p=0.05$) than patients with HCV. In the other domains (number of physical symptoms, number of psychological symptoms, well-being index, personal, social and general functioning and general health perception) there was no difference between groups.	6/8 (limited sample size; confounding variables not identified).

*The design and objective of the studies were included in the chart respecting the text presented in the articles included in the review.
Legend: QoL – Quality of life; HRQL – Health-Related Quality of Life; HIV – Human Immunodeficiency Virus; HBV – Hepatitis B Virus; HCV – Hepatitis C Virus; IIQ – interquartile range; SVR – Sustained Virological Response; IFN/RBV - interferon and ribavirin.
Source: Authors.

It was also identified that treatment for HCV in people with coinfection is an important aspect for QoL improvement (Kemmer et al., 2012), especially in patients with sustained virological response (SVR) (Kemmer et al., 2012; Saeed et al., 2018; Yeung et al., 2015). However, treatment with interferon and ribavirin (IFN/RBV) made the QoL of these individuals worse (Kemmer et al., 2012), in contrast to people who took the most recent IFN/RBV-free treatment, who showed improvement in the physical component (Scheiner et al., 2016) (Chart 3).

Three studies had important sample size limitations (Scheiner et al., 2016; Thein et al., 2007; Varescon et al., 2016), which also did not present the proper sample size calculation. Therefore, when considering the findings of these studies, the synthesis of the main results found requires caution. Among other limitations of the studies included in this review, many did not identify confounding variables (Braitstein et al., 2005; Fleming et al., 2004; Gillis et al., 2013; Kanwal et al., 2005; Marcellin et al., 2017 ; Pereira & Fialho, 2016; Sabouri et al., 2016; Saeed et al., 2018; Scheiner et al., 2016; Thein et al., 2007; Tillmann et al., 2006; Varescon et al., 2016; Yeung et al., 2015) and the cohort did not cite the measures they took to avoid loss to follow-up of cases (Gillis et al., 2013; Kanwal et al., 2005; Kemmer et al., 2012; Marcellin et al. , 2017; Scheiner et al., 2016; Thein et al., 2007; Tillmann et al., 2006; Yeung et al., 2015) (Chart 3).

4. Discussion

Quality of life is an important way to investigate people's health, such that 12 instruments (scales) were identified in the assessment of people with HIV/HCV coinfection, which addressed different domains of QoL with items related to physical, mental, and independence aspects, for example. Based on the variety of instruments, an interest in monitoring and understanding the QoL of this population group was observed, with the perspective of directing actions, interventions at all levels of care, and for the planning of specific and assertive public policies for people with HIV/HVC coinfection (Costa et al., 2015).

In addition, QoL is an element of clinical measurement to assess the effects of living with chronic health conditions and, therefore, these instruments guide the understanding of the problems faced by people living with both chronic conditions, which require the provision of appropriate care based on perceptions of their health status and of areas of their life affected by the disease (Kanwal et al., 2005; Pereira & Fialho, 2016; Varescon et al., 2016). However, the instruments must be analyzed before being applied, in order to meet the proposed objectives, considering that some may have limits in the measurement, as the assessment is numerical, implying in scores and not in the description of the QoL of the individuals, being considered less sensitive (Brazier et al., 1993). In addition, instruments such as VAS and MOS SF-36 do not include some domains/variables, such as cognitive components for example (Kemmer et al., 2012; Thein et al., 2007). Thus, due to the instruments limitations, the use of multiple instruments is proposed, to allow a more reliable and complete analysis of QoL (Saeed et al., 2018), which occurred in only five studies included in the review (Fleming et al., 2004; Saeed et al., 2018; Thein et al., 2007; Tillmann et al., 2006; Yeung et al., 2015).

Based on the studies included in the review, one can say that the concomitance of HIV and HCV infections lead to worse QoL, which may affect both the physical and mental functioning of the affected population. Among the factors associated with better QoL, the following were identified: being a man (Kemmer et al., 2012; Pereira & Fialho, 2016); having a stable relationship (Marcellin et al., 2007); men who have sex with men (Saeed et al., 2018); having a job (Marcellin et al., 2007, 2017; Pereira & Fialho, 2016); satisfactory income (Saeed et al., 2018) and housing (Marcellin et al., 2007, 2017) conditions; no regular abusive use of alcohol (Marcellin et al., 2017) and drugs (Marcellin et al., 2007; Saeed et al., 2018); being on antiretroviral therapy (ART) (Pereira & Fialho, 2016); having an undetectable HIV viral load (Saeed et al., 2018); experiencing fewer drug side effects (Marcellin et al., 2007); not feeling fatigue (Marcellin et al., 2007, 2017), and having fewer somatic (Pereira & Fialho, 2016), depressive (Marcellin et al., 2007, 2017; Pereira & Fialho, 2016; Varescon et al., 2016), anguish(Kemmer et al., 2012), anger (Marcellin et al., 2017), and anxiety(Pereira & Fialho, 2016; Varescon et al., 2016) symptoms.

Regarding physical functioning, Pereira and Fialho (2016) found that the differences in QoL scores between individuals with HIV coinfection and monoinfection were greater in the physical dimensions (including aspects related to vitality and fatigue), and in the level of independence, with difficulties being significantly greater in those who had the coinfection. This result is understandable, since, despite the liver being the reservoir for HCV, its clinical manifestations are not limited to this organ, including extrahepatic symptoms that contribute to the morbidity of people with HCV (Kemmer et al., 2012; Scheiner et al., 2016). Thus, it is believed that such symptoms, together with an uncontrolled clinical picture of HIV, impair the QoL of these people, since people with a worse QoL are among those with a detectable HIV viral load (Saeed et al., 2018).

Of the articles included in the review, two (Saeed et al., 2018; Scheiner et al., 2016) assessed the impact of performing HCV direct-acting treatment on the quality of life of people with HIV coinfection, one (Kemmer et al., 2012) assessed the impact of treatment with IFN/RBV and one (Yeung et al., 2015) did not specify which was used. Improvement in the QoL of people with coinfection after treatment for hepatitis C (Kemmer et al., 2012; Saeed et al., 2018; Scheiner et al., 2016; Yeung et al., 2015) was observed, especially in the physical aspects in those who maintained treatment (Kemmer et al., 2012; Saeed et al., 2018) and had SVR (Kemmer et al., 2012; Saeed et al., 2018; Yeung et al., 2015). In individuals without SVR, there was a worsening in QoL in general (Saeed et al., 2018) and in physical aspects (Kemmer et al., 2012) with a decline in the scores studied, and it should be noted that this last study analyzed the treatment with IFN /RBV, which has a greater number of adverse events. Currently, the most used treatment for Hepatitis C is the direct-acting one, which should be indicated in all patients with chronic disease, and prioritized in patients with advanced liver disease, HIV coinfection, as well as in individuals with disabling fatigue and high transmission risk. Therefore, the articulation of care is important to provide access to treatment (Marcellin et al., 2007; Scheiner et al., 2016).

In addition to HCV treatment, it was identified that being on HIV therapy with antiretrovirals also contributes to QoL improvement of the co-infected population (Fleming et al., 2004). This is so because the combination of antiviral therapies (HIV/HCV) induces an immunological reconstitution, reversing an unfavorable prognosis for HCV carriers living with HIV (Pereira & Fialho, 2016). Therefore, compliance to both treatments is important to achieve an undetectable HIV viral load, better QoL, and longer life expectancy (Fleming et al., 2004; Kanwal et al., 2005; Saeed et al., 2018; Yeung et al., 2018; Yeung et al., 2004; al., 2015).

The QoL domains assessing the psychological aspects of people with HIV/HCV coinfection showed impaired results (Marcellin et al., 2017; Scheiner et al., 2016) and worsening when individuals did not have support to work on aspects of anger and when they had more depression and fatigue symptoms (Marcellin et al., 2017). There was also an improvement in the mental dimension after HCV treatment (Kemmer et al., 2012; Saeed et al., 2018; Scheiner et al., 2016; Yeung et al., 2015) and, mainly, with regard to depression and anxiety (Kemmer et al., 2012; Yeung et al., 2015). Individuals who were not treated for HCV showed a decline in social function when untreated, which is related to mental aspects (Kemmer et al., 2012).

Mental health (Gillis et al., 2013), social support (Sabouri et al., 2016), and aspects related to personal feelings and life orientation (Tillmann et al., 2006) also received a worse evaluation from individuals with coinfection compared to those with HIV monoinfection. Mean scores for mental health, health perception, and social function were also lower among people with coinfection compared to those with HCV monoinfection (Braitstein et al., 2005). Another study also identified differences between these groups in relation to psychological symptoms (Varescon et al., 2016) showing that HIV/HCV coinfection impairs health and well-being, and can be considered factors that potentiate the fall in QoL (Braitstein et al., al., 2005; Gillis et al., 2013).

The differences in scores assessing mental health of the population studied suggest that the sooner psychological symptoms are identified from a multidisciplinary care structure and properly managed within the services, there will be an improvement in these people's QoL. It should be noted that psychological symptoms are recognized for interfering with daily activities, physical functions, emotional regulation, interpersonal relationships, and self-care (Braitstein et al., 2005; Gillis et al., 2013; Pereira & Fialho, 2016; Tillmann et al., 2006; Varescon et al., 2016), implications that can affect treatment compliance, resulting in impaired virological response to both HCV and HIV. Thus, the biopsychosocial approach, as well as clinical care, was related to improved QoL, articulating health care to other professionals/levels of care (Varescon et al., 2016).

Some studies also addressed aspects associated with the drop in QoL among individuals with HIV/HCV coinfection, highlighting risk behaviors such as the use of injecting drugs and alcoholic beverages, which harms both physical and mental health (Gillis et al. al., 2013; Sabouri et al., 2016; Varescon et al., 2016). Besides risk behaviors, biopsychosocial conditions can be inherent to conditions of social vulnerability (Thein et al., 2007), which were also associated with lower QoL scores (Braitstein et al., 2005; Marcellin et al., 2017; Saeed et al., 2018).

To deal with the social vulnerabilities of co-infected people, such as not being employed, unsatisfactory housing conditions and low income, the importance of public policies resulting in good living conditions and better QoL results is highlighted (Saeed et al. , 2018). Therefore, interventions should not only focus on clinical findings, but on social dimensions for better case management and better treatment outcomes and QoL for this population.

Among the studies included in the review, none managed to achieve excellence in methodological quality when evaluated according to the items proposed by the instruments of The Joanna Briggs Institute; however, such deficiencies do not restrict the possibility of drawing conclusions about the topic studied. As for the present study, the following limitations should be noted: possibility of excluding studies not indexed in the databases consulted for this review; non-use of gray literature that could address other relevant topics/points on the subject; use of different QoL assessment instruments by the studies included, with implications when comparing their results.

5. Conclusion

The study showed that the population with HIV/HCV coinfection has their QoL impaired both in physical and mental aspects, which is also worse when compared to cases of HIV monoinfection. It was also found that QoL is impaired by sociodemographic aspects and behaviors/life habits, and can be improved through the institution and adherence to treatment for both infections.

Thus, the approach to the QoL of people with HIV/HCV coinfection should be implemented in health services, to contribute to the redefinition of living with two chronic transmissible diseases and to reorient care to the aspects most affected in these people, in the physical and mental areas, with the articulation of specialized assistance with other professionals/care points of the health network being important. As soon as the elements affecting QoL are identified, case management shall be carried out to ensure, in addition to clinical treatment, the approach of psychological and social aspects.

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COMPLEMENTARY FILE

Description of the quality of life assessment scales used in studies on the quality of life of people living with HIV/Hepatitis C coinfection, according to domains, scores and forms of classification of the scores, Ribeirão Preto, São Paulo, 2020.

SCALES	DOMAINS	SCORES AND ITS CLASSIFICATION
ACTG QOL PRO	General perceptions of health, physical capacity, functional aspects, pain, social aspects, mental health, vitality/fatigue and cognitive aspects.	0 a 100 – worst to best score.
EQ-5D	Mobility, self-care, usual activities, pain or discomfort, anxiety or depression.	0 a 100 – worst to best score.
EQ-5D-3L	Mobility, self-care, usual activities, pain/discomfort, anxiety or depression	0 a 1 – worst to best score.
HCSUS-HRQOL**	Physical capacity, functional aspects, pain, general health perceptions, emotional well-being, social aspects and vitality.	0 a 100 – worst to best score.
HIV-SELT	Current mood, physical impairment, subjective feelings, basic mood, social support, life orientation.	0 a 100 – worst to best score.
HQLQ	Physical function, physical disability, pain, perceptions of health, vitality, social functions, emotional disability, general state of mental health, well-being, sleep, health problems, disease-specific issues.	0 a 100 – worst to best score.
MOS SF-36	Functional capacity, physical aspects, pain, general health, vitality, social aspects, emotional aspects, mental health and current perception of health*.	0 a 100 – worst to best score.
MQOL-HIV	Mental health, physical performance, physical health, social support, social performance, cognitive performance, financial status, partner intimacy, sexual performance, and medical care.	1 a 7 – worst to best score.
NIDDK-QOL	Measures of illness, psychological status, personal performance, social performance and general health perception.	0 a 1 – for disease measures, the highest score indicates poor health status.
QUALITYMETRIC	Physical capacity, physical performance, body pain, general health, vitality, social performance, emotional performance, mental health, physical health, physical and mental component, positive well-being,	0 a 100 – worst to best score.

	sleep/drowsiness, health problems, limitations related to chronic hepatitis C , problems related to chronic hepatitis C.	
VAS	Quality of life, fatigue, anxiety, depression.	0 a 100 – worst to best score.
WHOQOL-HIV BREF	Physical, psychological, level of independence, social relationships, environment and spirituality.	0 a 100 – worst to best score.

Legend: ACTG QOL PRO: Aids Clinical Trials Group Quality of Life Patient Reported Outcomes; EQ-5D: EuroQol Five Dimension Scale; EQ-5D-3L: EuroQoL Group – 5 Dimensional 3 Level Version; HCSUS-HRQOL: HIV Cost and Services Utilization Study – Health Related Quality of Life; HIV-SELT: HIV – Skalen zur Erfassung der Lebensqualitat; HQLQ: Hepatitis Quality of Life Questionnaire; MOS SF-36: Medical Outcomes Study – Short Form 36; MQOL-HIV: Multidimensional Quality of Life Questionnaire for HIV/Aids; NIDDK-QOL: National Institute of Diabetes and Digestive and Kidney Disease Transplantation Quality of Life; QualityMetric: Hepatitis Quality of Life; VAS: Visual Analogue Scales; WHOQOL-HIV Bref: World Health Organization Quality of Life Bref.

*The item current perception during the one-year period of health for this instrument is not classified as a domain, but as a comparative question.

** This is an instrument derived from others: Medical Outcomes Study HIV and Aids Clinical Trials Group.