Review Article

Interventions associated with motivational interviewing for antiretroviral adherence by people with HIV

Intervenções associadas à entrevista motivacional para adesão antirretroviral por pessoas com HIV

Intervenciones asociadas a la entrevista motivacional para la adhesión antirretroviral de personas con VIH

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Abstract

Objective: To analyze scientific productions about the effectiveness of interventions using motivational interviewing for adherence to antiretroviral therapy by people with the human immunodeficiency virus.

Methods: This is a systematic review carried out in four databases, MEDLINE, CINAHL, IBECS, LILACS, and in an electronic library, SciELO, without language, date and sample size restrictions. The survey of articles was carried out in September 2021, using the descriptors Motivational Interviewing, HIV, Acquired Immunodeficiency Syndrome and Antiretroviral Therapy, Highly Active. Randomized clinical trial articles were included, with a sample of people with human immunodeficiency virus over 18 years old, and research involving children, adolescents and pregnant women was excluded. Ten articles were selected and analyzed regarding the rigor and characteristics of each study.

Results: Motivational interviewing was applied in person and associated with a telephone call, home visit, audio tapes, informational inserts, counseling, cognitive-behavioral and cognitive-social theories. The studies included in this review showed that interventions using motivational interviewing increased adherence to antiretrovirals by people with human immunodeficiency virus.

Conclusion: The study contributed to identify existing data on the effectiveness of interventions with motivational interviewing, focusing on adherence to antiretroviral therapy by people with human immunodeficiency virus, making visible the points that need to be deepened and showing the importance of this strategy, which can be used by nurses and other health professionals, aiming at patients' well-being.

Resumo

Objetivo: Analisar as produções científicas acerca da eficácia de intervenções utilizando a entrevista motivacional para adesão à terapia antirretroviral por pessoas com o vírus da imunodeficiência humana.

Métodos: Revisão sistemática realizada em quatro bases de dados, o MEDLINE, CINAHL, IBECS, LILACS, e em uma biblioteca eletrônica, a SciELO, sem restrição de idioma, data e tamanho amostral. O levantamento de artigos foi realizado em setembro de 2021, utilizando-se os descritores *Motivational Interviewing, HIV, Acquired Immunodeficiency Syndrome* e *Antiretroviral Therapy, Highly Active*. Foram incluídos artigos do tipo ensaio clínico randomizado, com amostra de pessoas com vírus da imunodeficiência humana maiores de 18 anos, e excluídas pesquisas envolvendo crianças, adolescentes e gestantes. Dez artigos foram selecionados e analisados quanto ao rigor e características de cada estudo.

Resultados: A entrevista motivacional foi aplicada presencialmente e associada à chamada telefônica, visita domiciliar, fitas de áudio, encartes informativos, aconselhamento, teorias cognitivas-comportamentais e cognitivas-sociais. Os estudos incluídos nesta revisão evidenciaram que as intervenções utilizando a entrevista motivacional aumentaram a adesão aos antirretrovirais por pessoas com vírus da imunodeficiência humana.

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Conflict of interest: nothing to declare.

Conclusão: O estudo contribuiu para identificar os dados existentes sobre a eficácia de intervenções com a entrevista motivacional, com foco na adesão à terapia antirretroviral por pessoas com vírus da imunodeficiência humana, tornando visíveis os pontos que precisam ser aprofundados e mostrando a importância desta estratégia, que pode ser utilizada pelos enfermeiros e demais profissionais de saúde, visando o bem-estar dos pacientes.

Resumen

Objetivo: Analizar las producciones científicas sobre la eficacia de las intervenciones que utilizan la entrevista motivacional para la adhesión al tratamiento antirretroviral de personas con el virus de la inmunodeficiencia humana.

Métodos: Revisión sistemática realizada en cuatro bases de datos, MEDLINE, CINAHL, IBECS, LILACS, y en una biblioteca electrónica, SciELO, sin restricción de idioma, fecha, ni tamaño de la muestra. La recopilación de archivos fue realizada en septiembre de 2021, con los descriptores *Motivational Interviewing, HIV, Acquired Immunodeficiency Syndrome* y *Antiretroviral Therapy, Highly Active*. Se incluyeron artículos tipo ensayo clínico aleatorizado, con muestreo de personas con virus de la inmunodeficiencia humana mayores de 18 años; y se excluyeron estudios que incluían niños, adolescentes y mujeres embarazadas. Se seleccionaron diez artículos y se analizó el rigor y características de cada estudio.

Resultados: La entrevista motivacional se realizó presencialmente y estuvo relacionada con llamadas telefónicas, visitas domiciliares, cintas de audio, suplementos informativos, asesoramiento, teorías cognitivas conductuales y cognitivas sociales. Los estudios incluidos en esta revisión evidenciaron que las intervenciones que utilizan la entrevista motivacional aumentaron la adhesión a los antirretrovirales de personas con el virus de la inmunodeficiencia humana.

Conclusión: El estudio ayudó a identificar los datos existentes sobre la eficacia de intervenciones con entrevistas motivacionales, con énfasis en la adhesión al tratamiento antirretroviral de personas con el virus de la inmunodeficiencia humana, se visibilizaron los puntos en los que es necesario profundizar y se mostró la importancia de esta estrategia, que puede ser utilizada por enfermeros y demás profesionales de la salud, para el bienestar de los pacientes.

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Introduction

The Acquired Immunodeficiency Syndrome (AIDS) represents a current health problem, due to its pandemic nature and severity, with approximately 36.9 million people in the world with the Human Immunodeficiency Virus (HIV).[1] This infection still has no cure, and the only treatment available is Antiretroviral Therapy (ART), which, when used correctly, regulates the cells responsible for immunity and decreases the viral load.[2]

ART was instituted in 1996 in a free and sustainable way in Brazil, representing an essential achievement against the disease evolution and mortality from AIDS, as it reduced opportunistic infections and increased the survival of people with HIV.[3] However, for the viral load to become undetectable in the body, adequate adherence to ART is necessary, as its discontinuous use generates an unsatisfactory response to treatment, and can lead to viral resistance and genetic mutations.[4]

Among the factors that interfere with adherence to ART are the large number of prescribed pills, using alcohol and other drugs, the difficulty of reconciling taking medication with work activities, in addition to side effects, which are the main causes of abandonment at the beginning of therapy.[4,5] It is noteworthy that some situations of vulnerability, such as the low level of education and non-regular follow-up in health services, reduce adherence to ART.[6]

In this context, there is a need for care strategies for continuous monitoring and training of patients, encouraging active participation in the therapeutic plan and improving adherence to ART.[7,8] Among these strategies, using motivational interviewing has been observed for changing habits and following health guidelines in people with HIV, aiming to prevent risky sexual behavior,[9] to reduce or stop using alcohol and other drugs,[10] in addition to mental health interventions.[11]

Motivational interviewing aims to modify behaviors, and consists of a collaborative conversation style to strengthen patients' motivation to commit to change. It is a skillful clinical method for evoking from patients their good motivations for making behavioral changes in the interests of their own health.[12]

In view of this, ART is complex, lifelong and can have side effects and, as a consequence, adherence can be inconsistent and reduced in the long term, being a challenge in monitoring people living with HIV (PLHIV).[13] Thus, it becomes necessary to identify strategies capable of improving adherence to antiretrovirals, and motivational interviewing can be one of them. Furthermore, a gap

was found in the national and foreign literature of consistent clinical trials involving motivational interviewing, as the most recent systematic review on the subject was carried out in 2012, and included only five articles in English.[14]

Thus, the justification for this study is due to the need to group scientific research with a high level of evidence, such as experimental studies, on the effectiveness of interventions using motivational interviewing for adherence to ART in PLHIV. Some studies indicated that actions combined with this strategy resulted in changes in behavior and habits in several areas of health.[9-11]

In order to achieve and maintain satisfactory adherence to antiretroviral drugs, it is necessary to organize and commit patients to therapy, mainly in the face of situations that affect low percentages of use, such as side effects and many doses a day, highlighting the need for interventions in this regard.[15] Furthermore, greater knowledge about motivational interviewing can help nurses and other health professionals in assisting PLHIV.

Given the above, this study aimed to analyze the scientific productions about the effectiveness of health interventions that use motivational interviewing for adherence to ART in PLHIV.

Methods

This is a systematic review, with a quantitative, descriptive approach and without meta-analysis, which took place in six stages: 1. Guiding question elaboration; 2. Literature search; 3. Data collection; 4. Critical analysis of studies; 5. Discussion of results; 6. Presentation of results and conclusion.[16] The research question was supported by the PICO strategy, which represents an acronym for Patient (people with HIV), Intervention (effectiveness of interventions using motivational interviewing), Comparison (not applied in the study, since the objective of this review was not to compare interventions) and Outcome (adherence to ART).

This systematic review had the following guiding question: What is the effectiveness of interventions using motivational interviewing for adherence to ART in people with HIV? The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) recommendations were followed, and the systematic review was registered in the International Prospective Register of Systematic Reviews (PROSPERO), under registration CRD42019123724.

We included randomized clinical trial type studies, classified with level of evidence II, which involves randomized and controlled clinical trials,[17] complete articles available electronically, in any language, involving the effectiveness of interventions using motivational interviewing for adherence to ART in PLHIV over 18 years of age, with no publication time limit. We excluded studies with children, adolescents, pregnant women, in addition to repeated articles, which were counted only once.

Articles were selected from four databases, the Medical Literature Analysis and Retrieval System Online (MEDLINE), Cumulative Index to Nursing and Allied Health Literature (CINAHL), Índice *Bibliográfico Español de Ciencias de la Salud* (IBECS), Latin American and Caribbean Literature on Health Sciences (LILACS), and an electronic library, the Scientific Electronic Library Online (SciELO). The databases and electronic library were chosen based on the guiding question, types of desired studies, visibility in the health area and dissemination of national and international studies.

Articles were surveyed in September 2021, using descriptors Motivational Interviewing, HIV, Acquired Immunodeficiency Syndrome and Antiretroviral Therapy, Highly Active, all from the Health Sciences Descriptors (DeCS), Virtual Health Library, and Medical Subject Headings (MeSH), National Library of Medicine. We performed three search strategies in the four databases and in the electronic library, with the following intersections: "Motivational Interviewing" AND "HIV"; "Motivational Interview" AND "Acquired Immunodeficiency Syndrome"; "Motivational Interview" AND "Antiretroviral Therapy, Highly Active".

The descriptors were readjusted according to the search location: inserted in the English language, selecting the Boolean operator AND, with-

out truncation symbols in MEDLINE; inserted in the English language and Boolean operator AND in CINAHL; inserted in Portuguese, English and Spanish, and Boolean operator AND in IBECS and LILACS; inserted in English, selecting the option with boolean AND, and choosing the option "all indexes" in SciELO.

The number of articles found in each database in relation to the search or crossing strategy was: "Motivational Interviewing" AND "HIV" (MEDLINE: 329, CINAHL: 197, IBECS: 2, LILACS and ScieLO: none); "Motivational Interview" AND "Acquired Immunodeficiency Syndrome" (CINAHL: 346, LILACS: 1, MEDLINE, IBECS and ScieLO: none); "Motivational Interview" AND "Antiretroviral Therapy, Highly Active" (MEDLINE: 1, CINAHL: 5, ScieLO: 2, IBECS and LILACS: none).

Article selection and analysis was carried out by two independent reviewers, and a third to define the cases in which there was disagreement between the other reviewers. After conducting searches in electronic databases, all articles were exported to End Note Basic, an online version of the reference manager. Initially, duplicate studies were removed and then all titles and abstracts were read to obtain relevant studies, considering the inclusion and exclusion criteria. In studies where these criteria were not clear, the articles were read in full. Subsequently, there was an assessment of eligibility by reading all selected studies in full. Data were extracted and organized using clinical forms, which sought to extract the following information from articles: title, authorship, year of publication, country where the research was carried out, objectives, sample, intervention and control group, outcomes and biases according to with Risk-of-Bias Tool For Randomized Trials (RoB 2.0).[18]

Thus, the ten articles that answered the research question were analyzed through an organized approach, to consider the rigor and characteristics of each study, observing the methodological development, proposed intervention, sample, results, conclusion and possible research biases. Assessment of risk of bias in the articles using the RoB 2.0[18] considers five domains: 1. bias resulting from the randomization process; 2. bias resulting from deviation from the intended intervention; 3. bias due to missing outcome data; 5. bias arising from measurement of results; 5. bias arising from selection of reported results. Each domain was rated as: low risk of bias, high risk of bias, or some concern.

To assess systematic review quality, the Assessment of Multiple Systematic Reviews (AMSTAR) was used, being one of the most used instruments in the literature for this purpose.[19] The instrument consists of 11 items, which correspond to the minimum requirements of a systematic review, described below: 1) Was the review design presented *a priori*? 2) Was there duplication in data extraction and study selection? 3) Has a comprehensive database search been performed? 4) Was publication status (e.g., theses and dissertations, book chapters, etc.) used as an inclusion criterion? 5) Was a list of included and excluded studies provided? 6) Were the characteristics of the included studies provided? 7) Was the quality of the included studies assessed and documented? 8) Was the quality of the included studies used appropriately in the conclusions? 9) Were the methods used to group the findings of the included studies appropriate? 10) Was publication bias assessed? 11) Was the conflict of interest described?

Each instrument item was categorized into four response options, namely: 1. Yes; 2. No; 3. Does not know how to answer; 4. Not applicable.[19] Thus, one point was applied to those who obtained "yes" as an answer. The final classification of the systematic review methodological quality was based on the overall score, being considered as: 1. High (9-11 points), 2. Medium (5-8 points) or 3. Low (0-4 points), from according to the classification system used by another study.[20] Furthermore, AMSTAR was applied independently by two reviewers for the systematic review performed, and any differences in their assessments were discussed and agreed upon by consensus.

The findings of the articles were discussed based on scientific literature. As for ethical aspects, article writing and copyright were respected, without modifying the content found for the benefit of this study proposed by the authors.

Results

A total of 883 articles were identified, but only ten comprised the study. Figure 1 shows the flowchart with the number of selected articles.

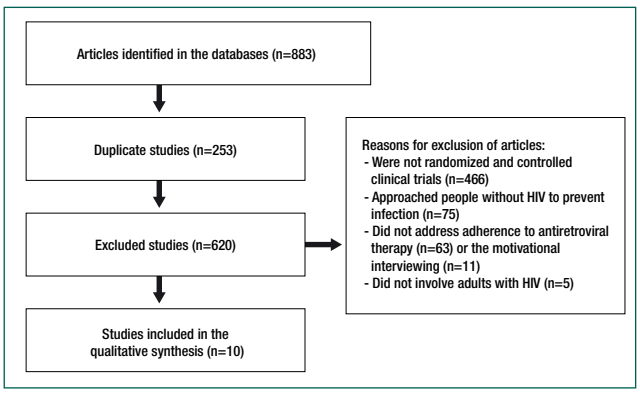

Figure 1. Study selection flowchart, adapted from Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)

Study characterization in terms of title, authorship, year and country in which the research was carried out can be found in Chart 1. The year of publication ranged from 2001 to 2020, nine of which were carried out in the United States[21-29] and one in Thailand.[30]

In assessing risk of bias, according to the RoB 2.0 tool,[18] it was found that the ten studies had some risk of bias, which is presented in Chart 2.

In systematic review quality assessment, using AMSTAR,[19] all 11 items were answered yes, reaching the maximum score. Thus, the methodological quality rating of this systematic review was considered high. Chart 3 presents information on title/authorship, article objectives, sample, intervention and control group strategies, outcomes and study biases. Regarding research objectives, studies assessed an intervention with individual[21-23,25-28,30] or group[24,29] motivational interviewing to improve adherence to ART, and used the service's standard care[21,22,29] or an educational strategy[23-28,30] as an intervention for the control group.

According to Chart 3, the study samples ranged between 47 and 496 PLHIV, with one article having only African-American women[24] and another only homosexuals and bisexuals.[25] As for using motivational interviewing, all studies applied it face-to-face, and the interventions associated with this strategy were telephone calls, home visits, audio tapes, informational inserts, counseling, cognitive-behavioral theories and cognitive-social techniques. Motivational interviewing application frequency ranged from one to eight sessions, lasting from 20 to 120 minutes. In all interventions,[21-30] motivational interviewing proved to be effective in

Chart 1. Characterization of studies according to title/authorship, year of publication and country where the research was carried out

Title	Year of publication	Country where the research was carried out
Using motivational interviewing to promote adherence to antiretroviral medications: a randomized controlled study[21]	2008	United States
A randomized controlled trial examining the efficacy of motivational counseling with observed therapy for antiretroviral therapy adherence[22]	2013	United States
A 2-arm, randomized, controlled trial of a motivational interviewing-based intervention to improve adherence to antiretroviral therapy (ART) among patients failing or initiating ART[23]	2006	United States
Group motivational interviewing to promote adherence to antiretroviral medications and risk reduction behaviors in HIV infected women[24]	2011	United States
Testing the efficacy of combined motivational interviewing and cognitive behavioral skills training to reduce methamphetamine use and improve HIV medication adherence among HIVpositive gay and bisexual men[25]	2018	United States
Motivational interviewing and cognitive-behavioral intervention to improve HIV medication adherence among hazardous drinkers: a randomized controlled trial[26]	2007	United States
Two strategies to increase adherence to HIV antiretroviral medication: life-steps and medication monitoring[27]	2001	United States
Motivational interviewing to support antirretroviral therapy adherence: the role of quality counseling[28]	2005	United States
A behavioral adherence intervention improves rates of viral suppression among adherence-challenged people living with HIV in South India[29]	2020	United States
Effects of motivational interviewing or an educational video on knowledge about HIV/aids, health beliefs and antiretroviral medication adherence among adult thais with HIV/aids[30]	2012	Thailand

Chart 2. Risk of bias assessment according to the Risk-of-Bias Tool For Randomized Trials (RoB 2.0)

Studies	19	20	21	22	23	24	25	26	27	28
Risk of bias										
Randomization process	+	?	?	+	+	+	?	-	?	?
Deviation from intended interventions	+	+	+	+	+	+	+	+	+	+
Missing results data	+	?	+	+	+	+	-	?	+	+
Measurement of results	?	+	+	+	+	+	+	+	?	+
Selection of reported results	+	+	+	-	-	?	+	?	?	+
Other biases	+	+	+	+	+	+	+	+	+	+

(+) Low risk ; (-) High risk; (?) Some concern
Source: Sterne JAC, Savović J, Page MJ, Elbers RG, Blencowe NS, Boutron I, et al. RoB 2: a revised tool for assessing risk of bias in randomised trials. BMJ. 2019;366:l4898.[18]

Chart 3. Characteristics of interventions that used motivational interviewing to improve adherence to antiretroviral therapy in people living with HIV

Title	Objectives	Sample	Intervention group	Control group	Outcomes	Study biases according to RoB 2.0[18]
Using motivational interviewing to promote adherence to antiretroviral medications: a randomized controlled study[21]	Assess MI* to improve adherence to ART† in people with HIV.	Total: 247 IG‡: 125 CG§: 122	face-to-face MI* applied by a nurse in 5 sessions, lasting 20-90 minutes, for three months.	Institutional standard care	IG‡ was superior to CG§ in adherence to ART† after 6 months after intervention began (p<0.001).	- Most of the sample consisted of low-income African-American men, preventing generalization of results; - Patients without low adherence to ART were included†; - Difficulty for patients to adhere to the pill counting technology, which was a device attached to the lid of the medicine bottle.
A randomized controlled trial examining the efficacy of motivational counseling with observed therapy for antiretroviral therapy adherence[22]	Assess MI* associated with home visits to improve adherence to ART† in people with HIV.	Total: 204 IG‡: 69 CG§1: 70 CG§2: 65	Association office-to-face MI*, home visit and telephone call: 6 face-to-face and 4 sessions by phone, lasting 25 minutes, in 48 weeks. Daily home visits up to 12to weeks, decreasing with time the frequency, with completion at week 24.	CG§1: Face-to-face MI*. CG2: institutional standard care.	IG‡ was higher than CG§1 and CG§2 until week 12 to improve ART† (p=0.058).	- Patients without low adherence to ART were included†;
A 2-arm, randomized, controlled trial of a motivational interviewing-based intervention to improve adherence to antiretroviral therapy (ART) among patients failing or initiating ART[23]	Assess MI* to improve adherence to ART† in people with HIV.	Total: 155 IG‡: 77 CG§: 78	Face-to-face MI* associated with audio tapes and informative inserts, in 4 sessions, for 14 weeks.	Educational strategy through the provision of information.	IG‡ was 2.75 times more likely to achieve more than 95% of ART adherence† than CG§ (p=0.045).	- High level of refusal to participate in the study, reducing sample representativeness.
Group motivational interviewing to promote adherence to antiretroviral medications and risk reduction behaviors in HIV infected women[24]	Assess MI* to improve adherence to ART† in people with HIV.	Total: 203 IG‡: 104 CG§: 103	Face-to-face MI* in group, applied by a nurse, in 8 sessions, lasting 1.5-2.0 hours for 9 months.	Educational strategy with lectures, debates, games and educational materials.	IG‡ superior to CG§ in ART adherence† up to three months after intervention began (p=0.04).	- Most of the sample consisted of low-income African-American women, preventing generalization of results; - Patients without low adherence to ART were included†; - Difficulty for patients to adhere to the pill counting technology, which was a device attached to the lid of the medicine bottle.
Testing the efficacy of combined motivational interviewing and cognitive behavioral skills training to reduce methamphetamine use and improve HIV medication adherence among HIVpositive gay and bisexual men[25]	Assess MI associated with cognitive behavioral techniques in reducing drug use and improving adherence to ART† in people with HIV.	Total: 216 IG‡: 107 CG§: 109	Face-to-face MI* associated with cognitive behavioral techniques, in 8 sessions lasting one hour.	Educational strategy with lectures.	IG ‡ and CG § had improvement in adherence to ART † (p<0.01).	- ART adherence measurement† was self-reported.
Motivational interviewing and cognitive-behavioral intervention to improve hiv medication adherence among hazardous drinkers: a randomized controlled trial[26]	Assess MI associated with cognitive behavioral techniques in reducing drug use and improving adherence to ART† in people with HIV.	Total: 143 IG‡: 65 CG§: 78	Face-to-face MI* associated with cognitive behavioral techniques, in 8 sessions, during 12 weeks.	Educational strategy using lectures.	IG‡ was superior to CG§ in relation to improvement in ART† (p<0.001).	- Patients without low adherence to ART were included†; - ART† adherence measurement was self-reported.
Two strategies to increase adherence to HIV antiretroviral medication: life-steps and medication monitoring[27]	Assess MI associated with cognitive behavioral techniques in reducing drug use and improving adherence to ART† in people with HIV.	Total: 56 IG‡: 30 CG§: 26	Face-to-face MI* associated with cognitive behavioral techniques in one session.	Self-monitoring through a diary to record drug intake.	IG‡ was superior to CG§ in relation to improvement in ART†. (p<0.001).	- ART adherence measurement† was self-reported.
Motivational interviewing to support antirretroviral therapy adherence: the role of quality counseling[28]	Assess MI associated with social cognitive behavioral techniques in reducing drug use and improving adherence to ART† in people with HIV.	IG‡: 47 CG§: not reported.	Face-to-face MI* associated with social cognitive techniques, in 4 sessions, lasting 30 minutes, in 12 weeks.	Educational strategy through the provision of information.	IG‡ was superior to CG§ for improvement of adherence to ART†, when patient only considered ART† as central subject in MI* (p=0.04).	- Does not report the number of CG § participants.
A behavioral adherence intervention improves rates of viral suppression among adherence-challenged people living with HIV in South India[29]	Assess MI associated with social cognitive theory in reducing drug use and improving adherence to ART† in people with HIV.	Total: 496 IG‡: 240 CG§: 256	Ten group support sessions on adherence to ART, lasting two hours, and six individual sessions of 30 minutes using MI.	Institutional standard care and four group sessions, lasting one hour, with themes not related to adherence to ART†.	IG‡ superior to CG§ in relation to ART† (p=0.017) and viral suppression (p=0.017), one year after the intervention.	- A significant number of participants from key populations, such as sex workers and men who have sex with men, were not recruited, which prevents generalization of results.

Continue...

Continuation.

Title	Objectives	Sample	Intervention group	Control group	Outcomes	Study biases according to RoB 2.0[18]
Effects of motivational interviewing or an educational video on knowledge about HIV/aids, health beliefs and antiretroviral medication adherence among adult thais with HIV/aids[30]	Assess MI* with counseling to improve adherence to ART†, knowledge about HIV and health beliefs in people with HIV.	Total: 90 IG‡: 30 CG§1: 30 CG§2: 30	Association between face-to-face MI*, phone calls and counseling, in two face-to-face sessions and one over the phone, lasting 25 to 40 minutes, over 4 weeks.	CG1§: educational video. CG2§: institutional standard care.	IG‡ and CG§1 were superior to CG§2 in relation to improvement of adherence to ART† (p=0.026).	- ART adherence measurement† was self-reported.

*MI - Motivational Interviewing; †ART - Antiretroviral Therapy; ‡IG - Intervention Group; §CG - Control Group

improving adherence to ART in PLHIV, representing a beneficial strategy to be used by nurses and other health professionals with patients (Chart 3).

Discussion

This study gathered and organized existing data on the effectiveness of interventions that used motivational interviewing for adherence to ART in PLHIV, highlighting this as an important patient care strategy. The continuous use of ART made a significant number of patients achieve viral load suppression, with a reduction in morbidity and mortality so that the benefits of the therapy are clear. But its effectiveness depends on uninterrupted adherence to treatment, which is difficult and often not sustainable in the long term.[22] This is also due to the fact that HIV is a stigmatizing condition, which leads patients to face difficulties in taking the medication in the social environment, causing lower adherence than it should be. Moreover, PLHIV tend to have unhealthy lifestyle habits, with using alcohol and other drugs, neglecting to take medication.[25]

Interventions involving motivational interviewing were effective in the analyzed studies. It is noteworthy that motivational interviewing focuses on changing behavior and contemplates situations in which there is an ambivalence between modifying something or not; therefore, motivational interviewing is a complex strategy, which requires qualified listening.[31] Motivational interviewing is used in the health area for behavioral changes, such as smoking cessation,[32] preventing risky sexual behavior,[9] reducing or ceasing using alcohol and other drugs,[10] in addition to mental health interventions.[11] Being an adaptable approach to each person, culture and problem, it becomes useful in different health scenarios, allowing different professionals, such as nurses, doctors and community agents, to use this strategy.[33]

It is noticed that using motivational interviewing with other interventions, such as those observed in this systematic review, were effective in facilitating the intervention, in order to enhance the educational strategies.[21-30] The informative inserts to assist in motivational interviewing application were efficient in improving adherence to ART. Printed educational material has been used to increase adherence to treatment and self-care of PLHIV.[23] Using educational material written by health professionals is recommended to reinforce the guidelines verbalized during consultations. Nurses can carry out interventions by communicating content and assessing resources produced for health education strategies. If a participatory approach is used, the forms allow identifying patients' needs and motivations.[22,23]

Other studies, on the other hand, associated motivational interviewing with telephone calls or interventions, where both proved to be effective in improving adherence to ART.[22,30] In the context of the HIV/AIDS epidemic, information technologies have been suggested as interventions to expand access to health care, by reducing geographic barriers and costs involving infection prevention and treatment. In general, information and communication technologies, such as the telephone, provide social support, decision-making, self-care and support for behavior changes.[34] The telephone approach contributed to the intervention' success involving motivational interviewing, considering the ease of contacting patients, generating a bond and repeating the stimulus, capable of causing changes in behavior and adherence to ART.[30]

A randomized clinical trial used telephone calls to reinforce motivational interviewing sessions,

with the aim of reducing risk behaviors in men with HIV. It was concluded that motivational interviewing combined with the telephone intervention was effective in reducing excessive alcohol consumption and decreasing sex without a condom.[9] Another study also showed that four sessions of motivational telephone interviewing reduced the frequency of condomless anal and vaginal intercourse in adults and older adults with HIV.[11]

Three other studies associated motivational interviewing with cognitive-behavioral theories, and all interventions were effective in improving adherence to ART.[25-27] These theories are used to increase awareness of the connection between thinking and behavior, and are implemented to facilitate the modification of undesirable behaviors, such as non-adherence to ART. Throughout sessions, motivational interviewing is used to sustain engagement, reduce resistance, and maintain motivation for necessary changes.[25] A study carried out in Brazil, in the Primary Health Care of the Unified Health System (SUS - *Sistema Único de Saúde*), showed a statistically significant association between using motivational interviewing associated with cognitive-behavioral theories and better results regarding smoking cessation and increased abstinence rates in 25%.[32]

Furthermore, motivational interviewing application frequency ranged from one to eight sessions, lasting from 20 to 120 minutes. Thus, this strategy can be provided in a single session, with the view that once motivated, individuals begin to mobilize within themselves, their own resources to achieve change. The ability to provide motivational interviewing in a single session can be useful for those resource-limited environments where PLHIV do not have access to technological innovations.[10] However, it was found that motivational interviewing would be more effective if applied continuously, as occasional and sporadic interventions sometimes do not generate effects on long-term behavior modification.[35] A randomized clinical trial conducted in Uganda used a single motivational interviewing session aimed at reducing alcohol use in PLHIV, and demonstrated that there was no statistical difference between the intervention and control groups.[10] In a study carried out in the context of Primary Health Care in the SUS, motivational interviewing proved to be effective for smoking cessation with four weekly sessions.[32]

In this way, the principles and techniques of motivational interviewing are similar in many aspects to the SUS principles and guidelines, especially regarding humanization and reception with qualified listening. Primary Health Care becomes a propitious scenario for implementing motivational interviewing, as it enables the construction of bonds between users/families and health professionals, with great therapeutic potential, since it can deepen the process of co-responsibility for health built over time.[33]

In the clinical scenario of care for PLHIV, nurses are, in most cases, responsible for counseling on adherence to ART. Thus, motivational interviewing is shown to be a strategy that seeks to help in the processes of behavior changes and resolution of ambivalence.[21] Moreover, continuous interventions are needed to maintain adherence to ART, especially among patients who reveal more difficulties adhering to medication. Nurses and other health professionals can use this strategy during routine consultations so that patients with HIV develop self-efficacy, believing in their ability to adhere to ART.[23,26]

A limitation of this systematic review was the impossibility of performing a meta-analysis based on the selected studies, because the methodological characteristics of clinical trials made it impossible to calculate the summary measures. Regarding the risk of bias classification according to RoB 2.0,[18] all studies presented domains with "some concern" or "high risk of bias", verifying the need for clinical trials with more rigid methods, especially in relation to the randomization process, presentation and analysis of results. Therefore, it is necessary that clinical trials strictly follow the Consolidated Standards of Reporting Trials (CONSORT), for greater reliability of results.

It is important to produce national and foreign studies that address motivational interviewing for adherence to ART, since individual and social conditions are factors that interfere with taking medication, with the possibility of having different outcomes in different geographic locations. The

present systematic review also did not find clinical trials on this topic in Brazil. Thus, it is suggested to carry out more experimental studies following the CONSORT instructions so that later, more reviews can be carried out, including systematic meta-analysis, to generate statistical evidence that proves the effect of using interventions using motivational interviewing to improve adherence to ART.

Conclusion

The results showed that interventions using motivational interviewing are effective in improving adherence to antiretroviral drugs. These findings reinforce the importance of using motivational interviewing in the context of the health system, since using strategies for health education and managing patients with chronic conditions are important for changing behavior and acquiring healthy habits. Furthermore, motivational interviewing was associated with other interventions, such as telephone calls, home visits, audiotapes, informational inserts, counseling, cognitive-behavioral theories and cognitive-social techniques, in order to expand patients' bond with treatment and health service.

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