

## Peer support implementation strategy in the Primary Health Care setting: scoping review

Estratégia de implementação de apoio por pares no contexto da Atenção Primária à Saúde: revisão de escopo  
Estrategia de implementación de apoyo de pares en el contexto de la Atención Primaria de Salud: revisión de alcance

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## Abstract

**Objective:** To map the use of the peer support implementation strategy in the Primary Health Care (PHC) setting through a scoping review of randomized clinical trials, reporting its results in health and the implementation process.

**Methods:** The development of this scoping review was guided by the Joanna Briggs Institute (JBI) methodology. Scopus, SciELO, PubMed, Web of Science databases and gray literature were searched. Articles published in the seven previous years (2017 to 2023) related to the Primary Health Care setting, and reporting health outcomes and at least one implementation outcome were selected.

**Results:** Initially, 259 articles were mapped. After removing duplicates and applying the criteria, 15 were selected. The health problems addressed were mostly related to the human immunodeficiency virus (HIV) and other sexually transmitted infections (STIs) and chronic non-communicable diseases. The main implementation outcomes presented involved adoption, acceptability, reach, fidelity, feasibility, sustainability and appropriateness. Few studies adopted theoretical implementation frameworks to conduct and report the findings.

**Conclusion:** The peer support strategy has been used in some PHC settings, with mapping that covers areas such as mental health, STIs and chronic non-communicable diseases. Positive health impacts included viral suppression of HIV, significant reduction in systolic blood pressure, and a decrease in the amount of alcohol consumed. However, studies analyzing effectiveness in other PHC scenarios are still lacking, especially regarding fidelity, feasibility, sustainability, appropriateness and cost.

## Resumo

**Objetivo:** Este estudo teve como objetivo mapear, por meio de uma revisão de escopo de ensaios clínicos randomizados, a utilização da estratégia de implementação do apoio por pares em contextos da Atenção Primária à Saúde (APS), para tanto, relatando seus resultados na saúde e no processo de implementação.

**Métodos:** Foi utilizada como guia para a revisão de escopo a metodologia do Joanna Briggs Institute (JBI). As bases Scopus, Scielo, Pubmed, Web of Science e literatura cinzenta foram pesquisadas. Artigos publicados nos últimos 7 anos (2017 a 2023), relacionados ao contexto da Atenção Primária à Saúde e que reportam desfechos de saúde e ao menos um desfecho de implementação foram selecionados.

**Resultados:** Inicialmente, foram mapeados 259 artigos e, após remoção de duplicatas e aplicação dos critérios, 15 foram selecionados. Os problemas de saúde abordados foram, em sua maioria, relacionados ao vírus da imunodeficiência humana (HIV) e outras infecções sexualmente transmissíveis e doenças crônicas não transmissíveis. Os principais desfechos de implementação apresentados envolveram adoção, aceitabilidade,

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Conflicts of interest: nothing to declare.

alcance, fidelidade, viabilidade, sustentabilidade e adequação. Poucos estudos utilizaram-se de modelos teóricos de implementação para condução e reporte dos achados.

**Conclusão:** A estratégia de apoio por pares tem sido empregada em alguns cenários da Atenção Primária à Saúde, com mapeamento que abrange áreas como saúde mental, infecções sexualmente transmissíveis e doenças crônicas não transmissíveis. Os impactos positivos na saúde incluíram a supressão viral do HIV, a redução significativa da pressão arterial sistólica e a diminuição na quantidade de álcool consumido. Todavia, ainda, faltam estudos para analisar a efetividade em outros cenários da APS, sobretudo, quanto à fidelidade, viabilidade, sustentabilidade, adequação e custo.

## Resumen

**Objetivo:** Este estudio tuvo como objetivo mapear, mediante una revisión de alcance de ensayos clínicos aleatorizados, la utilización de la estrategia de implementación del apoyo de pares en contextos de la Atención Primaria de Salud (APS), para lo cual se relataron los resultados en la salud y en el proceso de implementación.

**Métodos:** Se utilizó la metodología del Joanna Briggs Institute (JBI) como guía para la revisión de alcance. Las bases consultadas fueron Scopus, Scielo, Pubmed, Web of Science y literatura gris. Se seleccionaron artículos publicados en los últimos siete años (2017 a 2023), relacionados con el contexto de la Atención Primaria de Salud, que relatan resultados en la salud y al menos un resultado sobre la implementación.

**Resultados:** Inicialmente se mapearon 259 artículos y, después de eliminar los duplicados y aplicar los criterios, se seleccionaron 15. Los problemas de salud tratados fueron, en su mayoría, relacionados con el virus de la inmunodeficiencia humana (VIH) y otras infecciones de transmisión sexual y enfermedades crónicas no transmisibles. Los principales resultados de implementación presentados incluyeron adopción, aceptabilidad, alcance, fidelidad, viabilidad, sustentabilidad y adecuación. Pocos estudios utilizaron modelos teóricos de implementación para conducir e informar los resultados.

**Conclusión:** La estrategia de apoyo de pares se ha empleado en algunos escenarios de la Atención Primaria de Salud, con un mapeo que incluye áreas como salud mental, infecciones de transmisión sexual y enfermedades crónicas no transmisibles. Los impactos positivos en la salud incluyeron la supresión viral del VIH, la reducción significativa de la presión arterial sistólica y la disminución de la cantidad de alcohol consumido. Sin embargo, aún faltan estudios para analizar la efectividad en otros escenarios de la APS, sobre todo con relación a la fidelidad, viabilidad, sustentabilidad, adecuación y costo.

Study protocol: PROTOCOL INTEGER ID 81603

## Introduction

Peer support is the implementation strategy defined as a transfer of common experiences by individuals belonging to the same territory or facing the same social, cultural or health challenges. Implementation strategies point to the methodology for changing healthcare practices and seek to improve aspects related to adoption, implementation and sustainability.<sup>(1)</sup> In the taxonomy of implementation strategies proposed by Powell et al. (2015),<sup>(2)</sup> peer support recruits, assigns and trains for leadership.

In this context, the “peer” aims to support and strengthen the other’s resilience through knowledge gained from shared experience.<sup>(3)</sup> In another definition, the peer support strategy refers to the use of non-professionals who are assigned to the position of “leaders” and work by technically and emotionally helping people with social weaknesses or certain illnesses to adopt, transform and/or strengthen their health habits.<sup>(4)</sup> Thus, peer support has been expanding in interventions that involve the health of the community, while its adoption is solidified in different health scenarios, such as chronic diseases, sexual and reproductive health and mental health.<sup>(5)</sup>

This strategy assigns groups with similar problems the role of providing support to individuals with coping difficulties.

Peer support started as a patient-centered care tool, aiming to improve the prevention of health problems and reduce the costs of disease interventions. There are studies showing the benefits of peer support in combating cardiovascular diseases in relation to a reduction in systolic pressure, decrease in waist circumference and weight loss.<sup>(6)</sup>

The use of peer support can play a decisive role in the recovery of patients with mental illness, and help with early diagnosis, coping with mental illness, autism spectrum disorder and the socialization of these individuals.<sup>(7,8)</sup> Peer support has also been important in accepting and accessing information about the prevention of HIV infection.<sup>(9)</sup>

In the Primary Health Care (PHC) setting, this implementation strategy can act as a bridge between the health professional/service and interventions involving the health of communities, thereby assisting in care in health units, as support leaders can help with engaging users and the community in preventive behaviors.<sup>(10)</sup> Currently, several other documented peer support programs have obtained

excellent results in improving the quality of life and clinical conditions of patients who participated in this intervention modality – which is considered innovative for health services.<sup>(6)</sup>

Implementation strategies are crucial for the successful implementation of health policies and interventions, especially in PHC. Although peer support is a promising strategy to optimize the implementation of health interventions in PHC, it is necessary to better understand how this approach can be adapted to different care realities, integrated into the health system and about its costs and benefits in comparison to other implementation strategies.<sup>(11)</sup> Knowing the randomized clinical trials that used the peer implementation strategy may be a way to elucidate a promising field of research with the aim to facilitate the process of implementing interventions in public health and understand potential barriers and facilitators of this public health strategy. Understanding knowledge gaps for the application of this implementation technique would also be necessary to strengthen PHC in its varied settings.

The aim of this study was to map the use of the peer support implementation strategy in the PHC setting through a scoping review of randomized clinical trials and report its outcomes in health and the implementation process.

## Methods

The peer support implementation strategy in health-care is investigated in this scoping review study. The Joanna Briggs Institute (JBI) methodology was used as a guide for the review, seeking to map the implementation outcomes evaluated in studies in which the peer support strategy was implemented in PHC.<sup>(12)</sup> Since this is a scoping review, the study did not aim to evaluate the quality of clinical trials, but rather to specify data that supports and enables the understanding of knowledge gaps relevant to the topic.

Data collection was guided by the Participants (Population), Concept and Context (PCC) strategy.<sup>(13)</sup> The population was represented by stud-

ies of adolescents, adults or older adults who had participated in clinical trials; the concept involved peer support; and the context was related to PHC. The research question was: “What are the results achieved in health and in implementation with the peer support strategy in Primary Health Care?”.

The searches were carried out in four databases: PubMed, Web of Science, SciELO and Scopus. The Catalog of Theses and Dissertations from the Coordination for the Improvement of Higher Education Personnel (CAPES) was used for the gray literature (dissertations and theses). The electronic search strategy was carried out using keywords related to (peer influence or peer support or peer) AND (implementation science or implementation or implementation outcomes or hybrid designs) AND (health or health services research or chronic health) AND (primary health care or Family health strategy) AND (randomized clinical trials). The search was carried out from January 2017 to April 2023, limited to articles that met the eligibility criteria: a) Results of randomized clinical trials that evaluated implementation by peers; b) Having evaluated at least one health outcome; c) Reporting at least one implementation outcome.

The selection of articles was carried out as follows: in the first stage, the search strategy was developed by combining the already mentioned descriptors used on the databases. In the second stage, filters were applied (clinical trial; English and Portuguese languages; publication date from 2017 to 2023) and the retrieved articles were initially stored in the EndNote® bibliography manager software, from which duplicates were removed automatically and, later, manually. At this point, the titles and abstracts were read with the aim to assess if the articles corresponded to the research question. Finally, the pre-selected articles were read in full, identifying more precisely their relevance to the review and if inclusion and exclusion criteria were met. At this last stage, relevant data for analysis were extracted.

Reviewers independently mapped the data, discussed the results, and continually updated the data graph form in an interactive process. Three reviewers, RAB, JAVC and JRL, were involved in the screen-

ing process and inconsistencies were discussed in advance.

The study protocol was published on the protocols.io platform (<https://www.protocols.io/private/0664E5E62A91807BE599BD530819A602>).

The following data were extracted from the articles and organized in a Microsoft Excel 2010 table: theme, title, author, year of publication, location, type of study, objective of the study, description of the intervention, health outcome, in-service outcome and implementation outcome.

The definitions provided by Lorthios-Guilledroit et al. (2018)<sup>(5)</sup> were used to determine the outcomes examined in the studies, as implementation outcomes were not always clearly stated in the articles. Eight implementation outcomes among all sought were considered more important, namely: 1) Acceptability: perception among users that the intervention is acceptable; 2) Adoption: intention, initial decision or action to try to adopt a new intervention by participating users; 3) Appropriateness: perception of the relevance of the intervention in a particular context or for a specific audience; 4) Feasibility: extent to which a new intervention can be carried out in a context or organization; 5) Fidelity: degree to which the intervention is delivered as initially planned without the need for adaptation; 6) Implementation Cost: incremental (and total) cost of the implementation strategy; 7) Coverage/Reach: degree to which the eligible population to receive the intervention actually receives it; 8) Sustainability: extent to which an intervention is maintained and institutionalized in a given context.

## Results

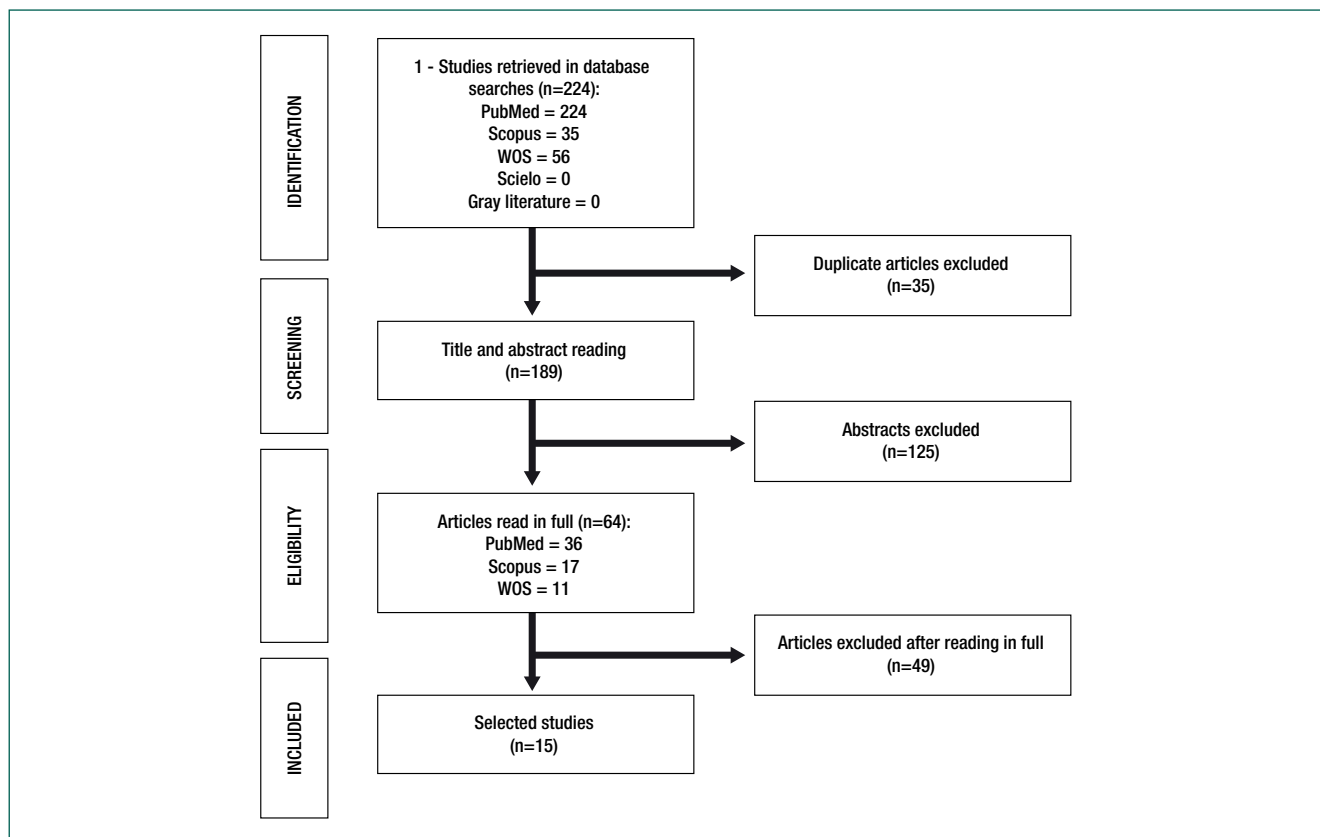
The search strategy initially used resulted in 259 articles; 148 on PubMed, 71 on Web of Science, 40 on Scopus and zero on SciELO and the Capes platform. After analyzing duplicates, 35 were excluded, resulting in 224 articles. After reading the title and abstract, 64 were selected for full reading and 15 were selected for analysis, as they met all inclusion criteria (Figure 1).

For the most part, the addressed health problems were related to HIV and other sexually transmitted infections (STIs) and chronic non-communicable diseases, which are sensitive topics to the operating context of PHC. The main implementation outcomes presented involved adoption,<sup>(14-24)</sup> acceptability,<sup>(25-27)</sup> reach,<sup>(20,23,24)</sup> fidelity,<sup>(20,25,28)</sup> feasibility,<sup>(25)</sup> sustainability<sup>(24)</sup> and appropriateness.<sup>(17,25)</sup> No study evaluated the cost. In five out of the 15 articles selected, a theoretical framework was used in the development of the study, including: RE-AIM (n=2),<sup>(23,24)</sup> RE-AIM and PIPE (n=2)<sup>(20,26)</sup> and Proctor (n=1),<sup>(25)</sup> while in ten studies, a theoretical implementation framework was not used to support the study. In chart 1, health outcomes were concentrated in six major themes: mental health (n=1),<sup>(14)</sup> infectious diseases/STIs (n=5),<sup>(15-18,25)</sup> chronic non-communicable diseases (n=4),<sup>(20,21,26,29)</sup> health education (n=2),<sup>(22,27)</sup> neglected diseases (n=2)<sup>(23,24)</sup> and one involved health promotion.<sup>(28)</sup>

## Discussion

Three main points stood out among the main findings of this scoping review. First, when the peer support strategy was evaluated through clinical trials, it has promoted some significant results in health outcomes such as chronic diseases<sup>(19-26)</sup> and STIs.<sup>(16,17)</sup> Second, gaps have been observed in the use of peer support, such as the constant absence of theoretical implementation frameworks to support the study.<sup>(14,15)</sup> Third, there were few reports on fidelity outcomes, an essential outcome to assess if interventions are being conducted as planned, as well as few randomized clinical studies addressing peer support in the current PHC setting. The peer support strategy is not a new intervention methodology within PHC<sup>(7)</sup> and presents barriers and facilitators for its clinical practice.<sup>(30)</sup>

Although the peer support strategy is more consolidated in the field of mental health,<sup>(31)</sup> only one article on this topic was found in this review, reporting the threat to life (self-mutilation) as the most common serious adverse event.<sup>(14)</sup> The primary outcome was psychiatric readmission 12 months



**Figure 1.** Selection of studies included in the scoping review

after discharge. Despite showing good adoption, health outcomes did not reveal significant effects; the adjusted risk ratio for readmission was 0.97 (95%CI 0.82; 1.14) and the adjusted odds ratio for readmission was 0.93 (95%CI 0.66; 1.30). The unadjusted risk difference was 0.03 (95% CI -0.11; 0.05) in favor of the peer support group, showing no significant effects between the control group and the intervention arm.

In recent years, peer support in the PHC setting has been more used to address STIs,<sup>(32)</sup> which is defined as an important complement to medical treatments in the area.<sup>(31)</sup> Implementations in the field of STIs /HIV proved to be statistically successful, in line with the literature,<sup>(33)</sup> bringing viral suppression as health outcomes, such as the study addressing puerperal women with greater adoption of the intervention to the detriment of those with lower adoption,<sup>(15)</sup> and the implementation outcome related to positive effects.<sup>(16)</sup> Acquired Immune Deficiency Syndrome continues to be an

important public health problem, and the results of these randomized clinical trials can support positive strategies for HIV viral suppression in PHC.<sup>(34)</sup>

Studies on Diabetes Mellitus and Systemic Arterial Hypertension were conducted in the context of chronic non-communicable diseases and reported positive outcomes.<sup>(19,21,26)</sup> The interventions brought the health outcomes of a significant drop in systolic blood pressure<sup>(19)</sup> and lower amount of alcohol consumed in the intervention groups<sup>(21,26)</sup> compared to control groups. The implementation outcomes more discussed in this topic were adoption,<sup>(20,21,29)</sup> acceptability, reach and fidelity.<sup>(29)</sup> The study that evaluated implementation costs<sup>(21)</sup> pointed to a relatively low-cost intervention; U\$ 22.5 per patient per year.

Neglected diseases are important topics for PHC. Tuberculosis was the subject of two randomized clinical studies using peer support to strengthen adherence to disease treatment.<sup>(23,24)</sup> Even using the RE-AIM theoretical framework, none of the

**Chart 1. Information from clinical studies on peer support in PHC**

THEME	TITLE	AUTHOR	YEAR	LOCATION	TYPE OF STUDY	OBJECTIVE	INTERVENTION	HEALTH OUTCOME	IMPLEMENTATION OUTCOME	IN-SERVICE OUTCOME	THEORETICAL FRAMEWORK USED
Mental health	Peer support for discharge from inpatient mental health care versus usual inpatient care (ENRICH): a parallel, two-group, individually randomised controlled trial <sup>(14)</sup>	Gillard S et al. <sup>(14)</sup>	2022	England	Two-group, randomized, parallel, controlled superiority study with study personnel masked to allocation	Establish if peer support for discharge reduces readmissions in the year after discharge	The peer support group received individualized manual-based peer support focused on building individual strengths and engagement with community activities, beginning during initial admission and continuing for 4 months after discharge in addition to usual care. Usual care consisted of follow-up by community mental health services within 7 days of discharge. The primary outcome was psychiatric readmission 12 months after discharge (number of patients readmitted at least once), analyzed based on intention to treat.	In the peer support group 47% of patients were readmitted at least once within 12 months of discharge, and 50% were readmitted in the usual care group	Adoption of the intervention was assessed in 91% of patients before discharge and 90% after discharge	Did not use theoretical implementation framework	
	Effects of behavioural interventions on postpartum retention and adherence among women with HIV on lifelong ART: the results of a cluster randomized trial in Kenya (the MOTIVATE trial) <sup>(15)</sup>	Awuog LL, et al. <sup>(15)</sup>	2022	Kenya	Cluster randomized controlled trial	Assess the impact of two evidence-based behavioral interventions on postpartum adherence and retention in Kenya	The text messaging intervention was developed based on qualitative formative research and the Health Belief Model. Participants received text messages. Messages were sent weekly from study enrollment during pregnancy until 12 months postpartum. Participants could also communicate by phone free of charge with a study nurse	In the secondary analysis of viral load suppression, among 791 (59.4%) women 12 months postpartum, only 43 (5.4%) were not suppressed. These women more frequently reported adherence below the ideal at inclusion in the study ( $p = 0.040$ ) and had a history of previous high viral load	Adjusted hazard ratios for good versus fair/poor adoption at 12 months postpartum were not statistically different between the intervention arms and the control arm	Did not use theoretical implementation framework	
Sexually transmitted infections	Project Shikama: Community Empowerment-Based Combination HIV Prevention Significantly Impacts HIV Incidence and Care Continuum Outcomes Among Female Sex Workers in Iringa, Tanzania <sup>(16)</sup>	Kerrigan D, et al. <sup>(16)</sup>	2019	Iringa, Tanzania	Randomized study	Determine the impact of a community empowerment model of combined HIV prevention (Project Shikama) among female sex workers (FSW)	Intervention elements included the following: (1) Center for embracement and community-led mobilization activities; (2) place-based peer education, condom distribution, and HIV testing; (3) peer service navigator; and (4) provider sensitivity trainings; and (5) SMS reminders	Participants had an incidence of HIV infection of 5.0% in the intervention versus 10.4% in the control at 18 months. Reductions in inconsistent condom use over time were significantly greater in the intervention (72.0%–43.6%) versus control	Adoption	Did not use theoretical implementation framework	
	Effect of a differentiated service delivery model on virological failure in adolescents with HIV in Zimbabwe (Zvandiri): a cluster-randomised controlled trial <sup>(17)</sup>	Mashu W, et al. <sup>(17)</sup>	2020	Zimbabwe	Cluster randomized controlled trial	Evaluate a peer-led differentiated service delivery intervention on HIV clinical and psychosocial outcomes among adolescents with HIV in Zimbabwe	16 public primary care facilities (clusters) in two rural districts in Zimbabwe (Bhndura and Sharma) were randomly assigned (1:1) to provide enhanced HIV treatment support (the intervention group) or standard HIV care (the control group) for adolescents (13–19 years of age) with HIV. The intervention program, recommended by the WHO in 2013 as a program of good practices, is a multicomponent and theoretically based differentiated service delivery model for children, adolescents and young people with HIV	Process evaluation data suggested that the Zvandiri intervention improved adolescents' quality of life through a focus on shared experiences, role modelling, and supportive friendship	Adoption, appropriateness	Did not use theoretical implementation framework	
	The Impact of Structured Mentor Mother Programs on Presentation for Early Infant Diagnosis Testing in Rural North-Central Nigeria: A Prospective Paired Cohort Study <sup>(18)</sup>	Sam-Agudu NA, et al. <sup>(18)</sup>	2017	Nigeria	Randomized and matched cohort	The aim of the Mentor (Mother Mentor) is to evaluate the impact of structured programs on the primary outcomes of timely presentation of early infant diagnosis (EID) and postpartum maternal retention and, secondarily, on HIV-exposed infant disease-free survival	497 HIV-positive pregnant women were consecutively recruited from 10 primary health care centers with structured support and closely supervised by the Mentor Mother (MM) and 10 pair matched primary healthcare centers with peer support. EID was assessed among HIV-exposed infants delivered to recruited women and was defined by presentation for DNA polymerase chain reaction testing between 35 and 62 days of life	Effect of MMs on improved early childhood diagnosis presentation. OR = 3.7, 95% CI: 2.8 to 5.0	Adoption	Did not use theoretical implementation framework	

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Continuation.

THEME	TITLE	AUTHOR	YEAR	LOCATION	TYPE OF STUDY	OBJECTIVE	INTERVENTION	HEALTH OUTCOME	IMPLEMENTATION OUTCOME	IN-SERVICE OUTCOME	THEORETICAL FRAMEWORK USED
Sexually transmitted infections	Project Khanya: results from a pilot randomized type 1 hybrid effectiveness-implementation trial of a peer-delivered behavioural intervention for ART adherence and substance use in HIV care in South Africa <sup>(20)</sup>	Maglison JF, et al <sup>(20)</sup>	2021	Western Cape, South Africa	Type 1 hybrid randomized study	Improving Antiretroviral Therapy (ART) adherence and reducing Alcohol and Other Drug Use (AOD) in HIV treatment	Khanya is a six-session peer-delivered behavioral intervention that integrates multiple evidence-based intervention components—behavioral activation, problem solving, motivational interviewing, and mindfulness-based relapse prevention—adapted during formative work prior to this study. The aim of the intervention is to support increased ART adherence and the establishment of individualized goals for AOD reduction by teaching evidence-based behavioral skills to support achievement of these goals	100% of participants started the intervention and 70% (fidelity) attended all six sessions; 88% reported satisfaction with the number of treatment sessions. Feasibility, appropriateness and acceptability of Khanya were rated very highly (feasibility: M = 2.96; SD = 0.18; acceptability: M = 2.96; SD = 0.04; appropriateness: M = 2.94, SD = 0.09). For Enhanced Treatment as Usual, 80.6% attended the Head Office referral, of which 68% attended just one session. Interventionist self-reported fidelity was 96.5% for Khanya. The average fidelity of the independent evaluator was 91.7%.	Proctor		
Chronic non-communicable diseases	Peer support to improve diabetes care: an evaluation of the implementation of the Australasian Peers for Progress Diabetes Program <sup>(20)</sup>	Aziz Z, et al <sup>(20)</sup>	2018	Victoria, Australia	Implementation	To evaluate the implementation of a cluster randomized controlled trial of a group-based peer support program to improve diabetes self-management and thereby, diabetes control in people with type 2 diabetes in Victoria, Australia	The intervention program is designed to address four key functions of peer support, namely 1) assistance with daily management, 2) social and emotional support, 3) regular linkage to clinical care, and 4) ongoing and sustained support to help with the lifelong needs of diabetes self-care management	Briefly, the proportion of participants who showed improvement in the primary outcome, i.e., 5-year reduction in score of the UKPDS risk engine, was 0.651 (65.1%) in the intervention arm and 0.448 (44.8%) in the usual care group. Effectiveness Coefficient = 0.651 (65.1%)	RE-AIM and PIPE		
Chronic non-communicable diseases	A peer-support lifestyle intervention for preventing type 2 diabetes in India: A cluster-randomized controlled trial of the Kerala Diabetes Prevention Program <sup>(21)</sup>	Thankappan KR, et al <sup>(21)</sup>	2019	India	Cluster randomized controlled trial	To evaluate the effectiveness of a peer-supported lifestyle intervention in preventing type 2 diabetes among high-risk individuals identified based on a simple diabetes risk score	The 12-month intervention program consisted of (1) a group-based peer support program consisting of 15 sessions over a 12-month period for high-risk individuals, (2) peer leader (PL) training and support continuum for delivery of the intervention, (3) diabetes education resource materials, and (4) strategies to encourage broader community engagement. The assessment was informed by the RE-AIM and PIPE frameworks	Intervention participants were 83% more likely to consume ≥5 servings of fruits and vegetables per day and 23% less likely to consume alcohol compared to control participants at 24 months. Furthermore, the amount of alcohol consumed was significantly lower among intervention participants	Did not use theoretical implementation framework		
Chronic non-communicable diseases	A group-based lifestyle intervention for diabetes prevention in low- and middle-income country: implementation evaluation of the Kerala Diabetes Prevention Program <sup>(20)</sup>	Aziz Z, et al <sup>(20)</sup>	2018	Kerala, India	Cluster randomized controlled study of a group-based lifestyle intervention among individuals at high risk of developing type 2 Diabetes Mellitus (T2DM)	Discover provider-, participant-, and community-level factors relevant to a successful implementation and transferable to other low- and middle-income countries	The 12-month intervention program consisted of (1) a group-based peer support program consisting of 15 sessions over a 12-month period for high-risk individuals, (2) peer leader (PL) training and support continuum for delivery of the intervention, (3) diabetes education resource materials, and (4) strategies to encourage broader community engagement. The assessment was informed by the RE-AIM and PIPE frameworks	Intervention participants were 83% more likely to consume ≥5 servings of fruits and vegetables per day and 23% less likely to consume alcohol compared to control participants at 24 months. Furthermore, the amount of alcohol consumed was significantly lower among intervention participants	Acceptability - Diet Improvement 99% Increase in physical activity 96% Reduction of smoking/tobacco 76% Reduction of alcohol consumption 98%	RE-AIM and PIPE	

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Chronic non-communicable diseases	Effectiveness of a community-based education and peer support led by women's self-help groups in improving the control of hypertension in urban slums of Kerala, India: a cluster randomised controlled pragmatic trial <sup>(28)</sup>	P Suseela R, et al <sup>(28)</sup>	2022	Kerala, India	Cluster randomized controlled trial	To evaluate the effectiveness of a community-based education and peer support program led by women of the self-help group (SHG) in reducing mean systolic blood pressure (SBP) among people with hypertension in urban slums of Kochi city, Kerala, India	The intervention was delivered by female SHG members (1 per 20-30 families) who provided (1) assistance in daily hypertension management, (2) social and emotional support to encourage healthy behaviors, and (3) referral to primary health care. Subjects in the control arm received standard care	The primary outcome was the change in mean SBP. The mean reduction in SBP among participants in the intervention arm was 6.3 mm Hg (SD 21.1) compared to 2.2 (SD 21.3) in the control arm, for a net difference of 4.1 (95% CI 2.2 to 4.1), p < 0.001	Secondary outcomes were the proportion of patients using antihypertensive medication and change in self-reported medication adherence scores. A significant increase in medication adherence scores by 0.9 (0.6, 1.1)	Did not use theoretical implementation framework	
	Evaluation of a community-based intervention for health and economic empowerment of marginalized women in India <sup>(25)</sup>	Sharma S, et al <sup>(25)</sup>	2020	India	Implementation	Improve marginalized women's awareness and utilization of MCH services and access to means of livelihood and savings using peer-led approach from two districts of India	Peer educators as mediators of knowledge transfer between women and for the creation of a supportive environment at household and community levels. The intervention was implemented in two marginalized districts	Women's awareness of maternal and child health appears to have increased after the intervention	Adoption - awareness (effectiveness /effect) and use of services	Did not use theoretical implementation framework	
Health education	The evaluation of the Woman's Condom marketing approach: What value did peer-led interpersonal communication add to the promotion of a new female condom in urban Lusaka? <sup>(41)</sup>	Pinchoff J, et al <sup>(41)</sup>	2019	Lusaka, Zambia	Randomized study	To measure the additional impact of a peer-led interpersonal communication (IPC) intervention on awareness and acceptance of the new female condom	First, we implemented a mystery shopper survey in half of the study wards to visit retail outlets and determine whether the toilet was available, in stock and associated with any advertising such as posters. This information was cross-referenced with previously collected data on distribution to points of sale. Second, we monitored aggregated website data to measure traffic to the website and checked to see if the billboards were still in place. Third, we conducted spot checks of IPC events and shadowing of IPC agents to monitor recruitment and ensure that all components of the IPC curriculum were routinely covered. Finally, we conducted 30 focus group discussions to discuss perceptions and awareness about the Woman's Condom product	Adherence to female condoms. Conditional on these covariates, the estimated effect of the PCI intervention is a 1.8 percentage point increase in female condom use ( = 0.018, 95% CI [-0.001, 0.035], p = 0.06). Although it is statistically significant at the 10% level, it is not significant at the pre-specified 5% level	Acceptability and acceptance of the new product	Did not use theoretical implementation framework	
Health promotion	Effectiveness and cost-effectiveness of the GoActive intervention to increase physical activity among UK adolescents: A cluster randomised controlled trial <sup>(28)</sup>	Corder K., et al <sup>(28)</sup>	2020	Cambridgeshire and Essex, United Kingdom	Cluster randomized controlled trial	To evaluate the effectiveness and cost-effectiveness of the GoActive intervention to increase moderate-to-vigorous physical activity (MPVA) among adolescents aged 13-14 years	GoActive aims to increase physical activity by increasing peer support, self-efficacy, self-esteem and friendship quality. It was implemented in tutor groups using a student-led hierarchical leadership system	Mean accelerometer-assessed MPVA decreased in both randomized groups between baseline and 10-month follow-up. The reduction was somewhat greater in the intervention group, although the confidence interval around the intervention effect was wide and inconclusive	Intervention fidelity was 37.9%; 46.5% entered activity points using the website. Regarding satisfaction, 62.9% of students reported that GoActive was fun, 70% of teachers reported they enjoyed facilitating it, and 87.3% of mentors said it was fun	Did not use theoretical implementation framework	
	Impact of a tuberculosis treatment adherence intervention versus usual care on treatment completion rates: results of a pragmatic cluster randomized controlled trial <sup>(23)</sup>	Puchalski Ritchie LM, et al <sup>(24)</sup>	2020	Malawi	Pragmatic randomized controlled trial	Refine and evaluate an intervention designed to address common causes of tuberculosis (TB) treatment nonadherence and lay health workers (LHW) and skills training needs.	In intervention health centers, a TB treatment adherence intervention was implemented using educational outreach, a point-of-care reminder tool, and a peer support network. Clusters in the control arm provided usual care	There was no significant effect of the intervention on TB treatment success. Adjusted OR 1.35 (95% CI 0.93 to 1.98), with high variation in the quality of implementation, a potential contributing factor	Low levels of reach, adoption and implementation in many intervention sites	We found no significant effect of the intervention on TB treatment outcomes with high variability in the quality of implementation	RE-AIM
Neglected diseases	Process evaluation of an implementation strategy to support uptake of a tuberculosis treatment adherence intervention to improve TB care and outcomes in Malawi <sup>(24)</sup>	Puchalski Ritchie LM, et al <sup>(24)</sup>	2021	Malawi	Pragmatic randomized controlled trial	To assess implementation and identify barriers and facilitators to the implementation, sustainability and scalability of an implementation strategy to provide lay health workers (LHWs) with the knowledge, skills and tools needed to implement an intervention to support treatment adherence of patients with tuberculosis (TB)	The strategy employed was on-site peer-led educational outreach, a clinical support tool, and a peer support network to implement a TB treatment adherence intervention	There was no significant effect of the intervention on TB treatment success. Adjusted OR 1.35 (95% CI 0.93 to 1.98), with high variation in the quality of implementation, a potential contributing factor	Reach 59% Adoption 91% Sustainability 100%		RE-AIM



studies obtained a significant statistical difference, thus revealing implementation outcomes with low levels of reach and adoption,<sup>(23, 24)</sup> and in both studies, the outcome of implementation fidelity was not reported.

Education and health promotion, which are primary policies in PHC, were addressed in randomized studies that did not use theoretical implementation frameworks, possibly explaining the inconclusive or non-significant health outcomes found.<sup>(22,27,28)</sup> The studies reported as outcomes of implementation, the adoption, effect,<sup>(22)</sup> acceptability<sup>(27)</sup> and fidelity of the intervention.<sup>(28)</sup> The selection of only 15 studies showed the little production of randomized clinical trials using the peer support strategy in PHC in recent years.

Most of the included studies had gaps in the field of implementation science, such as the lack of reporting of the theoretical frameworks used.<sup>(14,15,19,22,28)</sup> Furthermore, the lack of statistical significance in the results related to the health outcomes analyzed can be attributed, in part, to the limited consideration of crucial aspects of implementation, such as sustainability, fidelity, reach and appropriateness.<sup>(14)</sup> These results can also be explained by the lack of understanding of the determinants and mechanisms that act as obstacles and facilitators in implementing peer support.

The positive findings described can support the implementation of the strategy within the scope of Brazilian PHC, as the national scientific production reporting the use of peer support by health professionals in the country is scarce. Based on the results of the studies in this review,<sup>(15,16,19,21,26)</sup> it would be possible to strengthen the successful policy to combat STIs<sup>(35)</sup> and combat chronic non-communicable diseases.<sup>(36)</sup> As shown, this can be achieved with nursing involvement in collaborative practices with the entire family health team.<sup>(37)</sup>

The gap in knowledge of theoretical frameworks and interventions in implementation science can interfere with the analysis of outcomes, often presenting underestimated results or lacking important data for further clarification on certain interventions. Retrieving only clinical studies may have limited the exploration of other themes in which

peer support is being used. However, it was possible to assess the performance of the intervention compared to groups without intervention, or compared with the intervention that was usually carried out. Despite its relevance and acceptance by the population, significant knowledge gaps still persist, especially regarding the application of theoretical implementation frameworks, the analysis of their public health outcomes and how to assess the fidelity of these interventions.

In this context, new studies could deepen the understanding of how such strategies are implemented, which theoretical frameworks support these practices and, mainly, what is the real impact achieved through peer support.

## Conclusion

The peer support strategy has been used in some PHC settings with the mapping that covers areas such as mental health, STIs and chronic non-communicable diseases. Positive health impacts included HIV viral suppression in puerperal women who adopted the intervention, significant reduction in systolic blood pressure, and a decrease in the amount of alcohol consumed in the intervention groups. However, there is still a lack of studies to analyze the effectiveness in other PHC scenarios, especially regarding fidelity, feasibility, sustainability, appropriateness and cost.

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