


Problem-based learning in health education with a focus on the Unified Health System: a literature review


Hayanna de Araújo Ramos Lavres¹

 0000-0001-6920-7753

Janaína Araújo Dantas¹

 0000-0003-4814-4508


Cristiano Gaujac¹

 0000-0002-4808-9468


Regiane Cristina do Amaral¹

 0000-0002-9191-0960


Cecília Bezerra de Menezes Corbal Guerra¹

 0009-0008-9105-6697

Rangel Teles Freire¹

 0000-0002-3174-2125

Victor Arthur Rodrigues de Souza¹

 0000-0001-6782-9831

¹Programa de Pós-Graduação em Odontologia, Universidade Federal de Sergipe (UFS), Aracaju, Sergipe, Brasil.

Correspondence:

Hayanna de Araújo Ramos Lavres
E-mail: haylavres@hotmail.com

Received: Nov 28, 2023

Approved: Jan 24, 2024

Last revision: Mar 11, 2024

<https://creativecommons.org/licenses/by-nc/4.0/deed.en>



Abstract The present study aimed to analyze the Brazilian scientific production regarding the problem-based learning (PBL) methodology used as a tool for health education within the scope of the Unified Health System (SUS). This is a critical literature review, whose search strategy was based on the selection of bibliographic productions, carried out in March 2023, through the Virtual Health Library (BVS). The health sciences descriptors (DeCS) employed were "problem-based learning", "health education", and "Unified Health System". Sixty articles were retrieved, and after applying the eligibility criteria, 19 studies remained, resulting in the formation of two thematic categories: a) active methodology PBL as a tool in teaching-learning in undergraduate studies, in the context of SUS, and b) contributions of the PBL methodology to health education of the population and/or health professionals within SUS. It is concluded that the scientific production addressing the PBL methodology used as a tool for health education within the scope of the Unified Health System is still scarce in Brazil.

Descriptors: Problem-Based Learning. Health Education. Unified Health System.

Aprendizaje basado en problemas en educación para la salud con enfoque en el Sistema Único de Salud: una revisión de literatura

Resumen El presente estudio tuvo como objetivo analizar la producción científica brasileña sobre la metodología de aprendizaje basado en problemas (*problem-based learning*, PBL) utilizada como herramienta de educación en salud en el ámbito del Sistema Único de Salud (SUS). Se trata de una revisión crítica de la literatura, cuya estrategia de búsqueda fue a partir de la selección de producciones bibliográficas, realizada en marzo de 2023, a través de la Biblioteca Virtual en Salud (BVS). Los descriptores en ciencias de la salud (DeCS) utilizados fueron "aprendizaje basado en problemas", "educación para la salud" y "Sistema Único de Salud". Se recuperaron 60 artículos y luego de aplicar los criterios de elegibilidad quedaron 19 estudios, que culminaron con la formación de dos categorías temáticas: a) metodología activa PBL como herramienta de enseñanza-aprendizaje a nivel de pregrado, en el contexto del SUS y b) aportes de la metodología PBL a la educación en salud de la población y/o profesionales de la salud del SUS. Se concluye que la producción científica que aborda la metodología ABP utilizada como herramienta de educación en salud en el ámbito del Sistema Único de Salud es aún escasa en Brasil.

Descriptorios: Aprendizaje Basado en Problemas. Educación para la Salud. Sistema Único de Salud.

Aprendizagem baseada em problema na educação em saúde com enfoque no Sistema Único de Saúde: uma revisão de literatura

Resumo O presente estudo teve como objetivo analisar a produção científica brasileira acerca da metodologia de aprendizagem baseada em problema (*problem-based learning*, PBL) utilizada como ferramenta de educação em saúde no âmbito do Sistema Único de Saúde (SUS). Trata-se de uma revisão crítica de literatura, cuja estratégia de busca baseou-se na seleção de produções bibliográficas, realizada em março de 2023, por meio Biblioteca Virtual em Saúde (BVS). Os descritores em ciências da saúde (DeCS) empregados foram "aprendizagem baseada em problemas", "educação em saúde" e "Sistema Único de Saúde". Foram recuperados 60 artigos e após a aplicação dos critérios de

elegibilidade, restaram 19 pesquisas, que culminaram na formação de duas categorias temáticas: a) metodologia ativa PBL como ferramenta no ensino-aprendizagem na graduação, no contexto do SUS e b) contribuições da metodologia PBL para a educação em saúde da população e\ou profissionais de saúde no âmbito do SUS. Conclui-se que a produção científica abordando a metodologia PBL utilizada como ferramenta de educação em saúde no âmbito do Sistema Único de Saúde ainda é escassa no Brasil.

Descritores: Aprendizagem Baseada em Problemas. Educação em Saúde. Sistema Único de Saúde.

INTRODUCTION

The process of health education has undergone a series of questioning and changes to meet the requirements of the National Curricular Guidelines (DCN), whose general competencies include health care, decision-making, communication, leadership, administration, and management, as well as lifelong learning. To develop them, the student must be able to collect, observe, and interpret data for diagnosis; develop logical reasoning and critical analysis in clinical practice; propose and execute appropriate treatment plans; promote and maintain health; communicate with patients, health professionals, and the community at large, within ethical and legal precepts; work in interdisciplinary teams and act as a health promotion agent; plan and manage collective health services¹.

In this context, educational trends point towards the use of active teaching methodologies, where the student becomes the center of the teaching-learning process, being the protagonist of their own training process. The teacher ceases to be a holder and transmitter of knowledge and becomes a facilitator or guide in the student's research, reflections, and decision-making. Thus, active methodologies teach the student to learn how to learn, through real or simulated experiences, also favoring health education².

Therefore, to integrate theory and practice, service and education, the methodological proposals used in the training of health professionals must be reconsidered, making it imperative to adopt an expanded and integrated approach to curricula, prioritizing the development of competencies and encouraging the use of active learning methodologies, creating professionals with a broad vision of humanity³.

Outdated teaching methods can hinder the creativity and intelligence of young people. The efficiency of learning in universities and professional training is very low when traditional methods are used. Therefore, it is necessary to modernize education to keep up with the transformations occurring in the world. Among the active methodologies used in the health field, problem-based learning (PBL) has become one of the most employed⁴.

PBL is a pedagogical model that began in 1969, in medical education at McMaster University's medical school in Ontario, Canada. In the 1990s, it was included in medical courses worldwide and approved by the World Federation for Medical Education and the World Health Organization⁵.

It is an educational strategy in which a practical problem serves as the basis for learning relevant information; in it, students solve problems in small groups, supervised by a tutor. It consists of a self-directed teaching technique that stimulates the student's critical thinking, contributing to making them a problem solver. The basic source of learning in PBL is exposure to situations and problems similar to real experiences in future professional practice⁶.

In the PBL methodology, teaching is centered on the student, who is responsible for actively seeking knowledge, integrating content from various areas, unlike traditional teaching that divides knowledge into basic and specific disciplines. One of the objectives of this methodology is to develop in the student the ability to seek solutions to problems that will arise throughout their professional life⁷.

For several years, various debates about health education in higher education and the need to train professionals who are in line with the principles advocated by the Unified Health System (SUS) have been present in educational institutions and in the government sphere⁸. SUS, as the regulator of the training of professionals in the field, has provided actions and programs, through initiatives of the Ministry of Education and the Ministry of Health, to

reformulate the education of health professionals, with the aim of guiding their actions based on the ethical-political principles that support the current public health policies in Brazil. Thus, in recent years, undergraduate courses in the health field have undergone a series of curricular reforms, aiming to adjust the profile of training processes to the paradigm of comprehensiveness, promoting the integration of teaching and service, affirming their role as a field of formative practices, to strengthen the SUS service network⁹, and allowing the learned content to be transmitted and incorporated by citizens, in a constant situation of empowering the population through health education¹⁰.

The Ministry of Health defines health education as "an educational process of building health knowledge aimed at thematic appropriation by the population [...]. Set of sector practices that contribute to increasing people's autonomy in their care and in the debate with professionals and managers in order to achieve health care according to their needs"¹¹.

Thus, health services, especially primary health care (PHC), constitute privileged practice or learning scenarios at the intersection of the world of work with the world of education. Such processes are configured as strategies in higher education to improve the quality of health education and, indirectly, improve health care for the population⁵.

Given the above and with the purpose of deepening the contents on the subject, the present study aims to analyze the national scientific production on the PBL methodology used as a tool for health education within the scope of SUS.

LITERATURE REVIEW

The study consists of a critical literature review, based on a strategic search for bibliographic productions conducted in March 2023, across all available databases in the Virtual Health Library (BVS). According to Resolution 466/12, ethical review by a Research Ethics Committee is waived, considering that the research did not involve human subjects.

The following guiding question was formulated: How does the problem-based learning active methodology contribute to the process of health education within the scope of SUS? The health sciences descriptors (DeCS) employed were "problem-based learning," "health education," and "Unified Health System," in the field "title, abstract, subject," published between the years 2008 and 2023.

Inclusion criteria were electronically available articles with full text in Portuguese, conducted in Brazil, and adopting the relevant theme, while excluding duplicate articles, editorials, letters to the editor, epidemiological bulletins, monographs, theses, as well as studies that did not address the relevant theme to achieve the review's objective.

As a result of the search, 60 scientific works were obtained. The reading of abstracts led to the exclusion of 3 texts not available in full; 7 available in English and 1 in Spanish; 7 monographs and 1 thesis. The remaining documents were read in full, and 22 of them did not fit the thematic approach, leaving 19 articles used for the study (Figure 1).

Table 1 contains the relevant aspects for characterizing the studies: author, year of publication, journal, title, objectives, institution, and state of origin of the study. Most of the articles found were published in 2019 and 2017. The journals were *Revista da ABENO* (26.3%); *Interface* (15.8%); *Revista Brasileira de Educação Médica* (15.8%); *Revista Baiana de Saúde Pública* (10.5%); *Revista Ciência Plural* (10.5%); *Saúde em Redes* (5.2%); *Revista Brasileira de Educação Física* (5.2%); *Trabalho, Educação e Saúde* (5.2%); and *Arquivos em Odontologia* (5.2%). Regarding the region where the research was conducted, 42.1% were in the Southeast of Brazil, with the majority conducted in the state of São Paulo (36.8%); 31.6% in the Northeast, and 26.3% in the South of the country. It is possible to observe that 6 out of 19 studies were published in dental journals; 5 in the area of Education and Health; 3 in medical journals; 2 in public health journals, and 1 in the field of Physical Education.

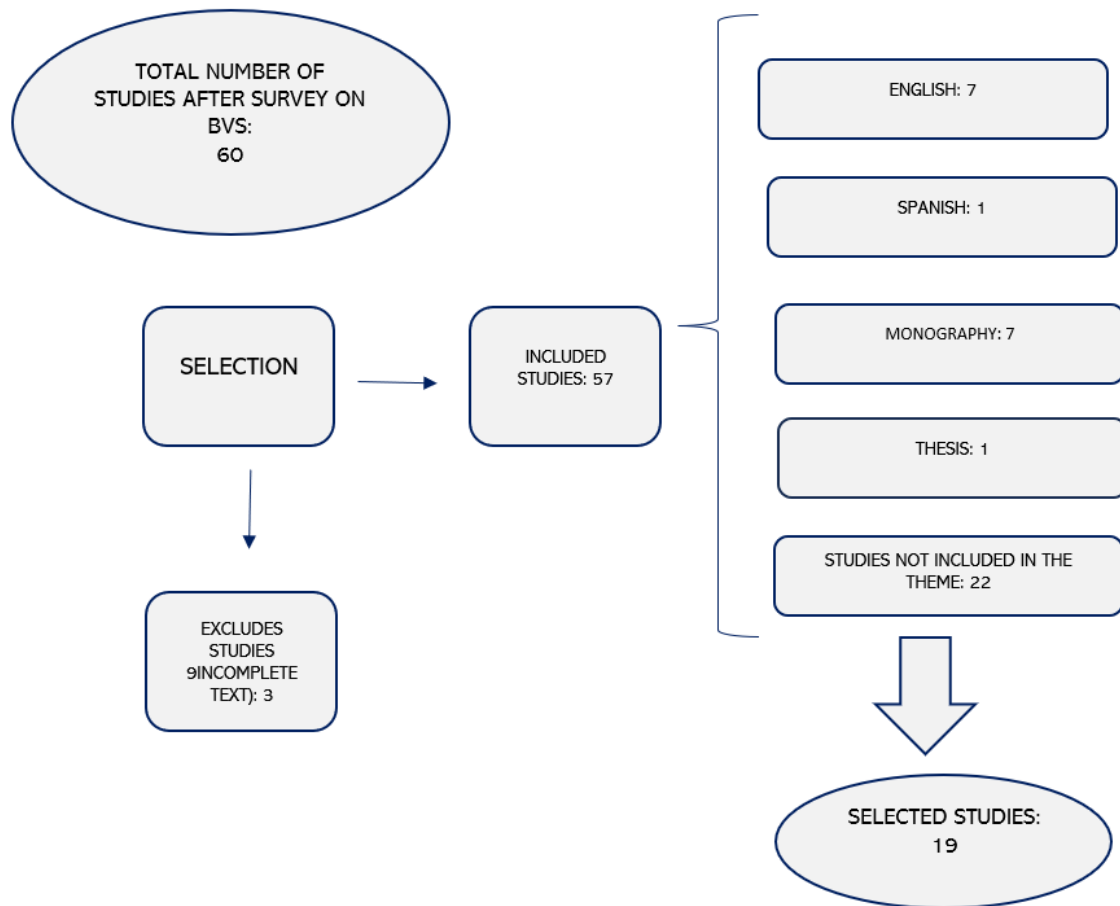


Figure 1. Flowchart of studies selected in BVS.

From the analysis of the texts, two categories emerged: a) PBL active methodology as a tool in undergraduate teaching and learning, within the context of SUS, and b) contributions of the PBL active methodology to health education of the population and/or health professionals within SUS.

Active PBL Methodology as a Tool in Undergraduate Teaching and Learning within the Context of SUS

Traditional health education, still in use today, stems from recommendations made by Flexner in 1910, which were widely disseminated and resulted in a sort of 'model' to be adopted by educational institutions. Since then, health education has adopted a teaching organized into disciplines, centered on the teacher, with practical activities predominantly in hospital settings, characterized by unidirectionality in the teacher-student relationship and the fragmentation of individuals' bodies and health. This 'model' is responsible for training professionals who master various types of technologies but are less skilled in dealing with the subjective, social, and cultural dimensions of individuals, and is increasingly distant from the current model of organization of public health services in our country³¹.

Over time, there arose a need for change in health professions education, and since the 1950s, Case Western Reserve University established Problem-Based Learning (PBL). Since then, various universities, mainly in North America, have adopted similar strategies. In the 1960s, McMaster University in Canada reformed its curriculum based on PBL and became one of its main showcases to the world. In Brazil, some medical schools have adopted PBL in their curricula³².

In Brazil, aiming to meet a national need, some health professional training institutions have been implementing courses in this modality and proposing curricular changes and changes in teaching/learning methods³³.

Table 1. Data from articles selected after applying the inclusion and exclusion criteria.

Author, Year	Journal	Title	Objectives	Institution, State
Pereira <i>et al.</i> , 2021 ¹²	Saúde em Redes	Analysis of the teaching-learning process from the perspective of undergraduate preceptors in primary health care	To understand the teaching-learning process experienced by professionals who act as preceptors for undergraduate students in the context of primary health care	Hospital Israelita Albert Einstein, São Paulo
Romão <i>et al.</i> , 2020 ¹³	Revista Brasileira de Educação Médica	Application of clinical PBL in primary care in medical courses	To assess students' perception of a clinical PBL model implemented in primary health care internships in the medical course at UNAERP	UNAERP, São Paulo
Maroja <i>et al.</i> , 2020 ¹⁴	Interface	Challenges of problematizing training for health professionals in a multiprofessional residency program	To discuss some of the difficulties and potentialities of problem-based pedagogy in a multiprofessional health residency program	UFPB, Paraíba
Oliveira <i>et al.</i> , 2019 ¹⁵	Revista Brasileira de Educação Física	Constructivist spiral in physical education courses: teaching about the Unified Health System	To describe a curricular experience based on the constructivist spiral framework in a physical education course within the context of the unified health system	UFRGS, Rio Grande do Sul
Noro <i>et al.</i> , 2019 ¹⁶	Revista Ciência Plural	How to structure an integrated curriculum in dentistry courses	To develop a proposal for an integrated curriculum, mediated by active learning methodologies and process evaluation of learning	UFRN, Rio Grande do Norte
Oliveira <i>et al.</i> , 2019 ¹⁷	Interface	The teacher in active methodologies and the nuances between teaching and learning: challenges and possibilities	To address the training and teaching practice of SUS health professionals, based on socio-interactionist theories and active teaching-learning methodologies	Max Planck University Center, São Paulo
Borges <i>et al.</i> , 2018 ¹⁸	Revista da Abeno	Health education in the adolescent segment from the perspective of teaching-learning methodologies	To interact, debate, and promote health and self-care, with emphasis on oral health, according to the reality of the adolescent group within the context of the Unified Health System	UFU, Minas Gerais
Adler <i>et al.</i> , 2018 ¹⁹	Interface	Medical school and Unified Health System: creation of the medicine course at the University of São Carlos, SP, Brazil, from the perspective of teachers and students	To present research with teachers and undergraduate students from the first medicine class at UFSCar	UFSCar, São Paulo
Saraiva <i>et al.</i> , 2018 ²⁰	Revista da Abeno	Interprofessional discipline in health: evaluation of dentistry students	To present the evaluation of dentistry students on the Health Care discipline, through the analysis of their evaluative portfolios' narratives	UEM, Paraná
Taroco <i>et al.</i> , 2017 ²¹	Revista Brasileira de Educação Médica	Competency-oriented curriculum for understanding comprehensiveness	To evaluate how the curriculum of a college contributes to students' understanding of comprehensiveness in nursing and medicine courses according to DCN	FAMEMA, São Paulo
Rocha <i>et al.</i> , 2017 ²²	Revista da Abeno	Learning perceptions about interprofessional discipline in Dentistry	To evaluate the results of the Health Care discipline in the Dentistry course, from the students' perspective	UEM, Paraná
Melo <i>et al.</i> , 2017 ²³	Revista Ciência Plural	An experience of integrating education, service, and community for undergraduate medical students in primary care in Maceió-Alagoas	To present the relevance of the aforementioned discipline in medical education as a mandatory element of the curricular structure	UNIT, Alagoas
Carvalho <i>et al.</i> , 2016 ²⁴	Revista da Abeno	Acceptance of the use of methodologies in SUS internships by undergraduate and postgraduate dentistry students	To evaluate the acceptance of the use of active teaching-learning methodologies in SUS internships	UEM, Paraná

Continues

				Continuation
Restom <i>et al.</i> , 2015 ²⁵	Revista Brasileira de Educação Médica	Social representation of experiences of students in the Medicine course	To analyze the experiences of medical students in the assessment process of PISCO activities	Institute of Medical Assistance to Civil Servants of São Paulo, São Paulo
Menezes <i>et al.</i> , 2013 ²⁶	Revista Baiana de Saúde Pública	Nutrition and food in primary health care: permanent education as an instrument of teaching-service approximation	To report an experience of teaching-service-community approximation and permanent education of nutritionists, experienced in six health units of the Family Health Strategy in Maceió, Alagoas	UFAL, Alagoas
Mecca <i>et al.</i> , 2013 ²⁷	Revista da Abeno	Home visits: experiencing the application of curricular guidelines in dentistry, from theory to practice	To report experiences lived by dentistry students from UEPG, related to home visits	UEPG, Paraná
Lemos <i>et al.</i> , 2012 ²⁸	Revista Baiana de Saúde Pública	Integrating education service in the context of speech therapy training: an experience report on teaching-learning practice in collective health internships	To report the experience of developing the internship in the municipal collective health network of the speech therapy course at UFS	UFS, Sergipe
Coriolano <i>et al.</i> , 2012 ²⁹	Trabalho Educação e Saúde	Permanent education with community health agents: a proposal for care with asthmatic children	To describe an educational action with community health agents on asthma-related knowledge	General Hospital of Fortaleza, Ceará
Batista <i>et al.</i> , 2010 ³⁰	Arquivos em Odontologia	Experience report of interaction between university, community, and family health unit in Piracicaba	To report the experience of interaction between the Piracicaba Dental School and the family health unit from 2008 to 2009	UNICAMP, São Paulo

Active methodologies place the student as the main responsible for their education, ensuring them autonomy of thought and attitude, with the main objective of making the student capable of acting in their profession, as they are faced with real situations and guided to solve health problems presented, based on scientific evidence³⁴.

Therefore, the need for pedagogical models that enable the active construction of knowledge, which should extend throughout the professional life, becomes clear. The integration of teaching-service-community and the use of active teaching-learning methodologies are pointed out as strategies for training professionals oriented towards the world of work and the needs of the population, aiming at significant learning³⁵.

In their study, Carvalho *et al.* (2016)³⁶ observed that the majority of undergraduate students were not familiar with this type of methodology. This is due to the teaching methodology employed in the vast majority of Brazilian elementary and high schools, which is traditional. However, the interviewees expressed satisfaction with the teaching method, which demystifies the idea of the difficulty of acceptance of new methodologies by students, valuing the opportunity to share their experiences and knowledge, and feeling more motivated in a class where their opinions are heard.

The problem-based methodology is also discussed by other authors³⁷ who researched ethics teaching in undergraduate health courses. They affirm that some experiences and indications towards the integration of ethics in undergraduate education are in the use of active methodologies, such as problem-based learning or problematization, as instruments for knowledge construction in health courses.

Cirino and Toralles-Pereira (2004)³⁸ already brought problematization as a methodology capable of leading students to have contact with the information addressed in class, encouraging research on the subject, giving autonomy to study, making choices, and making decisions.

It is believed that further study and dissemination of these methodologies can contribute to overcoming difficulties and improving the quality of education practiced in our country. Thus, continuous training of educators based on the DCN, aiming to form a critical and reflective professional who can act with the necessary profile for the needs of health services and the population, is important³⁹.

The PBL methodology presents itself as an alternative in the field of health education. It is considered a working tool for teachers, who, by using it, promote cognitive abilities in students. These contribute to the development of integrated clinical reasoning, with a profile directed towards lifelong learning and cognitive skills to diagnose and solve problems grounded in constant teaching-learning processes⁴⁰.

However, Bassir *et al.* (2014)⁷ emphasize that in Dentistry, more studies on PBL are still needed, as there is a limited number of publications, and a large part of these are from the medical field or based on medical literature. And this becomes a problem because the necessary competencies and the focus of education for training medical and dental students are different. So extrapolating results found in medical education studies to Dentistry may be limited.

Contributions of Active PBL Methodology to Health Education of the Population and/or Health Professionals within SUS

Consequently, health education in higher education has been the subject of many debates over the past two decades, especially after the institutionalization of the Law of Guidelines and Bases of National Education (LDB)⁴¹ in 1996, where the need for transformations regarding the critical reflection of health professionals is discussed in order to meet the current needs of SUS. In this line of action, the objective is to train competent professionals and citizens aware of their rights and duties, as well as to enable them to transform a given situation according to the reality in which they find themselves. Additionally, institutions of higher health education must seek to implement teaching strategies and faculty capable of inciting the aforementioned processes⁴².

SUS is a healthcare network that fosters the training of individuals and the construction of knowledge; the National Curriculum Guidelines for health courses emphasize teaching focused on the reality and health needs of the population⁴³.

In this context, permanent health education (EPS), introduced in Brazil as an ethical-political-pedagogical proposal, aims to transform and qualify health care, training processes, health education practices, as well as encouraging the organization of actions and services from an intersectoral perspective also in the ESF scenario⁵.

In the mold of APS, ESF focuses on health promotion in communities, ensuring everyone the right to access, equitable, and comprehensive, health services, in accordance with the principles of SUS. Additionally, it aims to establish a new paradigm in health care, with innovative guidelines on how to produce health actions and services, with a perspective of change and conversion from the existing mechanistic and biomedical care model⁴⁴.

According to Falkenberg *et al.* (2014)⁴⁵, it is possible to perceive, looking at the current scenario, that there is a need to complement the current model of assistentialist care, focused on disease, excessively specialized, and still predominantly hospital-based, with a comprehensive model that prioritizes health promotion and prevention of ailments, and that uses health education in a participatory and dialogical manner. However, changes in the professional training process and reflection on their practices can assist in this paradigm shift. Therefore, the use of participatory and dialogical teaching-learning methodologies, such as those used in popular health education actions, inserted in continuing education curricula and in permanent health education actions, aiming at a more adequate professional health education to individual and collective health needs, from the perspective of equity and comprehensiveness, becomes important.

CONCLUSION

The problem-based learning (PBL) teaching methodology presents itself as an alternative in the field of health education. It is considered a tool whose application, both in undergraduate education and in training programs for

SUS workers, as well as in empowering the population with health knowledge, shows benefits through the transformation of the context of these social actors. Nevertheless, although it is considered an important active methodology in the teaching-learning process, given the results found in this study, it is concluded that scientific production addressing PBL methodology used as a tool for health education within SUS is still scarce in Brazil. Therefore, it is hoped that the present study will stimulate further research on the subject addressed here.

REFERENCES

1. Brasil. Resolução CNE/CES no. 3, de junho de 2021. Institui as Diretrizes Curriculares Nacionais do curso de graduação em Odontologia e dá outras providências. Brasília: Ministério da Educação; 2021 [cited 2023 Aug 11]. Disponível em http://portal.mec.gov.br/index.php?option=com_docman&view=download&alias=191741-rces003-21&category_slug=junho-2021-pdf&Itemid=30192
2. Berbel NAN. As Metodologias Ativas E A Promoção Da Autonomia De Estudantes. *Semin Cienc Soc Hum* [Internet]. 2011;32(1):25-40. doi: <https://doi.org/10.5433/1679-0383.2011v32n1p25>
3. Mitre SM, Siqueira-Batista R, Giradi-de-Mendonça JS, Morais-Pinto NM, Meirelles CAB, Pinto-Porto C, et al. Metodologias ativas de ensino-aprendizagem na formação profissional em saúde: debates atuais. *Cien Saude Colet* [Internet]. 2008;13(2):2133-2144. doi: <https://doi.org/10.1590/S1413-81232008000900018>
4. Freitas CM, Freitas CASL, Parente JRF, Vasconcelos MIO, Lima GK, Mesquita KO, et al. Uso das metodologias ativas de aprendizagem para a educação em saúde: análise da produção científica. *Trab Educ Saude* [Internet]. 2015; 13(2):117-130. doi: <https://doi.org/10.1590/1981-7746-sip00081>
5. Mello CCB, Alves RO, Lemos SMA. Metodologia do ensino e formação na área da saúde: revisão da literatura. *Rev CEFAC* [Internet]. 2014;16(6):2015-2028. doi: <https://doi.org/10.1590/1982-0216201416012>
6. Walton HJ, Matthews MB. Essentials os problem-based-learning. *Med Educ* [Internet]. 1989;23(6):542-558. doi: <https://doi.org/10.1111/j.1365-2923.1989.tb01581.x>
7. Bassir SH, Sadr-Eshkevari P, Amirikharheh S, Karimbux N, et al. Problem-based learning in dental education: a systematic review of the literature. *J Dental Educ* [Internet]. 2014;78(1):98-109. doi: <https://doi.org/10.1002/j.0022-0337.2014.78.1.tb05661.x>
8. Xavier AS, Koifman L. Educação Superior no Brasil e a formação dos profissionais de Saúde com ênfase no envelhecimento. *Interface Comun Saude Educ* [Internet]. 2011;39(15):973-84. doi: <https://doi.org/10.1590/S1414-32832011005000019>
9. Munoz RLS, Sousa ESS, organizadores. Educação na Saúde para o Fortalecimento do SUS. 1th. João Pessoa: editora UFPB; 2020.
10. Saupe R, Cutolo LRA, Wendhausen ALP, Benito GAV. Competência dos Profissionais da Saúde para o Trabalho Interdisciplinar. *Interface Comun Saúde Educ* [Internet]. 2005;9(18):521-536. doi: <https://doi.org/10.1590/S1414-32832005000300005>
11. Brasil. Série B. Textos Básicos de Saúde [cited 2023 Apr 14]. Disponível em https://bvsms.saude.gov.br/bvs/publicacoes/pacto_saude_volume9.pdf
12. Pereira AFP, Zilbovicius C, Carnut L, Souza Neto AC, Lopes TTV, Navarrete R. Análise do processo ensino-aprendizagem pela ótica de preceptores de graduação no âmbito da Atenção Primária à Saúde. *Saúde em Redes* [Internet]. 2021; 7(3):11–26. doi: <https://doi.org/10.18310/2446-4813.2021v7n3p11-26>
13. Romão GS, Besletti RB, Couto LB. Aplicação do PBL na atenção primária em cursos de medicina. *Rev Bras Educ Med* [Internet]. 2020;44(4):2-9. doi: <https://doi.org/10.1590/1981-5271v44.4-20200115>
14. Maroja MCS, Almeida Jr JJ, Noronha CA. Os desafios da formação problematizadora para profissionais de saúde em um programa de residência multiprofissional. *Interface* [Internet]. 2020;24(1):2-11. doi: <https://doi.org/10.1590/Interface.180616>

15. Oliveira BN, Damico JGS, Fraga AB. Espiral construtivista em cursos de graduação em educação física: ensinando sobre o Sistema Único de Saúde. *Rev Bras Ativ Fís Saúde* [Internet]. 2018;23(1):1-5. doi: <https://doi.org/10.12820/rbafs.23e0031>
16. Noro L. Como estruturar um currículo integrado num curso de odontologia? *Rev Cienc Plura* [Internet]. 2019; 5(1):1-17. doi: <https://doi.org/10.21680/2446-7286.2019v5n1ID17942>
17. Lara EMO, Lima VV, Mendes JD, Ribeiro ECO, Padilha RQ. O professor nas metodologias ativas e nuances entre ensinar e aprender: desafios e possibilidades. *Interface* [Internet]. 2019;23(1):1-15. doi: <https://doi.org/10.1590/Interface.180393>
18. Pacheco MIM, Gontijo LPT, Elias MA, Alves DAS, Gonçalves EFR, Noronha IC, et al. Educação em saúde no segmento adolescente sob a perspectiva das metodologias ativas de ensino-aprendizagem. *Rev ABENO* [Internet]. 2019;19(3):37-49. doi: <https://doi.org/10.30970/rev.abeno.v19i3.704>
19. Adler MS, Gallian DMC. Escola médica e sistema único de saúde: criação do curso de medicina da Universidade de São Carlos, SP, Brasil, sob a perspectiva de docentes e estudantes. *Interface* [Internet]. 2018;22(64):1-14. doi: <https://doi.org/10.1590/1807-57622015.0455>
20. Saraiva AM, Silva IRG, Lolli LF, Fujimaki M, Alves RN, Miguel ERA, et al. Disciplina interprofissional em saúde: avaliação de discentes de Odontologia. *Rev ABENO* [Internet]. 2018;18(4):3-13. doi: <https://doi.org/10.30979/rev.abeno.v18i4.598>
21. Taroco APRM, Tsuji H, Higa EFR. Currículo orientado por competência para a compreensão da integralidade. *Rev Bras Educ Med* [Internet]. 2017;41(1):12-21. doi: <https://doi.org/10.1590/1981-52712015v41n1RB20150021>
22. Rocha NB, Silva MC, Silva IRG, Lolli LF, Fujimaki M, Alves RN. Percepções de aprendizagem sobre disciplina interprofissional em Odontologia. *Rev ABENO* [Internet]. 2017;17(3):41-54. doi: <https://doi.org/10.30979/rev.abeno.v17i3.383>
23. Cavalcante TM, Melo BT, Batista RSL, Jordão DA, Beserra KS, et al. Uma experiência de integração ensino, serviço e comunidade de alunos do curso de graduação em medicina na atenção básica no município de Maceió. *Rev Cienc Plural* [Internet]. 2017;3(3):69-80. doi: <https://doi.org/10.21680/2446-7286.2017v3n3ID13301>
24. Carvalho WM, Cawahisa PT, Schiebel PC, Botelho JN, Terada RSS, Rocha NB. Aceitação da utilização de metodologias nos estágios do SUS por discentes da graduação e pós graduação de Odontologia. *Rev ABENO* [Internet]. 2016;16(1):88-98. doi: http://revodontobvsalud.org/scielo.php?script=sci_arttext&pid=S1679-59542016000100009
25. Restom AG, Riechelmann JC, Machado VMP, Machado JLM. Representação social das vivências de estudantes no curso de Medicina. *Rev Bras Educ Med* [Internet]. 2015;39(3):370-377. doi: <https://doi.org/10.1590/1981-52712015v39n3e02082014>
26. Menezes RSE, Oliveira MAA, Costa EC, Longo-Silva G, Oliveira JS. Alimentação e nutrição na atenção básica à saúde: a educação permanente como instrumento de aproximação ensino-serviço. *Revista Baiana de Saúde Pública* [Internet]. 2013;37(4):1051-1070. doi: <https://doi.org/10.22278/2318-2660.2013.v37.n4.a661>
27. Mecca LEA, Jitumori RT, Warkentin PF, Pinto MHB, Borges PKO. Visitas domiciliares: vivenciando o emprego das diretrizes curriculares na Odontologia, da teoria à prática. *Rev ABENO* [Internet]. 2013;13(2):62-68. doi: <https://doi.org/10.30979/rev.abeno.v13i2.101>
28. Lemos M. A integração do ensino serviço no contexto da formação do fonoaudiólogo: um relato de experiência da prática ensino-aprendizagem no estágio de saúde coletiva. *Revista Baiana Saude Publica* [Internet]. 2012;36(4):1068-1076 [cited 2023 Aug 11]. Available from: <https://rbbsp.sesab.ba.gov.br/index.php/rbsp/article/view/390/378>

29. Coriolano MWL, Lima MM. Educação permanente com agentes comunitários de saúde: uma proposta de cuidado com crianças asmáticas. *Trab Educ Saude* [Internet]. 2012;10(1):37-59. doi: <https://doi.org/10.1590/S1981-77462012000100003>
30. Batista MJ, Caibilini C, Kobayashi HM, Ferreira LL, Gonçalo CS, Souza MLR. Relato de experiência da interação entre universidade, comunidade e unidade de saúde da família em Piracicaba. *Arquiv Odontol* [Internet]. 2010;46(3):144-151. Available from: http://revodonto.bvsalud.org/scielo.php?script=sci_arttext&pid=S1516-09392010000300004
31. Ribeiro VMB. Discutindo o conceito de inovação curricular na formação dos profissionais de saúde: o longo caminho para as transformações do ensino médico. *Trab Educ Saude* [Internet]. 2005;3(1):91-121. doi: <https://doi.org/10.1590/S1981-77462005000100006>
32. Yasbeck DCM, Azevedo LL, Siqueira MRL, Menezes VM. Novos rumos para a educação médica. *Rev Brasil Educ Med* [Internet]. 2000;2(24):26-30. doi: <https://doi.org/10.1590/1981-5271v24.2-005>
33. Marin MJS, Gomes R, Marvulo MML, Primo EM, Barbosa PMK, Druzian S. Pós-graduação multiprofissional em saúde: resultados de experiências utilizando metodologias ativas. *Interface - Comunic Saude Educ* [Internet]. 2010;14(33):331-44. doi: <https://doi.org/10.1590/S1414-32832010000200008>
34. Finkler M, Negreiros DP. Formação x educação, Deontologia x ética: repensando conceitos, reposicionando docentes. *Rev ABENO* [Internet]. 2018;18(2):37-44. doi: <https://doi.org/10.30979/rev.abeno.v18i2.561>
35. Matias KK. Metodologias de ensino e práticas pedagógicas em um curso de graduação em odontologia [Tese]. Goiânia: Universidade Federal de Goiás; 2013 [cited 2023 Apr 15]. Available from: <https://repositorio.bc.ufg.br/tede/items/d34d2db7-2184-4b2b-8ea4-6389995fd5ea>
36. Carvalho WM, Cawahisa PT, Scheibel PC, Botelho JN, Terada RSS, Rocha NB, et al. Aceitação da utilização de metodologias ativas nos estágios no SUS por discentes da graduação e pós-graduação em Odontologia. *Rev ABENO* [Internet]. 2016;16(1):88-98. doi: <https://doi.org/10.30979/rev.abeno.v16i1.22>
37. Figueira EIG, Cazzo E, Tuma P, Silva Filho CR, Conterno LO. Apreensão dos tópicos de ética médica no ensino-aprendizagem de pequenos grupos. Comparando aprendizagem baseada em problemas com o modelo tradicional. *Rev Assoc Med Bras* [Internet]. 2004;50(2):133-141. doi: <https://doi.org/10.1590/S0104-42302004000200027>
38. Cyrino EG, Toralles-Pereira ML. Trabalhando com estratégias de ensino-aprendizado por descoberta na área da saúde: a problematização e aprendizagem baseada em problemas. *Cad Saude Publica* [Internet]. 2014;20(3):780-788. doi: <https://doi.org/10.1590/S0102-311X2004000300015>
39. Fonseca EP. As diretrizes curriculares nacionais e a formação do cirurgião-dentista brasileiro. *J Manag Prim Health Care* [Internet]. 2012;3(2):158-178. doi: <https://doi.org/10.14295/jmphc.v3i2.154>
40. Rocha JS, Dias GF, Campanha NH, Baldini MH. O uso da aprendizagem baseada em problemas na Odontologia: uma revisão crítica da literatura. *Rev ABENO* [Internet]. 2016;16(1):25-38. doi: <https://doi.org/10.30979/rev.abeno.v16i1.231>
41. Brasil. Lei nº 9.394, de 20 de dezembro de 1996. Estabelece as Diretrizes e Bases da Educação Nacional. Brasília: Ministério da Educação; 1996 [cited 2023 Apr 15]. Available from: https://www.planalto.gov.br/ccivil_03/leis/l9394.htm
42. González AD, Almeida MJ. Movimentos de mudança na formação em Saúde: da medicina comunitária às diretrizes curriculares. *Physis* [Internet]. 2010;20(2):551-570. doi: <https://doi.org/10.1590/S0103-73312010000200012>
43. Brasil. Câmara de Regulação do Trabalho em Saúde [cited 2023 Apr 15]. Available from: https://bvsmms.saude.gov.br/bvs/publicacoes/cart_camara_regulacao.pdf
44. Menezes RCE, Oliveira MAA, Costa EC, Longo-Silva G, Oliveira JS. Alimentação e nutrição na atenção básica à saúde: a educação permanente como instrumento de aproximação ensino serviço. *Revista Baiana*

Saúde Pública [Internet]. 2013;37(4):1051-1070. doi: <https://doi.org/10.22278/2318-2660.2013.v37.n4.a661>

45. Falkenberg MB, Mendes TPL, Moraes EP, Souza EM. Educação em saúde e educação na saúde: conceitos e implicações para a saúde coletiva. Cienc Saude Colet [Internet]. 2014;19(3):847-852. doi: <https://doi.org/10.1590/1413-81232014193.01572013>

Conflict of Interest: The authors declare no conflicts of interest.

Funding: No funding to declare.

Authors' Contribution: Conception and study planning: HARL, JAD, CG. Data collection: HARL. Data analysis and interpretation: HARL, CG, RCA. Manuscript drafting or revision: HARL, CG, RCA, CBMCG, RTF, VARS. Approval of the final version: HARL, JAD, CG, RCA, CBMCG, RTF, VARS. Public responsibility for the content of the article: HARL, JAD, CG, RCA, CBMCG, RTF, VARS.