

From "Cost Analysis" to "Economic Evaluation": An Integrative Review of Hospital Rehabilitation in Public Health

Marcos Leite da Costa¹, Leonardo Carnut², Celso Zilbovicius³

¹Faculdade de Saúde Pública, Universidade de São Paulo, São Paulo, Brazil

²Centro de Desenvolvimento de Ensino Superior em Saúde, Universidade Federal de São Paulo, São Paulo, Brazil
³Faculdade de Odontologia, Universidade de São Paulo, São Paulo, Brazil

Email: leitemarcos@gmail.com, leonardo.carnut@unifesp.br, czilbo@usp.br

How to cite this paper: da Costa, M. L., Carnut, L., & Zilbovicius, C. (2021). From "Cost Analysis" to "Economic Evaluation": An Integrative Review of Hospital Rehabilitation in Public Health. *Theoretical Economics Letters, 11*, 649-673. https://doi.org/10.4236/tel.2021.114043

Received: June 17, 2021 **Accepted:** July 23, 2021 **Published:** July 26, 2021

Copyright © 2021 by author(s) and Scientific Research Publishing Inc. This work is licensed under the Creative Commons Attribution International License (CC BY 4.0). http://creativecommons.org/licenses/by/4.0/

 Open Access

Abstract

The scientific literature on the use of economic evaluation studies in health was reviewed to identify the costs related to hospital rehabilitation in public health services and/or systems. An integrative review was carried out on the Virtual Health Library (VHL) portal. The search strategy was built by the hubs: economic evaluation (phenomenon); hospital rehabilitation (population); and public health (context). Portuguese, Spanish and English were the limit of languages used. Two independent reviewers selected the publications using the PRISMA protocol. Data analysis was performed using the thematic mode. 11 articles were included. The following elements of the articles were summarized: country, method, objective, main results, type of economic evaluation, type of hospital rehabilitation and the context of public health systems or services. Finally, it focused on the boundaries between "cost analysis" and "economic evaluation" that studies used. The evidence gathered in this review allows us to conclude that the topic is very incipient, with a low level of scientific evidence available (levels 4 and 5). The studies range from cost analysis to economic evaluations. All studies considered as economic evaluation are cost-effective and converge in stating that hospital rehabilitation is cost-effective in relation to the diseases studied in the various health systems analyzed.

Keywords

Cost-Effectiveness Assessment, Cost-Benefit Analysis, Rehabilitation Services, Public Health, Review, Economic Evaluation, Publications, Hospitals, Health Services

1. Introduction

Given the unfavorable financial situation of the SUS (Teston et al., 2018), economic evaluation in health has been pointed out as an important tool to safeguard resources, even in the context of microeconomic interaction (provider-user). Economic evaluation in health presents meaningful objectives, which, among them, the main one is to help decision-making efficiently, and thus contribute to a more equal distribution of interventions and actions, generating real gains in health (Sancho & Vargens, 2019).

Since the beginning of the 21st century, the concern with the resources and sustainability of health systems has been observed. Maintaining the sustainability of health systems can significantly impact the ability to maintain the right to health for its users, being a determining factor for the quality of care. The concern with this theme has gained such importance that, from 2008 onwards, several countries around the world, including Chile, Costa Rica, Croatia, South Korea and Uruguay have programmed agencies dedicated to the health technology assessment (HTA).

During this same period, Brazil sought to expand its capacity in the HTA area, creating the Department of Science and Technology (DECIT) and the creation and promotion of the Brazilian Network for Health Technology Assessment (REBRATS), training teams for these assessments, always based on scientific studies with the aim of developing HTA studies in the SUS. Next, the National Commission for Technology Incorporation at SUS (CONITEC) was created, replacing the pre-existing commission for this function, the Commission on Technology Incorporation of the Ministry of Health in decisions on incorporations, exclusions or not of technologies, drugs, procedures or products in the SUS.

Assessments must take into account scientific evidence on efficacy, effectiveness, safety and economic analysis, making cost-benefit observations with the technologies, drugs, procedures or products already performed by the health system, institutionalizing economic assessment studies as part of the decision-making criteria in the SUS. Among the most carried out economic evaluations in health are the assessments of cost-minimization, cost-effectiveness, cost-utility and cost-benefit (Ribeiro et al., 2016).

The use of economic evaluation in health has been justified by the unfavorable situation in public health in Brazil (Mendes, 2016), however, this tool has a fundamental role for health managers, as it helps improve the quality of decision-making at the local level, among scarce resources already available, enhancing their better allocation and allowing for more reliable use with better results. The economic evaluation requires, in most cases, resources and time to be implemented, and it can have an immediate impact on decisions depending on the case. It is important to emphasize that economic evaluation is included in the decision-making space of the management field (and not politics) and it can

be implemented through the formalization of new structures, processes, routines, flows and procedures (Tanaka & Tamaki, 2012).

SUS managers have been confronted with major challenges in the health system that end up creating pressure on the relationship between expenses, the capacity of health professionals and the quality of the service provided (Laranjeira & Petramale, 2013). This relationship is certainly a major challenge when it comes to interprofessional teams in which the determination of the quality of the service is associated, in addition to several intervening factors, to several professionals in a single activity.

The rehabilitation actions case has been a concrete example of this challenge. At attention levels such as in the case of primary care, there is still greater difficulty in providing rehabilitation for users, even with all the advances in the SUS in relation to the Expanded Family Health Support Centers (NASF) (Rodes et al., 2017). However, rehabilitation services traditionally tend to be specialized or hospital-centered and uniprofessional services, which makes the economic evaluation of these services a little less complex.

Nevertheless, when one thinks of the logic of a health system integrated by levels of care, as in the case of the SUS, the relationship between primary and secondary care and the hospital level is decisive for the economy of provision. When rehabilitation in primary care does not happen, and this fact leads to the possibility of referral to services at another level of care without an assessment of the situation, this particularly burdens the hospital level of rehabilitation and may increase the demand for hospitalizations in the most specialized care network (Ministério da Saúde & Brasil, 2017).

That is why the rehabilitation has been gaining a role of greater prominence in a transversal way in the system (Caetano, Sampaio, & Costa, 2018) and today is strongly inserted in the process of recovery and reintegration of the patient in society, specifically in the hospital. Since then, RDC n. 7, of February 24, 2010, understands as "hospital rehabilitation" the definition of the hospital area that must have physiotherapy and speech therapy assistance, but other professionals can be included in the rehabilitation system, enhancing the recovery of the patient (Ministério da Saúde & Brasil, 2010).

With this formal characterization, rehabilitation at this level of care has been recognized as a very important therapeutic potential, especially during the patient's period of hospitalization, aiming to reduce impacts and functional impairment as well as helping to reduce the patients' hospital stay. In addition to the therapeutic effects, the reduction in spending on public resources can be glimpsed, by keeping the bed occupied by the patient, economically contributing to health care costs and directly in the patient's return to daily life.

In order to verify the effects related to the cost-effectiveness of hospital rehabilitation services advocated by official documents, this study aims to review what the scientific literature presents in terms of evidence on the use of economic evaluations in health to measure the costs of hospital rehabilitation in the public health context.

In this way, this study is divided into five sections. The first section, which ends at this moment, presents the importance and justification of the study on the subject, as well as the need for this review. The second presents the methodological approach used in this study (integrative review) with its steps and procedures. The third presents the results of the review through an analysis, still descriptive, of the articles included. The fourth section focuses on the qualitative and interpretive analysis of the studies, therefore, the main dimensions extracted from the articles included (in subsections) were used, discussing them with the updated literature on the subject. In addition, still in this section, the limits of the review were presented, implications of the results of this review for decision-making in public policies and the advances that this review presents for the research agenda on this topic. The fifth section presents the final considerations of this study.

2. Method

2.1. Objective

The objective of this research is to review the scientific literature on the use of economic evaluation in health studies to identify costs related to hospital rehabilitation in public health services and/or systems. To achieve this objective, an integrative systematic review of the literature was carried out (Soares, Hoga, & Komura, 2014).

2.2. Data Source and Search Strategy

The systematic search was carried out on the platform of the VHL regional Portal (http://bysalud.org/), searching and crossing several descriptors related to the topic and using the necessary syntax to refine the search. In this sense, the Virtual Health Library (VHL) portal was chosen as it is the largest database portal in Latin America in the health area, accommodating 29 databases. The databases are: 1) international (general health): LILACS, MEDLINE, MEDCARIB, PAHO-IRIS, WHOLIS; 2) national (general health): National BD Peru, BDNPAR-Paraguay, BINACIS-Argentina, Collects SUS-Brazil, CUMED-Cuba, IBECS-Spain, MINSA-Peru, State Health Department SP-Brazil, Municipal Health Department SP-Brazil, Theses Puerto Rico; 3) thematic (specialized health areas): BBO-Dentistry, BDENF-Nursing, BIGG-GRADE Guides, BRISA/RedTE-SA-Health Technology Assessments, CidSaúde-Healthy Cities, Disasters, Leprosy, HISA-Health History, HomeoIndex-Homeopathy, Psychology Index-Periodicals, Psychology Index-Theses, MOSAIC-Medicine, Traditional, Complementary and Integrative, RHS Repository (Human Resources in Health) and SOF—Second Formative Opinion

The descriptors were selected based on the research question and thus, allowing the proper formulation of syntaxes for literature search. The research question formulated for this review was: "What does the scientific literature present about studies on economic evaluation in health in hospital rehabilitation in public health?"

Each of the key items identified in the research question constitutes a hub for the construction of the search strategy. Thus, to build the final search strategy that would gather all the key items of the research question, 3 search hubs were built (phenomenon, population and context) that served as the basis for identifying the set of descriptors in the DeCS platform (http://decs.bvs.br/) for each hub as shown in Table 1.

The search strategy continued using the Boolean operator "AND" to connect the syntax of the different search hubs of the question, generating the following final syntax: mh:(mh:((mh:(mh:("Pesquisa sobre Servicos de Saude" OR "Avaliacao de Processos e Resultados em Cuidados de Saude" OR "Avaliacao em Saude" OR "Avaliação de Eficácia-Efetividade de Intervenções" OR "Avaliação de Custo-Efetividade" OR "Controle de Custos" OR "Custos e Análise de Custo" OR "Economia e Organizacoes de Saude" OR "Analise de Custo-Beneficio"))) AND (mh:(mh:("Hospitais de Reabilitacao" OR "Centros de Reabilitacao" OR "Servicos de reabilitacao" OR "Economia Hospitalar" OR "Servico Hospitalar de Terapia Ocupacional" OR "Servico Hospitalar de Fisioterapia" OR "fonoaudiologia" OR "Reabilitacao" OR "Atencao Terciaria a Saude" OR "Medicina Fisica e Reabilitacao"))) AND (tw:(tw:((tw:("sus"))) OR (tw:(tw:("Saude Publica")))))))).

This final syntax, which expresses the research question in all its hubs, retrieved 78 identified studies (tested on October 27, 2020). From this point onwards, the study selection procedures were performed according to the PRISMA flowchart shown in **Figure 1**.

78 studies were identified for title analysis. In the identification phase, it was noticed that there was a repeated title, remaining 77 studies. After that, in the tracking phase, the content of titles and abstracts was read and 55 publications were excluded for not relating to the object of the research question in this

Key item	Descriptors
Economic evaluation (phenomenon)	Health Services Research; Outcome and Process Assessment, Health Care; Health Care Evaluation; Evaluation of the Efficacy-Effectiveness of Interventions; Cost-Effectiveness Evaluation; Cost Control; Costs and Cost Analysis; Health Care Economics and Organizations; Cost-Benefit Analysis
Hospital Re-habilitation (population)	Hospitals, Rehabilitation; Rehabilitation Centers; Rehabilitation Services; Economics, Hospital; Occupational Therapy Department, Hospital; Physical Therapy Department, Hospital; Speech Therapy; Rehabilitation; Tertiary Healthcare; Physical and Rehabilitation Medicine
Public health (context)	Public Health; SUS

Table 1. Key items and descriptors derived from the research question. 2020.

Source: author's elaboration.



Source: author's elaboration.

Figure 1. PRISMA flowchart on the selection process of articles included in the review. 2021.

review, resulting in 22 remaining articles after this phase. In the eligibility phase, it was possible to identify that 8 articles were not available for complete text recovery, which made them unavailable for full reading, leaving 14 articles for complete text reading. After a complete reading of the 14 articles, it was noticed that 3 articles did not dialogue with the object of this review and were excluded for this reason. At the end, 11 articles were included for dialoguing with the research question, which is the number of final articles that were reviewed in this study.

2.3. Data Analysis

The data analysis process of the included articles followed the accomplishment of the integrative review method, including the steps of extraction, visualization, comparison and synthesis of the data conclusions. Data extraction was completed by 2 reviewers (M.L.C. and L.C.). The data extraction form was prepared based on the research issue that guided this review. The articles which generated doubts were agreed by the researchers who decided jointly on their permanence or exclusion.

The authors jointly decided on the data extraction criteria for the included articles. These criteria were: data on the type of economic evaluation (related to the phenomenon), type of rehabilitation being analyzed in the study (population) and the health system or service in which the analysis was carried out (context). These criteria had the function of exploring the elements related to these three poles belonging to the question of this review.

The following data were extracted from the articles included: author (year of publication), country, objective, main results, economic evaluation methodology used (phenomenon), the type of hospital rehabilitation in which the study had as an empirical setting (population) and the public health system/service in which the study was contextualized (context). Data integration was operationalized by the thematic analysis method. This method was chosen because the typology of the manuscripts allowed for a more refined data integration. The elaboration of the themes had the function of facilitating the integration whose contents are similar.

3. Results

The 11 articles that composed this review can be identified in **Table 2**. After a first superficial reading of the articles' content, they could be organized into three large groups according to the level of appropriation of the articles on the topic.

The first group consists of four articles tangent to the theme (Moreno-Martínez et al., 2008; Capó-Juan, 2016; Stucki & Jerome, 2017; Molini-Avejonas et al., 2017) of economic evaluation in health of hospital rehabilitation services in different public health systems. In general, these articles present elements of hospital rehabilitation in public health services, however the phenomenon in hand (economic evaluation in health) was not directly the method used by them. The first one (Moreno-Martínez et al., 2008) used a descriptive-observational method on the medical records of patients in the outpatient units of the health system in Malaga, Spain. The purpose was to map how the study of medical records can generate data which facilitates the understanding of the patient's transit in the health system, favoring professionals to be more assertive in their referrals. This procedure, as much as this is not an economic evaluation in health in its specific sense, allowed us to gather data that helped to save resources (unnecessary consultations) avoiding transits in the health system that were not resolute. Another study (Capó-Juan, 2016) retrospectively evaluated the results of a rehabilitation exercise education program for patients after hospital discharge from basic health units in the city of Palma, Mallorca Island, Spain. Even though it is a research that is not directly linked to hospital rehabilitation, the integration between the tertiary-primary levels, for the author, is essential for the continuity of the rehabilitation initiated at the hospital. According to his findings, the

Author, Year	Country	Objectives	Main results	Type of Evaluation	Hospital Rehabilitation	Public Health Service/System
Stucki & Jerome, 2017	Germany	Optimization of the learning system and implementation of a single functionality classification system (ICF) in rehabilitation bringing functional information as fundamental to the health system. Directing necessary attention to patient demand, such as assisting in management level and public policies guiding rehabilitation programs.	A health learning system for rehabilitation must make use of the ICF, obtaining standardization of information coding and functionality, ensuring sustainable assistance in the impact of the health system, reaching the highest level, which are public policies, which can be more targeted to really have the greatest need, leading to better quality at all levels of health.	Descriptive	Physiotherapy and Occupational Therapy	German Health System
Molini-Avej onas et al., 2017	Brazil	To analyze the flow of patients in a high complexity Speech Therapy service in the Unified Health System (SUS).	More than half of the users were referred for Tertiary care, it was observed that some diagnoses/treatments could be performed primarily in the primary sector. The average waiting time was 56.6 days. The network does not use the factor of counter-referencing the patient within the network itself, overloading the secondary care and tertiary.	Descriptive	Speech Therapy	SUS
Capó-Juan, 2016	Spain	The main objective of this review is to disseminate the benefit of educational-therapeutic programs in physical therapy as tools for coping with pain.	It allows the patient to present good results and control symptoms in some pathologies and may favor a more adequate use of health resources, since these patients could demand less specialized services, as it can improve quality of life and control symptoms of Asthmatic patients and COPD. Cardiac patients also benefited from an educational rehabilitation plan.	Retrospective observational	Physiotherapy	Large sized and highly complex hospital in the city of São Paulo
Hammond et al., 2015	United States/ Canada	Describe the amount and content of group therapies provided during the rehabilitation of hospitalized patients due to traumatic brain injury and evaluate group therapy relationships with the patient, injury and treatment factors and results.	Hospitalizations and rehospitalizations of these patients have generated an increase in cost.	Cost-effectiveness	Physiotherapist, Occupational Therapist	Primary Care of Spain
Dijkers, Whiteneck, & Gassaway, 2013	United States/ Canada	To present the effectiveness of a Hospital Rehabilitation program for patients with spinal cord injury.	Patients who underwent more intensive hospital physiotherapy had a lower chance of hospitalization.	Cost-effectiveness	Physiotherapy	Large private hospital in the United States and Canada

Table 2. Summary chart of the articles included by author, year, country, study objectives, main results, type of study evaluation, hospital rehabilitation sector and health system in which the study works. 2021.

Continued	l
-----------	---

Castro, Neves, & Aciole, 2011	Brazil	To describe the outpatient physiotherapy services provided by the Brazilian Unified Health System (SUS) regarding its geographical distribution, costs	In 2008, SUS authorized a total of 36.064.072 physical therapy services, generating an expense of R\$176,479,501.67, equivalent to R\$4.89 per session. From a total of 36.064.072 assistances provided by SUS in 2008, 16.934.894 assistances were only in the Southeast region.	Cost analysis	Physiotherapy	Large private hospital in the United States and Canada
Moreno-Mar tínez et al., 2008	Spain	Verify the communication and quality of information in the patients' medical records between the specialties of primary and secondary health care.	It is observed that the quality and clarity of the information is extremely important for the appropriate direction to follow the continuity of the patient's care in the network in a more assertive way.	Observational descriptive	Physiotherapy	Primary Care
Carinci et al., 2007	Italy	The objectives of the study were to describe the patterns of use of rehabilitation services in Tuscany for individuals aged 65 and older, using stroke and hip fracture as index conditions, assessing mortality, quality and cost benefit.	An increased risk for mortality was observed in patients who did not undergo rehabilitation. The average cost of hospital rehabilitation for stroke patients was €8.860 for an in-patient, the value for a hip fracture patient was 25% lower.	Cost-effectiveness	Physiotherapy	SUS
Rebelo et al., 2007	Brazil	Evaluate the clinical and economic outcome of a Cardiopulmonary and Metabolic Rehabilitation Program.	In the group that underwent rehabilitation treatment, there was a reduction in expenses related to hospitalization, while in the control group there was an increase.	Cost-effectiveness	Physiotherapy	Large private hospital in Tuscany, Italy
Sanchez-Cal deraro & Nazco-Franq uis, 2002	Cuba	Improvement of the hospital cost management method in a Revolutionary Armed Forces Hospital.	Hospital costs are carried out through absorption costing, but it is necessary to observe the appropriateness of maintaining the cost assessment through that method or the need to apply variations within that methodology or in some cases until changing the form of evaluation, aiming at the best quality of use of the available resources.	Cost analysis	Physiotherapy	Public Outpatient Unit of the Malaga Region, Spain
Logigian, 1987	United States	Implementation of hospital cost control mechanisms through individual production	Implementation of individual productivity control in the hospital rehabilitation sector, helping to control costs.	Cost analysis	Physiotherapy and Occupational Therapy	Medium-sized private Hospital of a Health plan

Source: author's elaboration.

program brings good results and reduces symptoms of patients who adhered to the program. Although this study also does not present the use of a strict sense economic evaluation methodology in health, it was included in this review for presenting important consequences in the economic dimension, since the results show that this integration made it possible to reduce the need for rehospitalizations and new consultations helping the economy of the system. The third study (Stucki & Jerome, 2017) of this group was carried out in the German health system. This study showed the importance of having a functional classification system that standardizes the diagnostic classification made by physical therapists and occupational therapists, helping all these professionals to receive information about the functionality of patients. Even though the study does not use a traditional economic valuation method either (this is a descriptive study), it was included based on its results. The author describes that, if this classification system is adopted, it is possible to consolidate data on the need and demand of a given population and it can serve as a subsidy for the planning and programming of public policies for this particular group in order to save resources in terms of adjustment between supply and demand. Ending this group, a study (Molini-Avejonas et al., 2017) in Brazil presented data on the use of consultations by the Speech Therapy team of a large hospital in the city of São Paulo. In this study, it was observed that the vast majority of consultations carried out in the tertiary sector could have been carried out in the primary and/or secondary care sector of the system, thus ending up overloading and misusing the resources of the health system. Although the issue of economic evaluation is not addressed directly, there is a problem of technical efficiency generating an impact on the system.

The second group of articles consists of three studies (Logigian, 1987; Sanchez-Calderaro & Nazco-Franquis, 2002; Castro, Neves, & Aciole, 2011) that present data on costs. It is well known that the topic is part of the economic evaluation, but it is not limited only to this issue. It is believed that authors can appropriate certain tools, wanting to demonstrate economic efficiency from the perspective of a single variable. As cost analyzes surround the guiding question of this review, these articles were included in the analysis undertaken in this study. The first study (Logigian, 1987) presented data on the productivity of a rehabilitation service provided by physical therapists and occupational therapists in a private hospital in the city of Boston in the United States. According to the author, this is an important factor for cost control of the teams, through a program assisting the team's direction to perform the best professionals allocation according to the demand. The study does not directly address an economic evaluation methodology, but incorporates the economic criterion through cost analysis and resource optimization. Another study (Sanchez-Calderaro & Nazco-Franquis, 2002) presents an analysis of costs in the hospital of the revolutionary armed forces of Cuba, highlighting the importance of the adequacy of hospital expenditure controls, since in its study it is possible to observe the adaptation of cost controls and adaptation in the way that it is evaluated migrating the model for costing by absorption, thus adapting expenses in the best way. Once again,

cost control is observed as the main focus of the article, but it is clear that the Hospital seeks greater efficiency through a more accurate control of costs, introducing cost control by absorption. Another study (Castro, Neves, & Aciole, 2011) presented data on the cost of hospital rehabilitation procedures, by the physiotherapy sector in the Unified Health System, with an average cost of R\$4.89 (USD 0.97) per procedure. In a further opportunity, the article presents data on costs, but without any comparison. Because cost analysis is a step that supports an economic evaluation, the article was included and analyzed from this perspective. As previously stated, such analyzes lead to believe that the authors, at certain times, only performed "cost analysis", as being the primary factor in the implementation of new technologies or in their better control, without taking into consideration other important variables in the complete composition that would make a leap towards economic evaluation methodologies.

The group of studies focusing on economic evaluation in health itself (Rebelo et al., 2007; Carinci et al., 2007; Dijkers, Whiteneck, & Gassaway, 2013; Hammond et al., 2015) exclusively use the "cost-effectiveness assessment" as their method of choice, directly dialoguing with the guiding question of this work. The first study (Rebelo et al., 2007) presented convincing data on the performance of rehabilitation during hospitalization through a structured program in a large private hospital in Santa Catarina, Brazil. Even though it is an example in the private subsystem of SUS, the evaluation showed that there was an increase of R\$270.00 (USD 53.40) per patient included in the intervention group, and patients in this group who started their rehabilitation showed a reduction in average costs in the hospitalization of R\$546.30 (USD108.05) per patient, in addition to fewer hospitalizations after discharge when compared to the control group (who did not undergo rehabilitation according to the structured program). Another study (Carinci et al., 2007) carried out in Italy, in the Tuscany region, showed a reduction in hospitalization costs in patients diagnosed with cerebrovascular accident (CVA) who underwent physical therapy since the beginning of hospitalization. Fewer hospitalization needs were observed in the 6-month period after hospital discharge for these patients, generating a lower cost, on average, of €8.860 (USD 10,634.30). Still, another study (Dijkers, Whiteneck, & Gassaway, 2013) brought data on the implementation of a system that helps the rehabilitation team during the service time in the Health Systems in the United States and Canada, directly addressing the efficiency of the hospital rehabilitation team. Patients included in the care program were less likely to be hospitalized after hospital discharge within the 90-day period in which they were followed up. Such data compose an economic evaluation, as it deals directly with costs, technical evaluations and results after the intervention. Concluding this group of studies that focus on economic evaluation, a last study (Hammond et al., 2015) presented the implementation of a program in the health system in the United States and Canada that assists the rehabilitation team in the care of patients after traumatic brain injury, reducing the deformities of these patients in the hospital discharge, optimizing their clinical picture in the continuity of outpatient care, presenting data on cost-effectiveness and technical efficiency. It is noted that the articles from this last group that deal directly with economic evaluation focus exclusively on the method of cost-effectiveness assessment with implications for the technical efficiency of hospital rehabilitation.

4. Discussion

4.1. Methodologies

With regard to the theme of the methodologies used by the studies, it is possible to identify three sub-themes. The first sub-theme is related to studies that present "me-thodologies that do not directly address economic evaluation" (Moreno-Martínez et al., 2008; Capó-Juan, 2016; Stucki & Jerome, 2017; Molini-Avejonas et al., 2017). These studies use descriptive and/or observational methods and are sometimes associated with economic evaluation. These studies are premised on observing the phenomenon to be studied and describing its results, not having a control group to carry out an intervention directly to achieve such outcomes (Campana, 1999), moving away from the method of economic evaluation.

The second sub-theme deals with "cost analysis" methodologies (Logigian, 1987; Sanchez-Calderaro & Nazco-Franquis, 2002; Castro, Neves, & Aciole, 2011). In this case, it is recognized that this method is important to understand the costs of services, which can be direct or indirect costs, serving as a baseline for more elaborate analyses, which is an important variable for the economic analysis (Gonçalves & Alemão, 2018). However, presenting only the cost is a still superficial data about what economic evaluation means. This fact seems to be due to the authors' lack of mastery over the variables necessary to carry out an economic evaluation, or because they still do not have the necessary cost subsidies for rehabilitation services to advance methodologically. The authors do not provide robust information on all the data presented, even when it comes to cost analysis, and, therefore, it is not possible to carry out a comparison due to the lack of data, suggesting that there is still no expertise on the topic proposed to be analyzed.

The third and final sub-theme on the theme of methodologies is constituted by studies that "perform an effective economic evaluation" (Rebelo et al., 2007; Carinci et al., 2007; Dijkers, Whiteneck, & Gassaway, 2013; Hammond et al., 2015). These, as seen in **Table 3**, use the same subtype of economic evaluation: the cost-effectiveness assessment. With the use of this method, the studies in this group are unanimous in proving that the use of hospital rehabilitation brings an improvement in the profile of patients after treatment, reducing hospitalization time and the need for new hospitalizations after hospital discharge, reaching a reduction in costs after these analyses.

4.2. Relationship between Objectives and Results Found

From the point of view of the relationship between objectives and results, the

Table 3. Summary chart of the articles included by author, year, country, study objectives, main results, type of study evaluation,hospital rehabilitation sector and health system in which the study works. 2021.

Author, Year	Type of Evaluation	Hospital Stay	Average amount paid in Brazil for procedures in the care of Hospital Rehabilitation Activity Health System	Amount of Hospitalizat ion in 6 Months	What was the cost?	Amount Saved	Team Productivity Analysis	Cost Model Implementation
Castro, Neves, & Aciole, 2011	Cost analysis	Not used	Physiotherapy Service in SUS, the average amount paid per procedure was R\$4.89.	Not applicable	Not informed	Not applicable	Not used	Not informed.
Sanchez-Ca lderaro & Nazco-Fra nquis, 2002	Cost analysis	Not informed	Not used	Not applicable	Not informed	Not applicable	Not used	The hospital cost model was changed, choosing to implement the absorption cost, thus making hospital expenses more reliable.
Logigian, 1987	Cost analysis	Not used	Not used	Not applicable	Not informed	Not applicable	Implementation of the team's productivity analysis system, and it is necessary to maintain minimum time of attendance by the professional (15 minutes). Thus seeking to increase the productivity of the team with quality. Helping the distribution of professionals where it is most necessary.	Not informed.
Author, Year	Type of Evaluation	Cost variable? (how to measure it)?	Effectiveness (how to measure it)?	Amount of Hospitalizat ion in 6 Months	What was the cost?	Amount Saved	Team Productivity Analysis	Cost Model Implementation
Hammond et al., 2015	Cost-effecti veness	Implementation of a program that helps the rehabilitation team in the care program for patients after traumatic brain injury.	Hospital discharge with fewer installed deformities for continued outpatient care.	Not informed	Not informed	Not informed	Not used	Not applicable
Dijkers, Whiteneck, & Gassaway, 2013	Cost-effecti veness	Implementation of program that assists the rehabilitation team in the time of rehabilitation care. Patients who were included in the program had less chances of hospitalization after hospital discharge.	Hospital discharge associated with greater gain possible	Not informed	Not informed	Not informed	Not used	Not applicable

Continued

Carinci et al., 2007	Cost-effecti veness	Not informed	Not used	Patients with Stroke sequelae who began rehabilitatio n in the hospital period had less hospitalizati on in the period of 6 months.	Not informed	the average Not used amount saved was €8.860	Not applicable
Rebelo et al., 2007	Cost-effecti veness	Implementation of a cardiopulmonary and metabolic rehabilitation program in a private Hospital	Clinical improvement of patients, being evaluated through examinations, when compared the intervention group and the control group.	Not informed	Implementa tion of R\$ 270,00 per patient in the treatment group	On average Not informed in the treatment group there was a reduction of R\$ 546,30 per patient.	Not applicable

Source: author's elaboration.

studies could also be grouped into 3 sub-themes. The first sub-theme brings together the studies in which it is possible to note that the "proposed objectives directly dialogue with the results" (Moreno-Martínez et al., 2008; Capó-Juan, 2016; Stucki & Jerome, 2017; Molini-Avejonas et al., 2017). Even though it is not the main object of study in this group, it is possible to note that such results positively impact the health system, for example, one of the studies (Moreno-Martínez et al., 2008) that presents the implementation of a single functionality classification system (ICF). It is possible to see in the study that this classification brings benefits in all spheres of the system, reaching the highest level of elaboration of public policies directed to certain populations, which can lead to a chain impact in the production of services and better use of resources.

The second sub-theme involves studies that the "objectives are the costs of their units" (Logigian, 1987; Sanchez-Calderaro & Nazco-Franquis, 2002; Castro, Neves, & Aciole, 2011). In this case, the results presented bring data which dialogue with these objectives, however, none of the studies presented data on the value saved, not providing further support to effectively carry out a cost analysis (as expected in this method), moving away from what could be an economic evaluation, showing the fragility of the analysis in the articles. A possible explanation for why this phenomenon occurs is the lack of adequate knowledge about the necessary variables to be studied and the analysis of these data.

The third and last sub-theme brings together studies whose "objective and results are focused on economic evaluation" (Rebelo et al., 2007; Carinci et al., 2007; Dijkers, Whiteneck, & Gassaway, 2013; Hammond et al., 2015). It is essential to notice that, as everyone is using the cost-effectiveness assessment, this draws attention to the fact that there are also other possibilities for studies within the theme of economic evaluation that are not being used. One of the likely explanations may be the fact that cost-effectiveness studies have outcomes found in clinical practices as advantages. However, as it is known, studies of this type can only be compared with other studies that use the same clinical approach, thus limiting the range of options in the literature (Silva, Silva, & Pereira, 2017).

4.3. The Types of Economic Evaluation in Health

The studies were divided into groups according to their similarities in the types of assessments, the first group is composed of studies that "do not use any economic evaluation tool or cost analysis" (Moreno-Martínez et al., 2008; Capó-Juan, 2016; Stucki & Jerome, 2017; Molini-Avejonas et al., 2017). It is interesting to note that even not using a cost analysis or economic evaluation itself, these studies were indexed with descriptors that dealt with the topic and were included in the review because they dialogue, even if not the main objective of the studies, with the research question of this review. One explanation for the occurrence of this fact may be the issue of "methodological uncertainties", which occur when there are different perceptions of the ideal economic evaluation model. In this case, more assertive variables that would not impact the clinical outcomes of the evaluation study are chosen. The way to minimize this fact is to adopt good practice guidelines on how to conduct studies on economic evaluation, choosing better the variables that make up the model and their adequate capacity to express the phenomenon to be measured. When this does not happen, there are important limitations in the ability to obtain operable variables to hypothesize valuation models, thus requiring researchers to reduce their methodological expectations and end up being "forced" to restrict themselves to a more elementary cost analysis (such as the cost analyses) than performing an actual economic evaluation. When these boundaries are not well elaborated, it is possible that the researcher can have a strong role in influencing the results of the analysis (Silva, Silva, & Pereira, 2017).

The second group is composed of studies that "carried out cost analysis" (Logigian, 1987; Sanchez-Calderaro & Nazco-Franquis, 2002; Castro, Neves, & Aciole, 2011), however, in reading, these studies draw attention due to the lack of comparative data, not bringing values of how much was saved or how much was spent, making the analysis fragile. One of these studies (Sanchez-Calderaro & Nazco-Franquis, 2002) presents data on the importance of changing the cost-ing assessment methodology in a hospital, moving to absorption costing, thus being more reliable in its assessment. However, none of the 3 studies presents an in-depth description of costs, much less if they are direct, indirect, or other relevant data consistent with a methodologically complete cost analysis. When these analyses are not done properly in the public sector, there is space for different interpretations. According to Almeida, Borba and Flores (2009), for the public health sector, the main objective in carrying out cost management is not to ob-

tain profits, but to return to a better application of public resources, promoting a more efficient distribution of these expenses and thus serving the greatest number of "customers" more effectively. However, when the use of these analysis for cost management in the public system is verified, what is observed in practice is that the amount saved is not reinvested in other health policy actions, and may often be available for payment other expenditures (such as interest on domestic or external debt of national and subnational administrations). Fattorelli and Rodrigo (2017) reinforces this argument by demonstrating that debt interest ends up absorbing a large part of the federation's financial resources, being prioritized in face of internal social demands, including health. This can be seen when there is no significant investment for known primary expenses. However, when compared to expenditure on internal and external debt, in 2017, 50.66% of the general budget of the union was prioritized for its amortization. This characterizes an inverse government priority, prioritizing payment to industrialized capitalist countries (which will be the profits of these creditors) and little or no internal investment in the public sector.

The third group is composed of 4 studies (Rebelo et al., 2007; Carinci et al., 2007; Dijkers, Whiteneck, & Gassaway, 2013; Hammond et al., 2015) that "effectively carried out an economic evaluation", but all studies present the cost-effectiveness economic evaluation as the method of choice. It is already known that cost-effectiveness analysis are the most common economic evaluations of health interventions, as it is believed that the "effectiveness" ones in health units are more easily understood by the readers of the studies (Ministério da Saúde, Brasil, 2008). It is still known that the cost-effectiveness studies of a health intervention usually compare two (or more) alternative strategies for intervention, diagnosis or treatment of a given health condition, remembering that their comparison is usually between exclusive alternatives, which compete with each other and it cannot be implemented together in the institution or sector. The main disadvantage of the studies is that it can only be compared with studies with the same outcome in the health area (Silva, Silva, & Pereira, 2017).

The cost-effectiveness concept emerged in developed countries, that is, in industrialized capitalist countries, from the moment of greater commodification of health. In Brazil, this also occurs and it is understandable that there is an attempt by capital to enter the health system using this way of evaluating services. What is evaluated is the monetary value because the main focus is health outcomes, such as shorter hospital stay, less need for hospitalization after hospital discharge, less mortality/morbidity, but which automatically generate impacts on the institutions' costs, and, therefore, they can generate greater profitability for certain sectors (Secoli et al., 2010).

4.4. Type of Hospital Rehabilitation

The studies were separated into 3 groups, the first group consisting of only 1 study (Molini-Avejonas et al, 2017) that addresses "hospital rehabilitation through

speech therapy". The presence of speech therapy professionals is still shy in multidisciplinary hospital rehabilitation teams, requiring greater efforts by the specialty to publicize and show its importance for the rehabilitation of patients. Many of them evolve with difficulty in swallowing, dysphagia, and speech therapy will mitigate all these changes (Calheiros & Christiane, 2012).

The second group consists of 3 studies (Stucki & Jerome, 2017; Logigian, 1987; Hammond et al., 2015). They encompass "hospital rehabilitation through physical therapy and occupational therapy". The role of occupational therapy in the multidisciplinary team has gained more space over the years and has been growing along with the expansion of oncology treatment. With the improvement of clinical treatments for cancer, more patients are increasing their survival rate, but as a result of the treatment they have limitations, requiring readjustment to their daily lifestyle, making the field of work of this professional stand out in rehabilitation. Most of these professionals are part of a multidisciplinary team in a public health network (Galheigo, 2007).

The third group consists of 7 studies (Moreno-Martínez et al., 2008; Capó-Juan, 2016; Sanchez-Calderaro & Nazco-Franquis, 2002; Castro, Neves, & Aciole, 2011; Rebelo et al., 2007; Carinci et al., 2007; Dijkers, Whiteneck, & Gassaway, 2013) that address the "exclusive physiotherapeutic hospital rehabilitation". It is observed that in the physiotherapy team, over the years, there has been greater diversity among its specialties, expanding the range of action options in the hospital environment. Today, the physiotherapy professional is inserted in all care sectors in the hospital context, treating patients of low, medium and high complexity in all stages of hospitalization (Mair et al., 2008).

4.5. The Role of the Context of Public Health Systems/Services

In this context, the studies were separated into 2 groups. In the first group, 5 studies (Molini-Avejonas et al., 2017; Moreno-Martínez et al., 2008; Stucki & Jerome, 2017; Logigian, 1987; Sanchez-Calderaro & Nazco-Franquis, 2002) deal with rehabilitation in the "context of the SUS and other universal systems". In Brazil until the mid-1980s, rehabilitation services in the country basically served two audiences: formal workers, through the Professional Rehabilitation Centers linked to the National Institute of Medical Assistance for Social Security (INAMPS) and the philanthropic services that served the public with disabilities. This scenario was changed with the creation of the SUS in 1988, expanding access and guaranteeing the universality of the service through national health policies that are the responsibility of the Ministry of Health (Caetano, Sampaio, & Costa, 2018). In Spain, there is a public health system similar to the one in Brazil that guarantees universality to all health services in the country and the population, including rehabilitation programs at all levels of care conceived since the constitution of 1978. The system underwent some reforms over the decades and, by the year 2012, a profound reform on the "universality" of health was rearranged, excluding illegal immigrants in the country and young people over the age of 25

who have never contributed to social security, returning to a model in which access is given according to social contribution. This change is in accordance with an unfavorable socioeconomic moment in the country, together with a national government supported by neoliberalism, aiming to reduce health expenditures (Pereira et al., 2015). That is why, in these contexts of economic restriction provided by the recurrent crises of capitalism, cost analysis and economic evaluation methodologies are imposed in health systems scenarios, most of the time, in an attempt to save resources that could, on the one hand, allow reinvestment in the sector but, on the other hand, help to maintain the pattern of capital accumulation in periods of crisis.

The second group consists of 6 studies (Stucki & Jerome, 2017; Logigian, 1987; Rebelo et al., 2007; Carinci et al., 2007; Dijkers, Whiteneck, & Gassaway, 2013; Hammond et al., 2015) and they address hospital rehabilitation carried out in the "private system of certain countries". Differently from what we see in Brazil, through the SUS, the rehabilitation of countries that have almost entirely private health services heats up the health market, favoring a portion of the population with greater purchasing power, thus enhancing future profits from this market. As rehabilitation is inserted in the health context, this portion of the population reaches more effective treatments, when necessary, due to their income, while the population without these financial conditions is on the margin of this market, due to the family budget difficulty in achieving such treatments, since free public health is virtually nil (Andrade & Lisboa, 2000).

4.6. The Variables That Each Study Presents About Costs

In this theme, the studies were divided into 2 groups, being addressed only studies that brought variables in cost analysis and economic evaluation.

The first group consists of 3 studies (Castro, Neves, & Aciole, 2011; Logigian, 1987; Sanchez-Calderaro & Nazco-Franquis, 2002) that address "cost analysis". In the hospital stay variable, none of the 3 studies used this outcome to measure its costs. It is believed that hospital stay is not a reliable variable to determine the main costs, since a patient can stay 5 days hospitalized and not require so much support, when compared to a critical patient who used the hospital service for fewer days, but required surgery, installation and ICU apparatus, so these elements make relative the period of hospitalization in the cost analysis (Leoncine, Bornia, & Abbas, 2013). Only the study by Castro, Neves and Aciole (2011) brought the average amount paid for rehabilitation procedures performed in the hospital sector. The cost value was not informed by any of the 3 studies, this is extremely relevant data to carry out a complete analysis, knowing how much is currently being spent and/or saved with the implementation of a certain intervention in the sector (Carpintéro, 1999). Logigian (1987), in his study, presented the evolution of costs through the improvement of production in the rehabilitation sector. Carpintéro (1999), when addressing hospital costs, states that these costs can be reduced through productive improvement, consequently, the team's time and resources are optimized. Sanchez-Calderaro & Nazco-Franquis (2002) presents the evolution of the cost analysis system in a Hospital in Cuba, implementing costing through absorption, being more reliable in controlling expenses.

The second group consists of 4 studies (Rebelo et al., 2007; Carinci et al., 2007; Dijkers, Whiteneck, & Gassaway, 2013; Hammond et al., 2015). All studies performed "economic evaluation of cost-effectiveness", 3 studies (Rebelo et al., 2007; Dijkers, Whiteneck, & Gassaway, 2013; Hammond et al., 2015) presented data on the cost variable and its measurement through the implementation of programs that help the hospital rehabilitation team. Its effectiveness was measured through hospital discharge (in less time) and clinical improvement when compared to the control group. Other studies (Rebelo et al., 2007; Carinci et al., 2007) presented monetary data on the implementation of a hospital rehabilitation intervention program and its value saved through this intervention. Silva, Silva and Pereira (2017) emphasize the difficulty of measuring monetary values in health outcomes, and it is not common to find such data in economic evaluation studies.

4.7. Limitations of This Review

During this review, through the guiding question, there was this search for descriptors that could dialogue with the question posed. When starting the construction of the syntax, the descriptors were crossed through the Boolean operators and it could be observed a return of studies that were indexed as economic evaluation in the area of hospital rehabilitation, but that did not address this methodology in the course of the articles, which is an important limitation. From this question, the descriptor "cost analysis" was included, and the studies that dialogued with the question in this review were expanded. In the course of this process, another limitation related to studies indexed with the "SUS" descriptor was observed, precisely because it was a rarely used descriptor that retrieved few publications related to the topic. Thus, it was necessary to broaden the context for public health, using the free term "public health" and carry out the research in the context hub as "title, abstract and subject" in the portal used. This operation, despite retrieving more studies by expanding the search strategy, had an impact on the return of studies more consistent with the topic.

Choosing only one portal to be reviewed was also a limiting factor. Despite having used the VHL, which has 29 indexed databases, the search was not performed to exhaustion, as there are other databases that were not used in the research, in addition to other forms of study retrieval that can complement the use of databases such as: ancestral literature, manual search in related journals, the network of researchers, research records and gray literature (Christmal & Gross, 2017; Rosa & Carnut, 2020).

In addition, an integrative review methodology was used, as it is the most appropriate way to integrate the articles that were included in the results, being analyzed through similarities. Due to the current development that the literature on the reviewed topic is in, we consider that the integrative review method was the right decision to review this object at this time.

The logic of the health systems addressed in the results of this study was diverse, bringing comparative difficulties between them (as in the case of the United States of America) and the Unified Health System (Brazil). This makes an analysis of the results difficult to be interpreted with such antagonistic systems. The same can be said in so-called "universal" systems, but such universality is in deconstruction, as in the case of the Spanish system, just as in Brazil, bringing difficulties in these comparisons.

The results of the studies address a unidirectional focus within the hospital rehabilitation system in public health. In consequence of the results obtained, it was observed that the profession with the most data is physiotherapy, but hospital rehabilitation should be multiprofessional, requiring further studies with other team members to bring broader results on rehabilitation and that aim to capture the interprofessionality in this level of care.

4.8. Implications for Public Policy

This study presents restricted data on economic evaluation in the context of hospital rehabilitation in public health, and further studies are needed on this phenomenon, with the intention of producing better levels of evidence in the area, which, at the moment, after this research, seems to be incipient and with questionable evidence.

Given the characteristics of economic evaluation studies, which evaluate by comparing 2 or more interventions for a sector, they need to be complemented by studies with greater scientific evidence, through systematic review, meta-analysis, helping managers' decision-making.

Despite the limitations of this study, its impact on society is relevant, bringing data on the possibility of reinsertion of these patients, functionally and economically. Studies show that hospital rehabilitation is cost-effective, generating a positive impact on the public health system, but more robust studies are needed to corroborate this analysis.

4.9. Progress of This Study and the Research Agenda

This paper presents itself as a baseline study, due to the lack of synthesized and organized evidence on the subject of economic evaluation in hospital rehabilitation (levels 5 and 4). Therefore, this research aims to present itself as an initial study for new researchers, demonstrating the path of cost analysis and cost-effectiveness assessment articles in the field of hospital rehabilitation, being, therefore, a guide for further research.

As a proposal for further research, the correction of indexing studies on economic evaluation in rehabilitation is extremely necessary to ensure the organization of studies and optimize their retrieval. Although the recovery of economic evaluation studies is represented in a low number of articles, all addressing the cost-effectiveness of economic rehabilitation, were unanimous in pointing out the effectiveness of the rehabilitation approach to reduce the costs of the hospitals where the studies were carried out.

Even considering that the literature deals with the issue of the presence of professionals in the field of rehabilitation at the hospital level in an attempt to avoid costs in the context of patients' recovery (Picone, Wilson, & Chon, 2003) in their social reinsertion, the context of public health is the great advance of this review, as an important scenario to be problematized in these evaluations. In general terms, economic evaluations of hospital rehabilitation, when they exist, are restricted to the clinical-econometric debate only (Picone, Wilson, & Chon, 2003), often disregarding the context in which they are carried out with an important variable in the conduction of these assessments.

This research highlights this component with a focus on hospital rehabilitation in public health systems and services, demonstrating how the few existing economic assessments of rehabilitation ignore this context. The innovation that this study is to bring the role of public health contexts in the analysis of economic evaluations in health, in the case of this study, with a focus on hospital rehabilitation. This dimension should be incorporated in order to broaden the debate on economic evaluations in health, transcending them from their residually clinical aspects and linking their findings with the contexts of the public health systems they were carried out. Without this interconnection, it is very difficult to assess critically the results of economic evaluations, whether these results are positive or negative on the incorporation of a new therapy, a technological incorporation, or even a health professional. These decisions are very difficult to be taken if you do not understand the logic, the level of attention and the structuring of the system from the point of view of its budget, not to mention, of course, the insertion of the economy of the country in question in the world economic scenario. This is undoubtedly what the results of this review aim to advance in this debate.

5. Final Considerations

In view of what has been exposed, it is possible to affirm that economic evaluation is mistaken for cost analysis in studies related to hospital rehabilitation in public health. One of the explanations for this fact may be the inadequate indexing of articles on economic evaluation. Although cost analysis studies show methodological weaknesses (such as not presenting important data: such as amount saved during the study, for example), they present clinical outcomes favorable to hospital rehabilitation.

Most of them are foreign literature papers, the timeline presented by the studies presents an important discontinuity, ranging from 1983 to 2017, but without major methodological advances.

Hospital rehabilitation studies in this research showed that the vast majority

takes place in the field of physiotherapy, but rehabilitation must be composed of an interprofessional team, requiring further deepening of the role of other specialties in scientific and quality production, and this study can be a guide in pursuit of this evolution.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

- Almeida, A. G., Borba, J. A., & Flores, L. C. S. (2009). A utilização das informações de custos na gestão da saúde pública: Um estudo preliminar em secretarias municipais de saúde do estado de Santa Catarina. *Revista de Administração Pública, 43*, 579-607. https://doi.org/10.1590/S0034-76122009000300004
- Andrade, M. V., & Lisboa, M. B. (2000). Sistema privado de seguro-saúde: Lições do caso americano. *Revista Brasileira de Economia*, 54, 5-36.
- Caetano, L. A., Sampaio, R. F., & Costa, L. A. (2018). A expansão dos serviços de reabilitação no SUS à luz do arcabouço normativo federal. *Revista de Terapia Ocupacional da Universidade de São Paulo, 29*, 195-203. https://doi.org/10.11606/issn.2238-6149.v29i3p195-203
- Calheiros, A., & Christiane, A. (2012). A vivência da fonoaudiologia na equipe de cuidados paliativos de um Hospital Universitário do Rio de Janeiro. *Revista Hospital Universitário Pedro Ernesto, 11,* 94-98.
- Campana, Á. O. (1999). Metodologia da investigação científica aplicada à área biomédica: 2 Investigações na área médica. *Jornal de Pneumologia, 25,* 84-93. https://doi.org/10.1590/S0102-35861999000200005
- Capó-Juan, M. A. (2016). Efectividad de programas educativo-terapêuticos en fisioterapia. *Revista de la Sociedad Española del Dolor, 23,* 154-158. <u>https://doi.org/10.20986/resed.2016.3436/2016</u>
- Carinci, F., Roti, L., Francesconi, P., Gini, R., Tediosi, F., Di Iorio, T., Bartolacci, S., & Buiatti, E. (2007). The Impact of Different Rehabilitation Strategies after Major Events in the Elderly: The Case of Stroke and Hip Fracture in the Tuscany Region. *BMC Health Services Research*, 7, Article No. 95. <u>https://doi.org/10.1186/1472-6963-7-95</u>
- Carpintéro, J. N. C. (1999). Custos na área de saúde-considerações teóricos. *Anais do VI Congresso Brasileiro de Custos*, São Paulo, 29 June-2 July 1999, 1-16. https://anaiscbc.emnuvens.com.br/anais/article/view/3193
- Castro, A. P., Neves, V. R., & Aciole, G. G. (2011). Diferenças regionais e custos dos procedimentos de fisioterapia no Sistema Único de Saúde do Brasil, 1995 a 2008. *Revista Panamericana de Salud Pública, 30,* 469-476. https://doi.org/10.1590/S1020-49892011001100010
- Christmal, D., & Gross, J. J. (2017). An Integrative Literature Review Framework for Postgraduate Nursing Research Reviews. *European Journal of Research in Medical Sciences*, *5*, 7-15.

https://www.idpublications.org/wp-content/uploads/2016/12/Full-Paper-AN-INTEGR ATIVE-LITERATURE-REVIEW-FRAMEWORK-FOR-POSTGRADUATE-NURSING -RESEARCH-REVIEWS.pdf

Dijkers, M. P., Whiteneck, G. G., & Gassaway, J. (2013). CER, PBE, SCIRehab, NIDRR,

and Other Important Abbreviations. *Archives of Physical Medicine and Rehabilitation, 94*, S61-S66. https://doi.org/10.1016/j.apmr.2012.11.048

- Fattorelli, M. L., & Rodrigo, A. (2017). A auditoria da dívida e o necessário aumento dos gastos com a saúde. Centro de Estudos Estratégicos da Fiocruz. <u>https://www.arca.fiocruz.br/bitstream/icict/28233/2/Maria_L_Fatorelli_Rodrigo_Avila</u> divida publica.pdf
- Galheigo, S. M. (2007). Domínios e temáticas no campo das práticas hospitalares em terapia ocupacional: Uma revisão da literatura brasileira de 1990 a 2006. *Revista de Terapia Ocupacional da Universidade de São Paulo, 18,* 113-121. https://doi.org/10.11606/issn.2238-6149.v18i3p113-121
- Gonçalves, M. A., & Alemão, M. M. (2018). Avaliação econômica em saúde e estudos de custos: uma proposta de alinhamento semântico de conceitos e metodologias. *Revista Médica de Minas Gerais, 28,* Article ID: e-S280524.
- Hammond, F. M., Barrett, R., Dijkers, M. P., Zanca, J. M., Horn, S. D., Smout, R. J., & Megan, R. (2015). Group Therapy Use and Its Impact on the Outcomes of Inpatient Rehabilitation after Traumatic Brain Injury: Data from Traumatic Brain Injury-Practice Based Evidence Project. Archives of Physical Medicine and Rehabilitation, 96, S282-S292.E5. https://doi.org/10.1016/j.apmr.2014.11.029
- Laranjeira, F. O., & Petramale, C. A. (2013). A avaliação econômica em saúde na tomada de decisão: A experiência da CONITEC. *Boletim do Instituto de Saúde, 14,* 165-170. http://periodicos.ses.sp.bvs.br/pdf/bis/v14n2/v14n2a06.pdf
- Leoncine, M., Bornia, A. C., & Abbas, K. (2013). Sistemática para apuração de custos por procedimento médico-hospitalar. *Production, 23*, 595-608. https://doi.org/10.1590/S0103-65132012005000093
- Logigian, M. K. (1987). Productivity Analysis. American Journal of Occupational Therapy, 41, 285-291. <u>https://doi.org/10.5014/ajot.41.5.285</u>
- Mair, V., Yoshimori, D. Y., Cipriano, G., Castro, S. S., Avino, R., & Buffolo, E. (2008). Perfil da fisioterapia na reabilitação cardiovascular no Brasil. *Fisioterapia e Pesquisa, 15*, 333-338. https://doi.org/10.1590/\$1809-29502008000400003
- Mendes, Á. (2016). A saúde pública brasileira num universo "sem mundo": A austeridade da Proposta de Emenda Constitucional 241/2016. *Caderno de Saúde Pública, 32,* Article No. e00188916. <u>https://doi.org/10.1590/0102-311X00188916</u>
- Ministério da Saúde, Brasil (2008). *Secretaria-Executiva. Avaliação econômica em saúde: desafios para gestão no Sistema Único de Saúde.* Área de Economia da Saúde e Desenvolvimento.

https://bvsms.saude.gov.br/bvs/publicacoes/avaliacao_economica_desafios_gestao_sus. pdf

Ministério da Saúde, Brasil (2010). Agência Nacional de Vigilância Sanitária. RDC nº 7 de 24 de fevereiro de 2010. Dispõe sobre os requisitos mínimos para funcionamento de Unidades de Terapia Intensiva e dá outras providências. Diário Oficial República Federativa do Brasil, Poder Executivo, Brasília.

https://bvsms.saude.gov.br/bvs/saudelegis/anvisa/2010/res0007_24_02_2010.html

Ministério da Saúde, Brasil (2017). *Práticas em reabilitação na AB: O olhar para a funcionalidade na interação com o território. Departamento de Atenção Básica*. Ministério da Saúde.

https://bvsms.saude.gov.br/bvs/publicacoes/praticas_reabilitacao_atencao_basica_territ orio.pdf

Molini-Avejonas, D. R., Santos, T. H. F., Oliveira, S. R., Rondon, M. S., & Cartolano, F. P.

(2017). Caracterização dos sistemas de referência e contrarreferência em um serviço de fonoaudiologia de alta complexidade na cidade de São Paulo. *Audiology, Communica-tion, Research, 23,* Article No. e1859. <u>https://doi.org/10.1590/2317-6431-2017-1859</u>

- Moreno-Martínez, F., Casals-Sánchez, J. L., Sánchez-Rivas, J. M., Rivera-Irigoin, R., & Vázquez, M. A. (2008). Documento de interconsulta: Evaluación de la calidad de la comunicación entre Atención Primaria y Especializada. *Semergen, 34*, 218-223. <u>https://doi.org/10.1016/S1138-3593(08)71886-0</u>
- Pereira, A. M., Lima, L. D. D., Machado, C. V., & Freire, J. M. (2015). Descentralização e regionalização em saúde na Espanha: Trajetórias, características e condicionantes. *Saúde em Debate, 39*, 11-27. https://doi.org/10.5935/0103-1104.2015S005410
- Picone, G., Wilson, R. M., & Chon, S.-Y. (2003). Analysis of Hospital Length of Stay and Discharge Destination Using Hazard Functions with Unmeasured Heterogeneity. *Health Economics*, 12, 1021-1034. <u>https://doi.org/10.1002/hec.800</u>
- Rebelo, F. P. V., Garcia, A. S., Andrade, D. F., Werner, C. R., & Carvalho T. (2007). Resultado clínico e econômico de um programa de reabilitação cardiopulmonar e metabólica. Arquivos Brasileiros de Cardiologia, 88, 321-328. https://doi.org/10.1590/S0066-782X2007000300011
- Ribeiro, R. A., Neyeloff, J. L., Itria, A., Santos, V. C., Vianna, C. M., Silva, E. N., Elias, F. T., Wichmann, R. M., Kathiaja, M., Cruz, L. N., & Silva, A. L. (2016). Diretriz metodológica para estudos de avaliação econômica de tecnologias em saúde no Brasil. *Jornal Brasileiro de Economia da Saúde, 8,* 174-184. https://doi.org/10.21115/JBES.v8.n3.p174-184
- Rodes, C. H., Kurebayashi, R., Kondo, V. E., Luft, V. D., Góes, Â. B., & Schmitt, A. C. (2017). O acesso e o fazer da reabilitação na Atenção Primária à Saúde. *Fisioterapia e Pesquisa, 24*, 74-82. <u>https://doi.org/10.1590/1809-2950/16786424012017</u>
- Rosa, E. M., & Carnut, L. (2020). Integrative Review about Life-Cycle Cost Approaches in Healthcare Units: Evolution, Limits and Reflections for Public Health in Brazil. *Theoretical Economics Letters*, *10*, 1113-1135. <u>https://doi.org/10.4236/tel.2020.105066</u>
- Sanchez-Calderaro, P., & Nazco-Franquis, B. (2002). Logros y perspectivas del Sistema de Costos Hospitalarios, diseñado para la gerencia. *Revista Cubana de Medicina Militar*, 31, 164-169.
- Sancho, L. G., & Vargens, J. M. (2009). Avaliação econômica em saúde na esfera de atenção local à saúde. *Ciência & Saúde Coletiva, 14,* 1513-1525. https://doi.org/10.1590/S1413-81232009000800025
- Secoli, S. R., Nita, M. E., Ono, N. S. K., & Nobre, M. (2010). Avaliação de tecnologia em saúde: II. A análise de custo-efetividade. Arquivos de Gastroenterologia, 47, 329-333. https://doi.org/10.1590/S0004-28032010000400002
- Silva, E. N., Silva, M. T., & Pereira, M. G. (2017). Incerteza em estudos de avaliação econômica. *Epidemiologia e Serviços de Saúde, 26,* 211-213. https://doi.org/10.5123/S1679-49742017000100022
- Soares, C. B., Hoga, L. A., & Komura, P. M. (2014). Revisão integrativa: Conceitos e métodos utilizados na enfermagem. *Revista da Escola de Enfermagem da USP, 48,* 335-345. <u>https://doi.org/10.1590/S0080-6234201400002000020</u>
- Stucki, G., & Jerome, B. (2017). Functioning Information in the Learning Health System. *European Journal of Physical and Rehabilitation Medicine*, *53*, 139-143. https://doi.org/10.23736/S1973-9087.17.04612-3
- Tanaka, O. Y., & Tamaki, E. M. (2012). O papel da avaliação para a tomada de decisão na gestão de serviços de saúde. *Ciência & Saúde Coletiva*, 17, 821-828.

https://doi.org/10.1590/S1413-81232012000400002

Teston, L. M., Mendes, Á., Carnut, L., & Junqueira, V. (2018). Avaliação no SUS: Uma crítica à ideologia do produtivismo no capitalismo contemporâneo. *Saúde em Debate, 42*, 226-239. <u>https://doi.org/10.1590/0103-11042018S317</u>