

Hospital services under public-private partnerships, outcomes and, challenges: A literature review

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Abstract

Public-private partnerships (PPP) is used to advance health service access and quality. PPP implementation in hospitals is vital to shorten the service and quality gap. Hospitals are the most significant health budget spender, and this study aimed to identify the PPP effect on hospital performance indicators and its implementation challenges. Thirty-three inclusive articles were filtered and collected from Pubmed, ScienceDirect, Medline, and Sage Publication databases. Results showed that various articles succeeded in implementing PPP and improving the access and quality of health services. Several hospital performance indicators such as diagnosis, therapy, service waiting time, length of stay, referral rate, mortality rate, and patient satisfaction were reported to show better results. However, there was insufficient evidence to say the same on related financial indicators. Policy, resource, communication and trust, risk, and evaluation monitoring were considered challenges in PPP implementation. Its success was not only influenced by major factors such as governance model, finance, politics, and social but also was influenced by the medical practice model applied within the organization. This study contributed to whether PPP affects the hospital performance indicators.

Keywords

PPP, hospital performance indicator, quality, policy and governance

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Introduction

Hospital plays an essential role in the health service system in many countries.¹ It is considered the only health facility with big capital, rich resources, and a high science level.² On the other hand, hospitals are also considered a health facility that needs many resources.³ Hospital's expenditure in OECD countries is around 26%–53% of the country's total health budget.⁴ The high cost of health services, especially hospitals, is caused by changes in demographics, epidemiology such as the trend of increasing chronic degenerative diseases, and technological developments.^{5,6} Demands for efficiency in health care came from policymakers, funders, and health practitioners.⁷

Governments in various countries were pressed to provide high-quality health services at low prices, and promoting the private sector involvement in financing health services is part of the solution.⁸ PPP was born due to hospitals' management disobedience in catering for the minimum service standards. Therefore, PPP was chosen as the

best mechanism in combining opportunities from public sector regulation and private sector operation.⁹ PPP combined the private sector advantages, ranging from innovation, knowledge, skills, efficiency to entrepreneurship, with the public sector duties, such as responsibility, social justice, and public accountability, to produce quality infrastructure and services.¹⁰

PPP has many definitions, and there is no unanimous definition.¹¹ In general, PPP is defined as a collaborative effort with unanimous unanimous duties, good accountability and risk-sharing willingness within reliable management structure in producing or delivering public goods,

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as well as with defined performances within a defined period of time by aligning both public and private interests.¹² PPP is a term used to describe the connection of the public sectors and the private sectors to achieve common goals.¹³ PPP is characterized by having a common goal, sharing the risks and rewards specified in the contract, and providing services or facilities to the public.^{10,12,14} In the last few decades, the popularity of PPP has increased in line with the government steps that have opened up opportunities for the private sector to contribute to the provision of public goods.^{10,15}

Nikolic, Maikisch, Raman, and Björkmand divided PPP into four models: infrastructure, service delivery, financial protection, and another model. The PPP infrastructure model is generally variations of the design, building, finance, ownership, operation, lease, and transfer models. The service delivery model is primarily seen in the form of contracting “in” and contracting “out,” management contracts, co-location, and franchising. PPP financial protection model could be in the form of vouchers, coupons, health cards, insurance (community-based insurance, social insurance/microfinance), and conditional cash/incentives. Other PPP models consist of a public-private mix, telemedicine, social marketing/health, training, research, and capacity building.^{12,14}

PPP is an effective strategy to overcome the problem of infrastructure gaps, access, service quality when the government is facing budget constraints.¹⁶ There has been a sharp increase in PPP in the health sector in European countries through health infrastructures such as buildings, technology systems, clinical services, and non-clinical services.¹⁰ A qualitative study in Saudi Arabia showed that the PPP in hospitals has improved service quality, increased efficiency and accuracy in services, and reduced potential hospital losses due to risk sharing.¹⁷ Although PPP gave good results, studies in Spain showed that it was not always better than hospitals with traditional management.¹⁸ Still from the same country, another study found that PPP, in general, has not outperformed hospitals with traditional management although the progress has been remarkable in some areas of services.¹⁹

Several authors have reviewed the implementation of PPP in the health sector, both mapping the themes and issues of PPP,^{10,11} as well as those that focused on specific characteristics, such as low-middle income countries²⁰ or just one country.^{21,22} Some reviews focused on specific issues.^{23,24} Although many studies discussed PPP in health services, to the best of the author’s knowledge and search, no studies have found the outcomes and challenges of implementing health facility-based PPP in hospitals. This study aimed to identify:

- (1) Indicators used to assess PPP outcomes in hospitals
- (2) How successful PPP was on these indicators
- (3) Challenges in PPP implementation

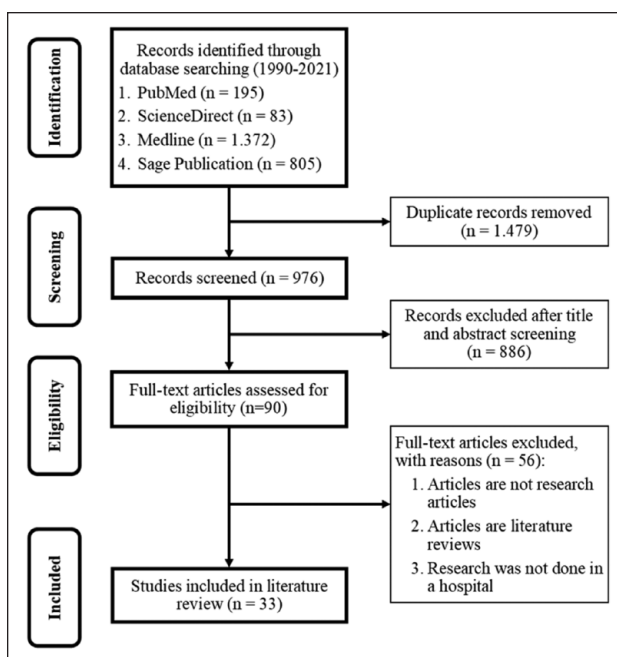


Figure 1. Literature search schematic.

Source: Author’s processed results. Schematic adapted from Page et al.²⁵

Design and methods

The literature search was conducted using four international databases: Pubmed, ScienceDirect, Medline, and Sage Publications. The search was conducted with the Boolean operator using the keywords “public, the private partnership” (hospital OR “health care”) for peer-reviewed articles in English published between 1990 and 2021, which were available for access and download in full text. Articles obtained from the six databases were then filtered using the Mendeley software to remove duplicate articles. Next, the initial screening was carried out based on the title and abstract of the article. The author read the article in full to evaluate the article according to the inclusion criteria. The literature would be excluded if (1) it was not a research article; (2) in the form of a review; (3) which was not conducted at a hospital (Figure 1). All the remaining articles that met the criteria were then analyzed using the help of Nvivo software. The literature search was carried out from 12 August to 20 September 2021.

Results and discussion

The results of this study will be presented in three parts. The first is the article profile divided based on the distribution of articles in the journal, year of publication, world economic situation, research method, and PPP model. The second section will discuss PPP outcomes in hospitals, and the last section will show the challenges in implementing PPP.

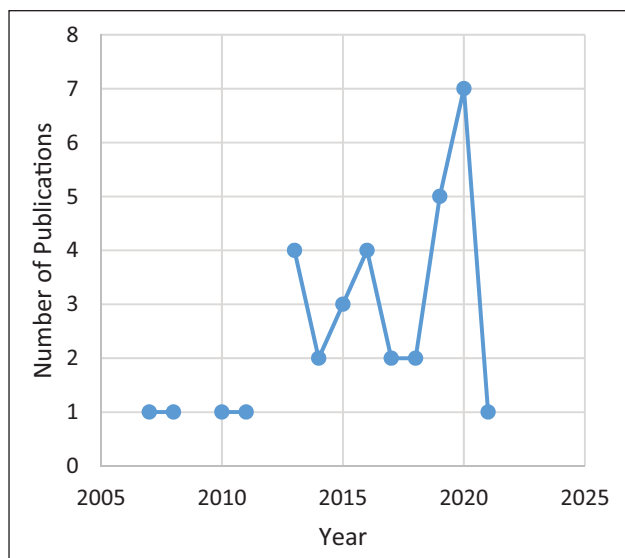


Figure 2. Distribution of articles by year of publication.
Source: Author's results.

Article profile

The literature search resulted in 33 articles that met the eligibility criteria for inclusion and exclusion. Grouping based on journal sources found that 33 articles were distributed among 26 journals. The Table 1 shows the distribution of articles in journals and the impact factor value of each journal.

When identifying the literature in a predetermined database, a time limit for publication was set, starting from 1990 to 2021. This time limitation referred to previous studies, which found that before 1990, the term PPP rarely appeared in scientific articles.⁵³ This study found that articles about hospital's PPP were found in the last decade, as seen on Figure 2. This result was in line with the findings of other studies, which found that PPP in the health sector began to be abundant in the late 1990s and reached their peak in 2010.^{11,20} In addition to the year of publication, the study also grouped articles based on the economic status of the countries (classified based on the real GDP growth rate). It consisted of countries with developed economies (based on the World Economic Situation and Prospects Guide).⁵⁴ Although there were few differences, there were more articles in developing economic countries than in developed ones.

Articles from developing countries found in this study came from India, China, Tanzania, Iran, Uganda, Vietnam, Africa, Turkey, Nigeria, Peru, and Indonesia. In contrast, developed countries came from Italy, Portugal, Canada, Australia, the United States, France, Brazil, Spain, and England. This finding was different from the previous review, which found that articles were mostly found in developed countries as these countries first implemented PPP in the health sector.¹¹

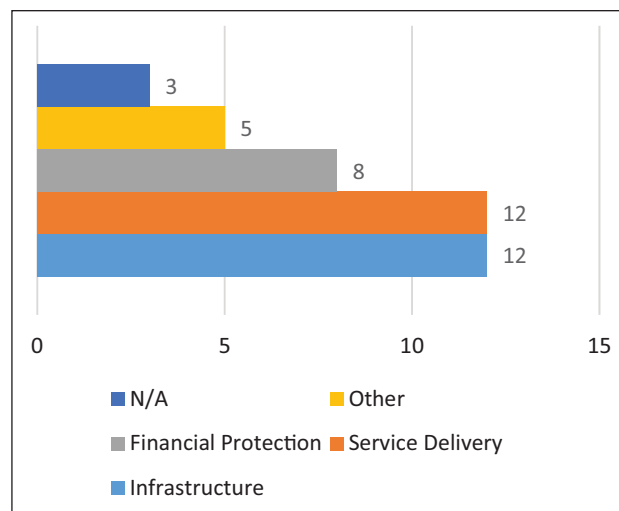


Figure 3. Article distribution by PPP model.
Source: Author's results.

Based on the research method used, this literature review found that 56% of the articles ($n=18$) used qualitative methods, and the rest used quantitative methods. This finding was in line with the results of the Torchia's review, which found that qualitative approaches were more widely used,²⁰ and the results of the literature review were also mapped into the PPP model. Figure 3 shows that the PPP model for the health sector is primarily found in the service delivery and infrastructure models.

Several included articles have two PPP models used in their studies, including PPP in infrastructure and service delivery model ($n=3$) and financial protection and service delivery model ($n=2$).

PPP outcome

Service performance

Improvement of hospital performance indicators, including service quality indicators, is one of the most significant achievements of PPP implementation.³ The volume of patients measured access to health services. Bastani et al. conducted a study on a comparison of hospital performance 3 years before the implementation of PPP and 3 years after. This study showed that the PPP service delivery model has succeeded in increasing the number of patients in all types of services in hospitals.³ Still, with the same study design, Holden et al. provided the same picture where there was a rising number of cancer patients by one-third from year 1 to year 3.³⁸ The rising number of patients came from the city where the hospital was located and found a rising number of outer capital city patients.⁴⁰

Quality of service was measured by various indicators, ranging from establishing a diagnosis to death. Speed in diagnosis and therapy is known to improve patients'

Table 1. Distribution of articles in journals.

Number	Journal	Author	Total (n)	IF
1	Health Policy	Comendheiro-Maaløe et al. ¹⁹	1	2.980
2	Social Science & Medicine	Khetrapal et al., ²⁶ Wong et al., ²⁷ Probandari et al. ²⁸	3	4.634
3	BMC Health Services Research	Nuhu et al., ²⁹ Diwan et al., ³⁰ Franco Miguel et al., ³¹ Probandari et al. ³²	4	2.512
4	BMC Nephrology	Pedrini et al. ³³	1	2.126
5	Ethiop Journal Health Science	Baniasadi et al. ³⁴	1	1.452
6	Journal of Clinical and Diagnostic Research	Baliga et al. ³⁵	1	0.663
7	International Journal of Project Manager	Cruz and Marques ³⁶	1	7.172
8	Health Research Policy and Systems	Okal et al. ³⁷ , Holden et al. ³⁸	2	3.318
9	Tropical Medicine and Infectious Disease	Thu et al. ³⁹	1	3.107
10	Mediterranean Journal of Hematology and Infectious Disease	Vieira et al. ⁴⁰	1	2.576
11	Medical Journal of the Islamic Republic of Iran (MJIRI)	Bastani et al. ³	1	0.904
12	International Journal of Health Planning and Management	Top and Sungur ⁴¹	1	1.517
13	Socio Economic Planning Sciences	Ferreira and Marques ⁴²	1	4.923
14	Social Change	Karpagam et al. ⁴³	1	0
15	Public works management & policy	Hussain and McKellar ⁴⁴	1	0.771
16	PLoS ONE	Iyer et al. ⁴⁵	1	3.241
17	Health Economics and Management	Mendes Cde et al., ⁴⁶ Kaliks et al. ⁴⁷	2	1.500
18	Annals of African Medicine	Liman et al. ⁴⁸	1	1.198
19	International Review of Administrative Sciences	Asenova et al. ⁸	1	2.594
20	Health Economics Review	Caballer-Tarazona et al. ¹⁸	1	2.306
21	Journal of Healthcare Engineering	Yang et al. ⁴⁹	1	2.682
22	International Journal of Environmental Research and Public Health	Barrios-Ipenza et al. ⁹	1	3.390
23	Environment and Planning	Liu et al. ¹⁶	1	4.056
24	The Permanente Journal	Vian et al. ⁵⁰	1	1.153
25	The Economic and Labour Relations Review	Chung ⁵¹	1	1.571
26	Journal of Strategic Contracting and Negotiation	Alonso et al. ⁵²	1	0
		TOTAL	33	

Source: Author's results.

prognosis and quality of life. Hospitals with PPP showed better performance in diagnosis,^{39,40} therapy, and referral rates.^{3,48} In his study, Thu et al.³⁹ reported therapeutic success with a successful outcome rate reaching 92.9% in tuberculosis patients. Not only in tuberculosis patients, success was also found in endovascular surgery procedures with a 100% success rate without the need for conversion to open surgery.⁴⁶ In addition to its ability to establish diagnosis and therapy, a study in Iran found that hospitals with PPP reduced waiting times for services.³ In line with Bastani's findings, the waiting time for surgery was found to be faster in endovascular surgery⁴⁶ as well as hip fracture surgery.¹⁸ When compared to hospitals with traditional management, Kalikset al.⁴⁷ found a shorter delay in chemotherapy distribution to patients.

In addition to showing good performance in establishing diagnosis and therapy, hospitals with PPP have also been shown to be successful in reducing the length of stay both in general³ and in specialist treatments such as endovascular

surgery⁴⁶ and hemodialysis.^{33,48} In hemodialysis services, PPP was known to successfully reduce the length of stay and the prevalence and incidence of hospitalization.³³ Reinforcing the study of Pedrini et al.,³³ PPP was better in terms of service, duration and sessions of hemodialysis.⁴⁸ Several studies described the success of PPP in reducing mortality.^{3,33,40} The mortality rate for tuberculosis patients decreased by 15%⁴⁰ as well as the mortality rate for hemodialysis patients decreased from 10.6% to 7.8%.³³ Hemodialysis patients who received treatment at a health facility with PPP received treatment according to the recommended treatment targets, reducing the length of stay and mortality.³³

A study in Spain using data envelopment analysis (DEA) proved that hospitals adopting PPP had higher efficiency scores (mean scores of 0.87 and 0.88) than traditionally managed hospitals (0.77). This model was judged to be more efficient in coordinating chronic disease care than traditional management models.³¹ In line with the

Table 2. Hospital under PPP performance indicators.

Indicators	Description	Results	Reference
Patient volume	Number/percentage of patients receiving treatment in hospital	One-third during the first 3 years in four sites (increases from 29.1% to 36.8%)	Holden et al. ³⁸
		Number of inpatients outpatients relatively constant over the last 10 years	Karpagam et al. ⁴³
		Number of inpatients Below Poverty Line (BPL) Before (2002) 94.7% After (2010) 21.4%	Karpagam et al. ⁴³
		Number of outpatients Below Poverty Line (BPL) Before (2002) 92.8% After (2010) 7.5 %	Karpagam et al. ⁴³
		The patients mostly came from Bissau (82% of them in 2009 and 71% of them in 2012); there was a little increase in outer capital patients in 2012 (29% from 18%)	Vieira et al. ⁴⁰
		Number of surgical operations Before PPP 650 patient/year After PPP 1061 patient/year	Bastani et al. ³
		Waiting time	Patient waiting time to get services
Rate of hip fracture operations with more than 2 days delay PPP Hospital 0.169 Traditional Hospital 0.588	Caballer-Tarazona et al. ¹⁸		
Shorter delay until the adjuvant chemotherapy commences according to international recommendations is timely initiation of radiation therapy	Kaliks et al. ⁴⁷		
Duration from visiting the hospital to undergoing TB diagnostic test 0 day From diagnosis to initiation of treatment 6 days.	Thu et al. ³⁹		
Length of stay	Length of time spent in a series of treatments	Before PPP 5.10 After PPP 4.46 ICU length of stay 1.1 day	Bastani et al. ³
		Average time of hospitalization: 8.9 days	Mendes Cde et al. ⁴⁶
Hospitalization	Average number of admissions to hospital	Hospital admission rates for prevalent and incident patients 0.79 and 1.13/patient-year (consider lower)	Pedrin et al. ³³ Pedrin et al. ³³
Bed occupancy rate (BOR)	Percentage of bed utilization at a certain time	Before (2007) 76.1% After (2012) 81.36%	Bastani et al. ³
		Before (2002) 85% After (2010) 58%	Karpagam et al. ⁴³
Bed turnover ratio	Frequently, during a given time period, there is change of bed occupation	Before 4.62 After 5.72	Bastani et al. ³
Output/outcome therapy (treatment, procedures)		In the term of care process, there were only slight differences between public and private hospitals, though private hospitals has better structural capacity than public hospitals	Khetrapal et al. ²⁶
		Around 19%–53% of Tuberculosis patients and 4%–18% of sputum smear positive Tuberculosis patients in hospitals participating in the PPM-DOTS strategy were not given standardized diagnosis and treatment as in DOTS	Probandari et al. ³²
		Hospital with PPP performed better compare to other hospital in the sense of availability of service, hemodialysis duration, and far more sessions of hemodialysis	Liman et al. ⁴⁸
		The endovascular procedure success-rate was 100%. All surgeries successfully finished without conversion to open surgery	Mendes Cde et al. ⁴⁶
		Successful outcome for Tuberculosis patient (cured, treatment completed) 92,9%	Thu et al. ³⁹

(continued).

Table 2. (continued).

Indicators	Description	Results	Reference
Mortality	Number/rates/percentage of deaths	Number of death Before 1.65 After 1.55 Mortality femoropopliteal group 12% (expected by the literature) Low cumulative all-cause mortality rates (12 months: 10.6 and 7.8%) (5 years: 42.0% and 35.9%, for prevalent and incident patients) Before (2009–2010): 21% After (2012–2013): 6%	Bastani et al. ³ Mendes Cde et al. ⁴⁶ Pedrini et al. ³³ Vieira et al. ⁴⁰
User satisfaction	Patient or user satisfaction with hospital services with PPP	User satisfaction of Health insurance program was a little more than that of non-RSBY Responders from PPP-model hospital were significantly more satisfied than those from traditional model (91.2%) versus (32.1%)	Khetrupal et al. ²⁶ Baliga et al. ³⁵
Cost	Costs incurred by the hospital for services	Hospitals have invested their resources into the PPP program as much as \$3 for each of federal dollars The value spent in diagnosing and treating patients from PPP scheme (Program for Oncologic Patients) are higher than what is spent in the traditional hospital Hospitalization cost at was far higher than the governmental reimbursement TB-diagnosis direct costs (radiology and laboratory) Before (from October 2009 to February 2010): 65,11 USD per patient After (from October 2012 to February 2013): zero Direct hospitalization cost Before (from October 2009 to February 2010): 409,5 USD per patient After (from October 2012 to February 2013): zero Costs of vaginal and cesarean births were significantly lower in PPP participant compared to non-participant	Holden et al. ³⁸ Kaliks et al. ⁴⁷ Mendes Cde et al. ⁴⁶ Vieira et al. ⁴⁰ Iyer et al. ⁴⁵
Profit	Profit earned by the hospital from the service	Hospital has not been generating any profit since PPP inception	Karpagam et al. ⁴³
Budget		Hospital construction with PPP is running according to the budget	Cruz and Marques, ³⁶ Hussain and McKellar ⁴⁴
Accountability		PPP is able to reduce acts of corruption	Vian et al. ⁵⁰

findings in Spain, a study in Iran showed an increase in performance and a significant difference between hospitals with PPP and traditionally managed hospitals on indicators such as bed turnover, average length of stay, and bed occupancy rate.³ In contrast to the two findings above, the study of Karpagam et al. showed the opposite. The implementation of PPP in the form of health insurance at hospitals showed a constant rate of outpatient and inpatient for 10 years, even resulting in a decrease in the bed occupancy rate and a decrease in the level of service utilization by the community below the poverty line.⁴³ The same finding was found in the PPP Tuberculosis programs in Indonesia, which found that diagnosis and therapy were not carried out with a defined strategy.³² This condition was caused by weak governance and accountability.⁴³

Meanwhile, two other studies showed that hospitals with PPP generally did not outperform if compared to hospitals with traditional management although their development was excellent.^{19,42} Furthermore, Comendereço-Maaløe et al.,¹⁹ in their study, described Alzira's performance in 2015 as statistically worse on most indicators (15 out of 26) but superior to other indicators such as the adjusted mortality rate after percutaneous coronary intervention (PCI).

The high rate of patient satisfaction ultimately proved PPP improves access and service quality; Bastani et al.³ recommended evaluating patient satisfaction as an effort to complete the picture of service quality. This literature review showed that hospitals with PPP show higher patient satisfaction rates. In their study, Baliga et al.³⁵ compared patient satisfaction with PPP and hospitals with traditional management. They proved that hospitals with PPP had a

higher percentage of patient satisfaction. The PPP financial protection model also showed the same results where the satisfaction of insurance participant patients (PPP) with hospital services was higher than non-insurance participants.²⁶ The increase in patient satisfaction was contributed by the time spent waiting for treatment, the quality of health workers (doctors and nurses), equipment, comfort, and quality of support staff.³⁵ The study of Barrios-Ipenza et al. emphasized that the variables of healthcare personnel, non-healthcare personnel, facilities, and equipment were related to efficiency. This study in Peru, also showed that all of these variables positively impact user satisfaction, increasing their perception of the service and their intention to reuse it.⁹ This was confirmed by a qualitative study in Uganda which found that poor staff attitudes were associated with lower utilization of maternal health services.³⁷

Funding investments made to increase service capacity, both in the availability of facilities and equipment^{38,39} and the number of specialist doctors,^{38,46} contributed to a rising number of patients and the service quality (Table 2).

Financial Performance

Studies in the hospital PPP sector showed efficiency in various forms and achievements. The infrastructure model applied to hospitals has a good track record on time and budget.^{36,44} A study in Portugal proved that PPP with the infrastructure model managed to meet the duration target of 76% compared to traditional infrastructure projects, which only reached 30%, and budget compliance which reached 79%, compared to traditional, which only reached 27%. The PPP infrastructure model reduced cost overruns by incorporating several stages of project development into a lifestyle approach.³⁶ In line with the two findings above, Iyer et al.⁴⁵ showed that the average cost of vaginal and cesarean deliveries was cheaper in hospitals with PPP. The implementation of PPP was also reported to reduce the direct costs of diagnosis and direct hospitalization costs for Tuberculosis treatment.⁴⁰ The decrease in out-of-pocket expenditure also occurred in hospitals with PPP.³

In contrast to the previously described studies, Caballer-Tarazona et al.¹⁸ found that only one out of three hospitals with PPP showed better efficiency. The cost of diagnosis and treatment of cancer patients admitted to hospitals with PPP was found to be higher when compared to hospitals with traditional management^{38,47} and endovascular surgery services.⁴⁶ Furthermore, Mendes explained that the fixed costs paid by the Government under the fixed cost system were not following the actual costs of operations carried out by following the service protocol. In line with the three studies above, PPP implementation did not increase hospital profits.⁴³ Moreover, it was still a matter of finance, and the study of Diwan et al.³⁰ found that there were complaints about the reimbursement system, which was deemed inappropriate.

Cost reduction is needed to develop PPP more broadly.⁴⁷ One strategy that should be considered is to build a network with other health facilities.³⁰ Even though PPP is initially intended to provide services, this needs to be complemented by scientifically based treatment procedures. PPP management must open space for the development of science and technology in health services so that quality and efficiency can be achieved.⁴⁶

Apart from the statements above, hospitals with PPP were considered able to reduce corruption with the existence of anti-corruption mechanisms through discretionary control, increased accountability and transparency, and detection and enforcement of regulations described in human resource management, facility and equipment management, drug supply, and security. These changes to new norms adapted from private management promote personal responsibility and minimize opportunities, incentives, and pressures to engage in corrupt practices.⁵⁰

Challenges

Apart from some of its success shown in the hospital service indicators above, PPP faced various challenges in its implementation. In the following, the author mapped the challenges into several issues.

Governance and policy framework

Streamlining government regulations (the government's downsizing regulations) was one of the incentives for PPP.³⁴ However, several studies have found that regulatory issues were often challenging for PPP in health services, especially in hospitals. A study in Saudi Arabia found policy as one of the three most significant obstacles to PPP implementation, and changes in legislation were considered confusing for the private sector.⁵⁵ Khetrpal et al. also found weaknesses in regulations. Weak regulations were described as inadequate guidelines, non-compliance with guidelines, and a lack of coordination between relevant stakeholders.²⁹ Another challenge in the guidelines was integrating the guidelines into treatment procedures in hospitals.³² Policy barriers affected the use of reproductive health services on the one hand and affected service delivery in public health facilities on the other hand.³⁷

In the health sector, policies and laws have important influences on PPP,^{11,56} and both regulations and guidelines have an impact on treatment management,⁵⁷ institutional forms in providing services,⁵⁸ and leadership stability.⁵⁹ In his study of collaboration between government and NGOs, Seddoh⁶⁰ found that policy is the third key factor after communication and structure, which is considered a significant influence on collaboration success.

Weaknesses in regulations also affects the availability of cooperation contracts. In their study, Probandari et al. found that not all hospitals had cooperation contracts in

implementing the Directly Observed Treatment Short-Course (DOTS) strategy, a PPP program in controlling Tuberculosis.³² Apart from the availability of documents, the clauses and wording used in the contract were problematic in the future.⁸ The contract also needed attention as Karpagam et al.⁴³ found that measurable service results were not stated in the contract, and there were no attachments in the work agreement document. Meanwhile, Khetrupal et al.²⁶ found that strategies, mechanisms, parameters, and resources for monitoring activities were loosely stated or not specified in the contract. Not only that, but the study also found violations of contracts related to the right to information. Adequate contracts were essential to ensure effective PPP implementation with high-quality services. Contract agreements must be drawn up considering local conditions, including human resources and additional human resources and capacity building must be accommodated if needed.²⁶

Resource

In addition to policies and regulations, inadequate resources were often found in PPP implementation in the health sector. Financial support²⁹ and human resources both in number and competence^{26,29,37} were needed to ensure that PPP implementation went as expected. Financial support from the government would impact the provision of health services, where delays in disbursing funds by the government would lead to patient rejection by hospitals. In addition, budget constraints also likely cause monitoring and evaluation activities not to run as expected.²⁹ Diwan et al. acknowledged the problem of late payments by the government as a challenge.³⁰

Apart from financial challenges, Okal et al. found that the lack of human resources resulted in poor performance.³⁷ The findings of Nuhu et al.²⁹ showed the paralysis of monitoring activities to inadequate resources. Limited resources also caused slow decision-making at the technical level.³⁰ The challenges in human resources were justified by Al-Hanawi et al., who found that human resources were one of the three biggest obstacles in PPP implementation. This study finds weak competence and experience of human resources as a barrier.⁵⁵ In another study, human resources were deliberately limited for efficiency reasons.⁵² This study further proved that hospitals with PPP schemes have fewer medical personnel than hospitals managed with traditional management. This condition was feared to threaten patient safety.

In addition to the two resources above, Nuhu et al.²⁹ also highlighted the challenge of the availability of medicines and medical devices. Eventually, it caused people to pay personal costs and decide to give birth at home. This condition was also found by Okal et al.³⁷ which described that at least 72% of government-owned health facilities experienced stock-outs of medicine and health equipment (supplies). Kosycarz

et al.⁵⁶ emphasize initial capital, budget adequacy, and other resources as essential factors in PPP success.

Communication, trust, and commitment

Poor communication between the private and government sectors was found in the study in Tanzania.²⁹ Furthermore, this study found that the representation of each sector alone was not sufficient if it was not accompanied by openness and involvement in decision making. How communication among partners was managed and the choice of internal and external communication channels were essential factors in collaboration.^{57,60,61}

Another challenge that hindered the smooth implementation of PPP in health services was the problem of trust between PPP implementers in the diagnostic and treatment procedures endorsed.^{29,32} Lack of trust leads to conditions of mutual blame.²⁷ A low level of trust would affect commitment,²⁷ while in collaboration, a commitment was critical to explain success and failure.^{12,61,62} It took time and strategy to achieve a mutual partnership.²⁸

Risk

Asenova et al. found a dispute between the private sector and the government. The private sector asked for an increase in service costs due to the lack of competence of public sector managers in carrying out operations. On the contrary, the public sector complained about the private sector's attitude, which was considered to lack respect for their responsibilities in providing services.⁸ Chung conveyed the same condition. He found that the private sector only cared about cost savings at the local level, thus disrupting service quality and public welfare. The government was also considered to have failed in ensuring that financing was channelled through appropriate risk-sharing arrangements.⁵¹

Asenova et al. recommended placing risk as a consideration stated in the contract.⁸ It is essential to conduct an optimal risk analysis and allocation to get the benefits of PPP.¹¹ Optimal risk allocation requires flexible contracts to renegotiate.⁵¹ In operational challenges, the factor of contract certainty; management experience; independent external supervisors; service focus versus project focus should be considered by decision-makers. Chung also narrated the role of independent external supervisors in his article. Chung further emphasized the role of independent monitoring in facilitating the alignment of both parties' goals into the realization.⁵¹ Supervision was considered capable of encouraging accountability and appropriate processes.

PPP implementation presents several risks that came not only from the complexity of the financing and organizational structure of the project but also the high investment costs, time duration, technical knowledge of the project, political

influence, and government involvement. Comprehensive identification and evaluation of risk factors and appropriate allocation of all risks were critical to the success of PPP.²¹

Monitoring and evaluation

Involving the private sector is profitable, but closer monitoring is needed for all hospitals. Monitoring and evaluation played an essential role in the success of PPP implementation; Karpagam et al.⁴³ found that third parties carried out no evaluations for 10 years, so data were not available on the extent to which PPP had achieved the target. Meanwhile, another study found that this activity was not implemented optimally.^{29,30} Information lost due to reports not being submitted regularly or even not being submitted makes it difficult to assess progress. The private sector viewed supervision from the government as engagement.³⁰

Medical and social audits as part of monitoring and evaluation should be carried out regularly to ensure compliance with the provisions contained in the contract.²⁶ Evaluation of PPP performance should not only be based on time, cost, and quality but should also consider key performance indicators (KPIs).¹⁶ The monitoring and evaluation framework must be incorporated into the contract design with particular budget and good human resources. Third parties can also carry out monitoring and evaluation for bringing about significant improvements.²⁶

Other

Sociocultural is another challenges, Okal et al.³⁷ explained that proximity and close relatives played a role in determining the place of delivery. The economic incentive is a challenge in developing projects under the PPP scheme. Direct incentives to the private sector build positive attitudes toward participation in PPP.^{34,49} An efficiency-oriented PPP governance structure will strengthen trust and reduce uncertainty for the private sector to participate in health services compared to public procurement governance.⁴⁹

The results of this study showed that the objectives of the PPP implementation would greatly influence the type of indicators. The PPP model also plays a role in determining the types of indicators. PPPs are implemented in various ways and models depending on governance, finance, culture, state structure, and continuous improvement of the model.⁴¹ The success of PPP in achieving the expected results also varies greatly. This shows different contexts in political, economic, social, governance, and institutional arrangements.²⁷ The debate do not lie on what kind of governance will be chosen or what model will be implemented, but decisions must be made by considering the micro-level. Medical practice models, organizational and financial incentives, and professional

capacities will ensure the best performance at the micro-level.¹⁹ Challenges could be minimized through adequate planning involving relevant stakeholders.³⁷

Conclusion

Many studies have shown the success of PPP on service indicators at hospitals. However, there was not enough evidence that could be used to explain the success of PPP on financial indicators. The success or failure of implementing PPP at hospitals depends on factors at the macro level such as governance, policy, politics, finance, socio-culture, and the portrait at the micro-level. In order to enrich knowledge, further studies are needed that analyzes the PPP model and its relation to financial indicators at hospitals. It is also essential to look further into the influence of macro and micro factors empirically on the success of PPP at hospitals.

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Authors contributions

Masyitoh Basabih: Conceptualization, Data Curation, Formal Analysis, Investigation, Writing—Original Draft Preparation; Eko Prasajo and Amy Yayuk Sri Rahayu: Writing—Original Draft Preparation, Writing—Review and Editing.

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Ethics approval and consent to participate

This is a review study, thus no ethical approval was attempted for this paper.

Significance for public health

PPP is considered the appropriate strategy in overcoming the infrastructure, access, and service quality gap when the government faces budget limitations. This literature review represented PPP's performance toward the hospital's finance and service indicators. The outcomes and challenges of PPP implementation were successfully identified in this study. This study also concluded that PPP implementation success was affected by major and minor factors. Finally, this literature review was expected to enrich PPP implementation and policies in the health sector, especially hospitals.

Availability of data and materials

The data used to support the findings of this study are available from the corresponding author upon request.

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