Journal of Infrastructure, Policy and Development 2024, 8(11), 8118.
https://doi.org/10.24294/jipd.v8i11.8118

Article

Health literacy about Public-Private Partnerships in hospital management

Nuno Rodrigues[1,2,*], **João Carvalho**[3]

[1] REMIT-Research on Economics, Management and Information Technologies, Portucalense University, 4200-072 Porto, Portugal
[2] ISLA-Polytechnic University of Management and Technology, 4400-107 Vila Nova de Gaia, Portugal
[3] REMIT-Economics and Management Department, Portucalense University, 4200-072 Porto, Portugal
*** Corresponding author:** Nuno Rodrigues, nrodrigues@islagaia.pt

CITATION

Rodrigues N, Carvalho J. (2024). Health literacy about Public-Private Partnerships in hospital management. Journal of Infrastructure, Policy and Development. 8(11): 8118. https://doi.org/10.24294/jipd.v8i11.8118

ARTICLE INFO

Received: 21 July 2024
Accepted: 6 August 2024
Available online: 10 October 2024

Abstract: The Public-Private Partnerships management model (PPP) in Portugal was initially applied to the highways sector. Recently, this model began to spread to the health sector for hospital management. The recent growth of patient's knowledge and expectations regarding the quality of healthcare services is compelling service providers to pursue new ways of delivering this care to meet users' expectations. One wonders if the increase in patient access to knowledge may indicate a growth in health literacy, particularly regarding PPP Hospitals. This study assesses the Portuguese population's literacy level regarding the PPP Hospital model, using a quantitative research approach based on a survey of the Portuguese population served by PPP hospitals and a Public Hospital Management (PHM) model. It was found that the Portuguese population has a low literacy concerning the PPP model, which can cause feelings of injustice. It was found that PPP users tend to have a favourable opinion regarding private involvement since they are also more satisfied compared to PMH users. These results may impact political decision-making concerning the renewal of new contracts for private management of public services.

Keywords: Public-Private Partnerships; public hospital management; health literacy; satisfaction with hospital services; public information

1. Introduction

The Public-Private Partnerships (PPP) management model can be defined as a formal contract agreed between two partners (public and private), or in some situations between one or more private organizations, that have different strategies and operational purposes (OECD, 2008; Queiroz, 2007; Yamout and Jamali, 2006). The formal contract has a scope where the private partner delivers a service, in the exact terms defined by the requirements presented by the Public Sector during the procurement phase, while a profit is expected by the private partner. The service provided and the profit expected is deeply associated with the risk allocation to each partner (OECD, 2008).

The PPP management model has been applied In Portugal since the 90's, targeting the transport sector, namely the road infrastructures construction and operation. During the last 15 years the model began to spread to other sectors in Portugal, namely to the health sector (Monteiro, 2005). Considering the practical experiences of applying the PPP model in healthcare around the world, it is possible to conclude that most have shown positive results, not only in terms of the performance of healthcare units, but also in terms of cost efficiency (Eicher, 2016; Hashim et al., 2016; Gera and Rubtcova, 2018; Gharaee et al., 2019; Yang et al., 2020). It is possible to identify several factors to consider when deciding on this contracting model, namely

the public interest, the complexity of the project and communication with the population (especially when it comes to PPP models) (Barrows et al., 2012; Caballer-Tarazona and Vivas-Consuelo, 2016; Calu, 2011; Dutta and Lahiri, 2015; Kosycarz et al., 2018).

The recent growth of patient knowledge and expectations towards the quality of healthcare services is constantly causing healthcare organizations to adopt new strategies to respond to patient demands and expectations (Mudyarabikwa and Regmi, 2017). It seems important to clarify whether the increase in patient knowledge also indicates a growth in health literacy, particularly regarding the PPP management model when applied to hospital management. In our related work (Carvalho and Rodrigues, 2022) it is possible to identify a relationship between health literacy and the social acceptance of the PPP model.

Health literacy can be defined as a set of cognitive and social competencies that shape a person's motivation and ability to acquire, understand, assess, and apply information to sustain and promote a healthier life. It promotes more efficient use of available health services and has significant social impact. Several studies have shown that health literacy is closely related to healthcare outcomes, hospitalizations, global health measures, and the management of chronic diseases (Nutbeam, 2000). Another definition is set by the IALS (International Adult Literacy Survey). According to IALS, health literacy can be seen as the ability to use information to correctly play a role in society, namely in the economy. Additionally, the National Library of Medicine defines health literacy as the level at which people can acquire, process and value health information and services and use this information to make decisions while addressing health issues. Finally, OECD (2013) argues that literacy can be defined as a particular skill and mode of behavior, meaning the ability to comprehend and employ the obtained information in common activities in society to accomplish objectives and to develop knowledge and potential.

According to IALS, literacy can be measured taking into consideration three domains: prose literacy, document literacy, and quantitative literacy. Hence, it is safe to state that the degree of literacy of a certain group of people on a particular topic increase as information on that topic is distributed in a clear, truthful, and understandable way to all social levels. So, the health literacy level of a given population directly affects the ability to act on information and to better manage their own health, as well as that of family members and communities (Fawcett et al., 2010).

The literature identifies five benefits coming from a high degree of Health Literacy: 1) Self-Efficacy, 2) Health Promotion, 3) Assertive use of health services, 4) Disease Self-Management, and 5) Empowerment (Doyle et al., 2012). For this study, it is fundamental to understand that the assertive use of health services, including hospitals, is one of the advantages of a high level of health literacy. Thus, the conceptual model of health literacy combines the skills necessary for accessing, understanding, evaluating, and applying health-related information (Sørensen et al., 2012). The competency 'access' refers to the ability to search for, find, and obtain information; 'understand' corresponds to the ability to comprehend the information; 'evaluate' describes the ability to interpret, filter, and judge the information; and 'apply' refers to the ability to communicate, use the information, and make decisions to maintain and improve health (Sørensen et al., 2012).

Carvalho and Rodrigues (2022) contend that users should make informed choices regarding their healthcare provider (e.g., hospitals) by, for instance, comparing quality and performance information. However, current studies indicate that few users exercise these choices. A recent investigation (Fotaki et al., 2008) argues that choosing the hospital is not a priority for most of the population in the UK and US. Recent studies indicate that around 70% of the patients have confidence in their family doctor's recommendation for a specific hospital, and for simple procedures, patients prefer to go to the nearest hospital or provider (Greener, 2007; Groenewoud, 2008).

The skills necessary to access, understand, evaluate, and apply health-related information depend on available information. So, information communication plays a crucial role in PPP projects and can represent the success or failure of the model (Rodrigues, 2023). Good communication can help solve problems related to the transmission of information to society and the intended formation of public opinion (Eugenijus et al., 2008). Taking into account that the main objective of most public sector participants (governments) in PPP models is political self-interest and vote maximization, and not the maximization of disinterested social welfare (Boardman and Vining, 2012), it is clear that when the population is confronted with information that does not reflect the reality or is even distorted to be less understandable, the degree of literacy suffers a bias that may influence the actual results obtained by PPP models in the area of health.

For example, if information is disseminated to the population that private partners in health sector are the so-called 'Rich' and 'Powerful' and that the PPP model only serves to make them even more prosperous and more powerful without any positive return (social or financial), it is natural that, when it comes to elections, the population tends to choose the force that opposes such management models. As argued by Boardman and Vining (2012), dysfunctional outcomes of a given PPP model can lead to voter discontent, making these adverse outcomes politically costly (especially if they appear within an election cycle). Additionally, these outcomes can have a negative impact on social welfare. The reverse may also be true, where successful outcomes can lead to voter satisfaction and positive social welfare effects.

As already mentioned, social acceptance is a key factor to achieve PPP management model success. It is possible to argue that the degree of literacy plays a crucial role, while addressing the social acceptance issue, particularly when this acceptance is related to the delivery of a public service to a private partner (Ng et al., 2010). Moreover, the literature indicates that the use of the PPP model also tends to have limited transparency, minimizing the population's involvement (Siemiatycki, 2009). Thus, it is essential to assess the level of literacy of the population regarding the PPP model and study the population's opinion on the sufficiency and transparency of the information provided by the government, regarding the application of this model for contracting and managing hospital units. It becomes even more imperative to empirically measure the Health Literacy level regarding the use of the PPP management model in Portuguese Hospitals to answer the following question: is the Portuguese population well-informed and enlightened about the PPP model in the health area (literacy level)?

The present investigation may significantly impact political decision-making concerning renewing new contracts for private management of public services. Also,

this research is relevant for health knowledge services regarding literacy in the PPP management model scope, providing critical information for professionals and the public.

2. Materials and methods

To answer the research questions, it was proposed to resort to secondary data, resulting from questionnaires administered to a sample of the Portuguese population served by the existing (until 2021) four PPP hospitals and Public Management Hospitals (PMH) with the same characteristics in the same regions. Thus, this study resorted to a database used by previous authors (Carvalho and Rodrigues, 2022). The database resulted from a quantitative approach, conducting a survey among the population served by the sampled hospitals. The scales that measure the level of literacy of the Portuguese population about the PPP management model were assessed and validated as argued in the literature (Carvalho and Rodrigues, 2022). Based on the known relationships among the variables, a comprehensive analysis was conducted through a series of rigorous statistical tests. These tests were carefully selected to ensure the validity and reliability of the findings. A descriptive statistics analysis was elaborated to provide a detailed summary of the data and to understand the distribution, central tendency, and dispersion of our variables. Next, inferential statistics were conducted to draw conclusions based on the sample data aiming to answer the research question.

2.1. Sampling

Until 2022 there were four PPP hospitals in Portugal, namely in neighbouring municipalities of Lisbon: Cascais (5th large municipality), Loures (6th), and Vila Franca de Xira (17th), and in the North of the country, Braga, the seventh largest municipality of Portugal. Thus, the population of these municipalities were the base for the sample related to the PPP hospitals.

To compare health literacy in populations not served by PPP hospitals, and as already applied by Carvalho and Rodrigues (2022), 4 (four) other municipalities were chosen: Figueira da Foz, Setúbal, Leiria, and Évora. In these municipalities there are 4 (four) hospitals using a Public Management Model (PHM) that are suitable for comparation to the 4 PPP Hospitals. It is important to note that the choice of the 4 PMH followed the study conducted by the Portuguese Healthcare Entity where a set of several hospitals (including PPP and PMH) was investigated, including the 4 selected PMH for the present research.

The data from the questionnaire was collected during a three-month period between 23 June and 23 September 2021. A total of 2077 of the 3104 responses received were considered valid and distributed, as described in **Table 1**.

Table 1. Distribution of valid answers.

Hospitals	Frequency	Percentage
Braga PPP	233	10.1
Cascais PPP	222	9.6
Loures PPP	304	13.2

Table 1. (*Continued*).

Hospitals	Frequency	Percentage
Vila Franca de Xira PPP	274	11.9
Sub-total	1033	44.8
Figueira da Foz PMH	212	9.2
Setúbal PMH	210	9.1
Leiria PMH	372	16.1
Évora PMH	250	10.9
Sub-total	1044	55.2
Total	2077	100

Source: Own elaboration.

Comparing the two samples regarding sex, age group, income, and education, one found that the groups are similar in all variables (**Table 2**).

Table 2. Distribution of valid answers.

Variables	PPP	PHM	Tests
Sex			
• Female	785	800	χ^2 (1)* = 0.049; p = 0.824
• Male	244	243	
Education			
• Basic	92	76	
• Secondary	509	472	Z(K-S)** = 1.25; p = 0.088
• High	431	491	
Income			
• Without income	109	115	
•]0; 767€]	317	302	
•]767; 1.791€]	484	481	Z(K-S)** = 0.473; p = 0.978
•]1.791; 5.777€]	112	130	
• > 5.777€	11	16	
Age			
• [18; 35[	275	323	
• [35; 65[	678	646	Z(K-S)** = 0.984; p = 0.288
• > 65	80	75	

* Chi-square test; ** Kolmogorov-Smirnov test.

2.2. Variable measures

Socio-demographic variables were age, which followed a grouped distribution used by the National Statistics Institute. The groups included: monthly gross income, which considered the levels included in the national Individual Revenue Tax; sex, female and male; and respondent's education, which was divided into three levels: basic, secondary, and university education.

Based on the core competencies that determine the conceptual model of health literacy, six questions, based on the work of Sørensen et al. (2012), were included in

the questionnaire to assess the 'Literacy Level' (**Table 3**). The competence 'accessing' refers to the ability to search for, find and obtain information; 'understand' corresponds to the ability to understand information; evaluate describes the ability to interpret, filter and judge information; and 'evaluate and apply' refers to the ability to communicate, use information and make the decision to maintain and improve health (Sørensen et al., 2012). Respondents answered using a 5-point Likert scale: 1 = Strongly disagree; 2 = Disagree, 3 = Neither agree nor disagree; 4 = Agree; 5 = Strongly agree. See **Table 3**, which contains the items translated from Portuguese into English.

Table 3. Items of the variable literacy level.

No.	Questionnaire Items (Translated from Portuguese to English)	Literacy competency
1	I have already looked for information about the hospital management model applied in the area of my residence.	"Accessing" Competence
2	I consider that the information made available by the government regarding hospital management models is enough.	
3	I understand what a public-private partnership model in hospital management is.	"Understand" Competence
4	I understand the differences between a public-private partnership management model and an exclusively public management model.	
5	The management model influences my choice of a hospital.	"Evaluate and apply information" Competence
6	I have a favourable opinion about the involvement of the private sector in the management of public hospitals.	

Source: Own elaboration.

User satisfaction and the quality of the service provided by healthcare units are critical dimensions in strategic planning processes, given the increased technological literacy of users, who are now more informed than ever (Carvalho, 2009); if they are not satisfied, they will tend to look for other healthcare providers (Ramsaran-Fowdar, 2008). In the case of PPP hospitals, the level of user satisfaction becomes even more important given the fulfilment of one of the requirements of PPP projects - achieving social benefits for the population.

The variable 'satisfaction with hospital services' was measured by a single question: "Overall, I am very satisfied with this hospital" (Kayral, 2014; Krishnamurthy et al., 2010; Shukla et al., 2019), which was answered on the scale from 1 = absolutely dissatisfied to 10 = absolutely satisfied.

2.3. Procedures

The General Data Protection Regulation did not allow for the provision of a list of the users (patients) served by the sampling hospitals, which makes it impossible to resort to a random sampling process. Therefore, the randomness of the sample is set as the free choice of each user of the selected municipalities to answer the questionnaire as already applied by Carvalho and Rodrigues (2022).

As defined by Carvalho and Rodrigues (2022), the maximization of the response rate was achieved by promoting contacts with all the councilors responsible for the health department of each municipal council. Thus, the questionnaire was published in the channels of each municipality, namely on institutional websites and official

communication channels used to contact citizens.

The residence in the municipalities of the hospitals under study was the absolute acceptability criterion, being filtered by the first question of the questionnaire. As set by Carvalho and Rodrigues (2022), a representative sample of the users was set, calculated as at least 200 per hospital, which guarantees a confidence level greater than 95% and a test power more significant than 80% (MacCallum et al.,1996).

Regarding the introduction, editing, review and analysis of data, it was used the program IBM SPSS 27.0.

2.4. Ethical issues

Regarding data protection information, data was collected, processed, and analyzed following the General Data Protection Regulation (EU) 2016/679 of the European Parliament and of the Council dated 27 April 2016. This regulation stipulates the protection of natural persons when processing personal data and oversees the free movement of such data. However, the questionnaire did not include any identifying questions. At the beginning of the questionnaire, the respondents were informed about the purpose of the study, confirming their informed consent to answer it by marking the correspondent "checkbox" on the online survey.

3. Results and discussion

The results from Question number 1, people's access competence, show that only 34.4% of the respondents from the PPP group, and 22.6% from the PMH group seek or have sought information on the management model applied in the hospital of their residence (**Table 4)**. The two distributions are statistically different in Kolmogorov-Smirnov test for two independent samples ($Z_{(K-S)} = 2.68$; $p < 0.001$). Thus, it seems that the population in PPP regions is more interested in knowing how their local hospital is managed.

Table 4. Results of answers to item 1: I have already looked for information about the hospital management model applied in the area of my residence.

Answers	**PPP**	**PHM**
	n (%)	
Totally agree	77 (7.5)	51 (4.9)
Agree	278 (26.9)	185 (17.7)
Neither agree nor disagree	388 (37.6)	402 (38.5)
Disagree	188 (18.2)	252 (24.1)
Totally disagree	102 (9.9)	154 (14.8)
Total	1033 (100)	1044 (100)

Source: Own elaboration.

Even more relevant is that only 17.2% of respondents from the PPP group, and 8.6% from the PHM group, considered the information supplied by the Portuguese government regarding the management model to be sufficient (**Table 5**). Somehow, this result establishes an absence of external transparency regarding the PPP management model applicable to the health sector, as related by Siemiatycki (2009).

The two distributions are statistically different according to the Kolmogorov-Smirnov test for two independent samples ($Z_{(K-S)} = 1.962$; $p < 0.01$). Thus, it seems that the population in PPP regions are more aware of government information.

Table 5. Results of answers to item 2: I consider that the information made available by the government regarding hospital management models is enough.

Answers	**PPP**	**PHM**
	n (%)	
Totally agree	49 (4.7)	23 (2.2)
Agree	129 (12.5)	67 (6.4)
Neither agree nor disagree	394 (38.1)	418 (40)
Disagree	303 (29.3)	331 (31.7)
Totally disagree	158 (15.3)	205 (19.6)
Total	1033 (100)	1044 (100)

Source: Own elaboration.

Although the results show a low interest among respondents to pursue information regarding the PPP model and, bearing in mind that the government does not provide much information, it is interesting to review the answers considering items three and four. In the PPP group, 52.7% of the respondents assume that they know what PPPs are (**Table 6**), and 51.9% claim to know the differences between a PPP model and the PHM model (**Table 7**). In the PHM group, only 38.3% know what PPPs are, and 42.1% claim to know the differences between the two management models. The two distributions are statistically different in Kolmogorov-Smirnov test for two independent samples in both items three ($Z_{(K-S)} = 3.291$; $p < 0.001$) and four ($Z_{(K-S)} = 2.242$; $p < 0.001$), showing a higher knowledge in the group of people living in PPP municipalities.

Table 6. Results of answers to item 3: I know well what a public-private partnership model in hospital management is.

Answers	**PPP**	**PHM**
	***n* (%)**	
Totally agree	144 (13.9)	65 (6.2)
Agree	401 (38.8)	335 (32.1)
Neither agree nor disagree	317 (30.7)	404 (38.7)
Disagree	130 (12.6)	143 (13.7)
Totally disagree	41 (4)	97 (9.3)
Total	1033 (100)	1044 (100)

Source: Own elaboration.

Table 7. Results of answers to item 4: I know well the differences between a public-private partnership management model and an exclusively public management model.

Answers	PPP	PHM
	n (%)	
Totally agree	27 (2.6)	75 (7.2)
Agree	450 (43.5)	364 (34.9)
Neither agree nor disagree	341 (33.1)	376 (36)
Disagree	150 (14.5)	152 (14.6)
Totally disagree	65 (6.2)	77 (7.4)
Total	1033 (100)	1044 (100)

Source: Own elaboration.

It is possible that the results in the two groups are due to the fact that PPP model in the highway sector has been featured in the news, where this model was presented as harmful for the population because they would pay increasing tolls. Another possible explanation is related to the fact that many people do not like to demonstrate ignorance about a public subject. To ensure the correct involvement of the population and to prevent negative perceptions it is crucial to ensure the periodic diffusion of relevant data and performance indicators of specific PPP models applied to health care services (Siemiatycki, 2009). Xiong et al. (2018) argues that this broadcast of relevant information promotes a correct understanding of specific terms of the PPP model, such as contractual provisions, and budget data and performance information, mitigating a lack of 'external' transparency. Xiong et al. (2018) defines low external transparency as a deficiency of communication between the government and the population regarding what was contracted by the public partner and the results obtained in terms of performance. Taking into consideration the results obtained, only 12.7% of all respondents consider that the information made available is sufficient. Also in Canada, the same phenomenon occurred regarding a lack of 'external' transparency. A study conducted by Barrows et al. (2012) concluded that there was a lack of communication with the population while opening a new hospital applying the PPP model.

Along the same line of reasoning, Eugenijus et al. (2008) argued that communication plays a crucial role in promoting an understanding among the population regarding the profits of the PPP model. Thus, the authors concluded that communication could solve problems related to the dissemination of the PPP project terms to society, and in this way help in promoting and accurate understanding throughout the population. Taking into consideration all the above, it is safe to conclude that the Portuguese population is not properly informed and enlightened regarding the PPP model in the health sector.

Considering items five and six, in the PPP group 35.8% considered that the management model influences their hospital choice, with 40.5% in the PHM group (**Table 8**) feeling the same way. Also, 50% in the PPP group, and only 29.3% in the PHM group have a favorable opinion about the involvement of the private sector in the management of public hospitals (**Table 9**). These results were expected because people that do not have access to a PPP hospital, and have good services in a PHM

hospital, believe that the PPP models does not provide the same level of quality, according to the results presented by Rodrigues and Carvalho (2023).

However, the analysis of the variable 'satisfaction' showed that this perception is inconsistent with participant evaluation of PPP hospital service quality. The group served by PPP hospitals presented an average satisfaction of 5.75 (SD = 2.31), while the group served by PHM hospitals scored only 4.67 (SD = 2.32), which is below the medium point of the scale (5.5) with the differences between the two groups being statistically significant ($t = 10.633$; $p < 0.001$).

Table 8. Results of answers to item 5: The management model influences my choice of a hospital.

Answers	**PPP**	**PHM**
	n (%)	
Totally agree	155 (15)	152 (14.6)
Agree	215 (20.8)	270 (25.9)
Neither agree nor disagree	424 (41)	492 (47.1)
Disagree	154 (14.9)	93 (8.9)
Totally disagree	85 (8.2)	37 (3.5)
Total	1033 (100)	1044 (100)

Source: Own elaboration.

The two distributions are statistically different in Kolmogorov-Smirnov test for two independent samples in both items five ($Z_{(K-S)} = 2.435$; $p < 0.001$) and six ($Z_{(K-S)} = 4.703$; $p < 0.001$), showing the bias in relation to PPP perception, and a more favorable opinion when people use the hospitals with private management.

Table 9. Results of answers to item 6: I have a favourable opinion about the involvement of the private sector in the management of public hospitals.

Answers	**PPP**	**PHM**
	n (%)	
Totally agree	166 (16.1)	70 (6.7)
Agree	350 (33.9)	236 (22.6)
Neither agree nor disagree	343 (33.2)	507 (48.6)
Disagree	104 (10.1)	139 (13.3)
Totally disagree	70 (6.8)	92 (8.8)
Total	1033 (100)	1044 (100)

Source: Own elaboration.

On 20 May 2019, D'Espiney (2019) reported the results of an opinion survey in Portugal which concluded that 68.8% of respondents support the existence of a PPP management model in health if the State considers it advantageous. Only 21.9% believe they should be forbidden (D'Espiney, 2019). This information indicates that the population gives more importance to the quality of service (satisfaction) provided by hospitals rather than the type of management applied.

The PPP users tend to have a more favorable opinion regarding private

involvement, which is consistent with the fact that they are also more satisfied compared with the PMH users (D'Espiney, 2019).

The quality of health services is traditionally based on professional practice standards, but patients' perception of health care has been predominantly accepted as the most important indicator to measure the quality of health care (Badri et al., 2009; Sahin et al., 2006) and, consequently, user satisfaction. The results regarding user satisfaction tend to contradict the theory proposed by (Hsiao, 1994; Maynard, 1994) indicating that profit maximization by private entities who take control of a public hospital negatively affects users, particularly in terms of their satisfaction and assessment of the quality of the service provided. On the other hand, the results seem to corroborate the idea conveyed by Tang and Cheng (2010), Yamout and Jamali (2006) who argue that through the appropriate use of the skills, experience, technology and innovation of the private sector, public services, using private management, can be provided in a more satisfactory manner.

It should be noted that the low satisfaction of PMH and PPP users may also be explained by the significant decrease in public resources allocated to hospitals and the migration of health professionals to the private sector and abroad, which have a negative impact on the quality of clinical services (Calu, 2011).

4. Conclusions and limitations

The results showed that the Portuguese population has, in general, low literacy regarding the PPP model applied to the health sector, especially hospitals. Also, it is possible to conclude that the Portuguese population experiences a feeling of injustice, that they have are manipulated by the lack of information transmitted by the Portuguese government. For the Portuguese population, all transmitted information that shows negative results related to the application of a PPP model in a public service (particularly in health care services) tends to generate, according to the theory of social exchange, a feeling of distributive injustice. Rodrigues and Carvalho (2023) already concluded that the results achieved by the 4 PPP hospital projects are far from negative, and have generated official positions suggesting the renewal of PPP contracts. Additionally, the population served by PPP hospitals is more satisfied with the services provided than the population served only by PHM hospitals (Rodrigues and Carvalho, 2023).

This study shows that the evaluation and dissemination of information about the PPP model of hospital management should be more widespread, preventing the ideological biases of those who prefer that public services only be provided by public managed organizations, even if they are of lower quality.

Regarding limitations to this study, it is important to note that the data used was collected during a pandemic period, making it difficult to personally contact the municipalities and the participants. However, the online processes went very well, even better than expected. Although the questionnaire technique is widely accepted by the scientific community, there are some limitations with its use, such as the exclusion of respondents who could not read/write, or who have some interpretative difficulties or, in this case, lacked computer knowledge.

In future research, it would also be relevant to investigate this issue from the point of view of health professionals' literacy regarding management models, especially by empirically analysing physicians' opinions regarding the PPP model setting and job satisfaction, compared with similar PMH settings. Also, it would be enlightening to assess physicians' opinions regarding the potential of the PPP model to mitigate the current turnover problems in the Portuguese NHS system.

Author contributions: Conceptualization, NR and JC; methodology, NR; software, JC; validation, NR and JC; formal analysis, JC; investigation, NR and JC; resources, NR; data curation, JC; writing—original draft preparation, NR and JC; writing—review and editing, JC; visualization, NR; supervision, JC; project administration, JC; funding acquisition, JC. All authors have read and agreed to the published version of the manuscript.

Funding: This work is financed by national funds through FCT-Foundation for Science and Technology, I.P., within the scope of the project «UIDB/05105/2020» of REMIT – Research on Economics, Management and Information Technologies.

Conflict of interest: The authors declare no conflict of interest.

References

Badri, M. A., Attia, S., & Ustadi, A. M. (2009). Healthcare quality and moderators of patient satisfaction: testing for causality. International Journal of Health Care Quality Assurance, 22(4), 382–410. https://doi.org/10.1108/09526860910964843

Barrows, D., MacDonald, H. I., Bhanich Supapol, A., et al. (2012). Public-private partnerships in Canadian health care. OECD Journal on Budgeting, 12(1), 1–14. https://doi.org/10.1787/budget-12-5k9czxkbck9w

Boardman, A. E., & vining, A. R. (2012). The political economy of public‐private partnerships and analysis of their social value. Annals of Public and Cooperative Economics, 83(2), 117–141. Portico. https://doi.org/10.1111/j.1467-8292.2012.00457.x

Caballer-Tarazona, M., & Vivas-Consuelo, D. (2016). A cost and performance comparison of Public Private Partnership and public hospitals in Spain. Health Economics Review, 6(1). https://doi.org/10.1186/s13561-016-0095-5

Daniela Artemisa Calu. (2011). Empirical research on the public–private partnership into the public hospitals from Romania. African journal of business management, 5(34). https://doi.org/10.5897/ajbm11.1997

Carvalho, J. M. S. (2009). Management and Marketing (Portugal). Edições Sílabo.

Carvalho, J. M. S., & Rodrigues, N. (2022). Perceived Quality and Users' Satisfaction with Public–Private Partnerships in Health Sector. International Journal of Environmental Research and Public Health, 19(13), 8188. https://doi.org/10.3390/ijerph19138188

Doyle, G., Cafferkey, K., & Fullam, J. (2012). The European Health Literacy Survey: Results from Ireland. University College Dublin.

Dutta, S., & Lahiri, K. (2015). Is provision of healthcare sufficient to ensure better access? An exploration of the scope for public-private partnership in India. International Journal of Health Policy and Management, 4(7), 467–474. https://doi.org/10.15171/ijhpm.2015.77

D'Espiney, J. (2019). Public Opinion (Portugal). Jornal de Negócios.

Eicher, B. (2016). Selection of asset investment models by hospitals: examination of influencing factors, using Switzerland as an example. The International Journal of Health Planning and Management, 31(4), 554–579. Portico. https://doi.org/10.1002/hpm.2341

Eugenijus, S., Alvydas R., Edverdas V. (2008). Dimensions of the Efficiency of Public - Private Partnership. The Engineering Economics, 17, 58(3). https://doi.org/10.5755/J01.EE.58.3.11542

Fawcett, S., Abeykoon, P., Arora, M., et al. (2010). Constructing an action agenda for community empowerment at the 7th Global Conference on Health Promotion in Nairobi. Global Health Promotion, 17(4), 52–56. https://doi.org/10.1177/1757975910383933

Fotaki, M., Roland, M., Boyd, A., et al. (2008). What benefits will choice bring to patients? Literature review and assessment of implications. Journal of Health Services Research & Policy, 13(3), 178–184. https://doi.org/10.1258/jhsrp.2008.007163

Gera, K., & Rubtcova, M. (2018). Public-Private Partnership (PPP) in Health Care of Russia: sociological research. Revista Dilemas Contemporáneos: Educación, Política y Valores.

Gharaee, H., Tabrizi, J. S., Azami-Aghdash, S., et al. (2019). Analysis of Public-Private Partnership in Providing Primary Health Care Policy: An Experience From Iran. Journal of Primary Care & Community Health, 10. https://doi.org/10.1177/2150132719881507

Greener, I. (2007). Are the assumptions underlying patients choice realistic? a review of the evidence. British Medical Bulletin, 83(1), 249–258. https://doi.org/10.1093/bmb/ldm024

Groenewoud, A. S. (2008). It's your Choice! A Study of Search and Selection Processes, and the Use of Performance Indicators in Different Patient Groups. Erasmus University.

Hashim, H. A., Sapri, M., & Low, S.-T. (2016). Public private partnership (PPP) facilities management for healthcare services in Malaysia. Journal of Facilities Management, 14(4), 350–362. https://doi.org/10.1108/jfm-02-2016-0005

Hsiao, W. C. (1994). 'Marketization'—the illusory magic pill. Health Economics, 3(6), 351–357. Portico. https://doi.org/10.1002/hec.4730030602

Kayral, I. H. (2014). Perceived service quality in healthcare organizations and a research in Ankara by hospital type. Ankara Araştırmaları Dergisi, 2(1), 22-34.

Kosycarz, E. A., Nowakowska, B. A., & Mikołajczyk, M. M. (2018). Evaluating opportunities for successful public–private partnership in the healthcare sector in Poland. Journal of Public Health, 27(1), 1–9. https://doi.org/10.1007/s10389-018-0920-x

Krishnamurthy, R., B, D., Tamil Mani, SivaKumar, M. A. K., et al. (2010). Influence of service quality on customer satisfaction: application of servqual model. International Journal of Business and Management, 5(4). https://doi.org/10.5539/ijbm.v5n4p117

MacCallum, R. C., Browne, M. W., & Sugawara, H. M. (1996). Power analysis and determination of sample size for covariance structure modeling. Psychological Methods, 1(2), 130–149. https://doi.org/10.1037/1082-989x.1.2.130

Maynard, A. (1994). Can competition enhance efficiency in health care? Lessons from the reform of the U.K. National Health Service. Social Science & Medicine, 39(10), 1433-1445. https://doi.org/10.1016/0277-9536(94)90238-0

Monteiro, R. S. (2005). Public-private partnerships: some lessons from Portugal. EIB Papers, 10(2), 72-81.

Mudyarabikwa, O., Tobi, P., & Regmi, K. (2017). Public–private partnerships to improve primary healthcare surgeries: clarifying assumptions about the role of private provider activities. Primary Health Care Research & Development, 18(04), 366–375. https://doi.org/10.1017/s1463423617000147

Nutbeam, D. (2000). Health literacy as a public health goal: a challenge for contemporary health education and communication strategies into the 21st century. Health Promotion International, 15(3), 259–267. https://doi.org/10.1093/heapro/15.3.259

Ng, S. T., Wong, Y. M. W., & Wong, J. M. W. (2010). A Structural Equation Model of Feasibility Evaluation and Project Success for Public–Private Partnerships in Hong Kong. IEEE Transactions on Engineering Management, 57(2), 310–322. https://doi.org/10.1109/tem.2009.2037142

OECD. (2013). Government at a glance 2013. Available online: http://www.oecd-ilibrary.org/governance/ government-at-a-glance-2013_gov_glance-2013-en (accessed on 2 June 2024).

OECD. (2008). Public-Private Partnerships In pursuit of risk sharing and Value for Money. OECD.

Queiroz, C. (2007). Public-Private Partnerships in Highways in Transition Economies. Transportation Research Record: Journal of the Transportation Research Board, 1996(1), 34–40. https://doi.org/10.3141/1996-05

Rodrigues, N. J. P. (2023). Public–Private Partnerships Model Applied to Hospitals—A Critical Review. Healthcare, 11(12), 1723. https://doi.org/10.3390/healthcare11121723

Rodrigues, N. J. P., & Carvalho, J. M. S. (2023). Public-private partnership in the Portuguese health sector. Heliyon, 9(8), e19122. https://doi.org/10.1016/j.heliyon.2023.e19122

Roshnee Ramsaran-Fowdar, R. (2008). The relative importance of service dimensions in a healthcare setting. International Journal of Health Care Quality Assurance, 21(1), 104–124. https://doi.org/10.1108/09526860810841192

Sahin, B., Yilmaz, F., & Lee, K.-H. (2006). Factors Affecting Inpatient Satisfaction: Structural Equation Modeling. Journal of Medical Systems, 31(1), 9–16. https://doi.org/10.1007/s10916-006-9038-8

Shukla, R., Singh, M., & Saxena, S. K. (2019). Consumer perception of hospitality services in jci accredited hospitals at delhi – ncr: an exploratory research on growth of medical tourism. Humanities & Social Sciences Reviews, 7(1), 413–422. https://doi.org/10.18510/hssr.2019.7147

Siemiatycki, M. (2009). Delivering Transportation Infrastructure Through Public-Private Partnerships: Planning Concerns. Journal of the American Planning Association, 76(1), 43–58. https://doi.org/10.1080/01944360903329295

Sørensen, K., Van den Broucke, S., Fullam, J., et al. (2012). Health literacy and public health: A systematic review and integration of definitions and models. BMC Public Health, 12(1). https://doi.org/10.1186/1471-2458-12-80

Tang, L., Shen, Q., & Cheng, E. W. L. (2010). A review of studies on Public–Private Partnership projects in the construction industry. International Journal of Project Management, 28(7), 683–694. https://doi.org/10.1016/j.ijproman.2009.11.009

Xiong, W., Chen, B., Wang, H., et al. (2018). Governing public–private partnerships: A systematic review of case study literature. Australian Journal of Public Administration, 78(1), 95–112. Portico. https://doi.org/10.1111/1467-8500.12343

Yang, J., Song, L., Yao, X., et al. (2020). Evaluating the Intention and Behaviour of Private Sector Participation in Healthcare Service Delivery via Public-Private Partnership: Evidence from China. Journal of Healthcare Engineering, 2020, 1–13. https://doi.org/10.1155/2020/5834532

Yamout, G., & Jamali, D. (2006). A critical assessment of a proposed public private partnership (PPP) for the management of water services in Lebanon. Water Resources Management, 21(3), 611–634. https://doi.org/10.1007/s11269-006-9033-3