The role of co-creation tools in the evaluation and redesign of healthcare services: focus on mystery patient methodology implementation in Italian oncology services

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Abstract

Introduction

Healthcare facilities are increasingly recognizing the importance of understanding patients' perceptions to align with a value-based and patient-centered paradigm. Incorporating a population approach in healthcare performance management is a significant challenge. In this context, the Mystery Patient methodology is recognized as capable for assessing system quality from the user's perspective. This paper aims to explore the potential of patient involvement through this methodology in supporting the co-creation of value in healthcare service reviews.

Materials and methods

The methodology consists of three phases: Systematic Literature Network Analysis for evidence collection, framework conceptualization through a detailed design, and framework implementation adopting Multiple Criteria Decision Analysis approach in the context of Italian oncology services.

Results

The Mystery Patient methodology can be implemented through six steps and is recognized by scholars as valuable for measuring healthcare service quality. The measurement tool used is a questionnaire focusing on the equity of access. Survey results revealed that patients consider all criteria important, with higher relevance related to waiting times for reports and services.

Discussion

The methodology effectively measures the equity of access to healthcare services. This study paves the way for future research to explore its feasibility in real-world healthcare settings.

Keywords: Co-creation; patient participation; mystery patient; health services; quality of health care

Introduction

A growing attention has been observed within health-care systems towards the measurement of the quality of healthcare processes, due to their importance in policy [1]. Healthcare processes are crucial aspects for improving the quality of care for patients/users and the performance of healthcare in general. This consideration should be contextualized within increasingly complex healthcare systems, where the presence of a growing multitude of actors is observed, along with a gradual transition towards an integrated organizational/managerial approach capable of facing multi-morbidities and incorporating a patient-centered approach [2]. In this scenario, the concept of 'value' in healthcare should not only include a technical component, focused on quality standards, but should also move towards a multidimensional and multicomponent logic [1]. The methods of measuring and managing performance are many and rarely exhaustive. A review of the literature performed by Zaadoud et al. shows that at least 8 dimensions, such as Effectiveness, Safety, Accessibility, Equity, Efficiency, Acceptability, Patient Focus, and Timeliness, should be considered to evaluate healthcare performance [3].

Concerning the Italian context, Legislative Decree 150/2009 introduced performance monitoring for public administrations, and the subsequent Legislative Decree 74/2017 strengthened the role of users in performance management and introduced a participatory evaluation model. In detail, Article 19bis 'governs the involvement of citizens and users in the process of measuring organizational performance' from both an objective, subjective, and procedural point of view [4].

Healthcare performance management has evolved over time, in line with changes in supply and demand. Given the growing need for the management of healthcare facilities to increase their acquaintance of patients' experience to align with a value-based and patient-centered paradigm, one of the emerging challenges is the inclusion of a population approach [1,5]. This participative attitude should therefore be a holistic perspective capable of considering the direct (patients) and indirect (structure and population) impact of healthcare on outcomes [1]. Although performance measurement systems have a multidimensional and multi-perspective orientation in healthcare, there is still a lack of metrics capable of systematically incorporating the various components, especially from the user perspective [1].

Concerning this aspect, Mystery Shopper is a methodology capable of measuring the quality of systems by taking into consideration the user's perspective. This methodology, implemented in the 1940s to measure employee integrity, consists of actors trained to

represent a specific 'role' that are comparable to real users, who are able to measure the performance of interest using a standard evaluation grid (e.g. questionnaire, checklist) [6].

In the healthcare setting, this methodology, called 'simulated patient' or 'mystery patient', was introduced in the 1960s to teach and test the clinical skills of medical trainees [7]. In a later period it was used to measure performance in community pharmacies and more recently it has proved its usefulness for the management of physicians and healthcare systems performance [8–13]. The method of the Mystery Patient can be a useful support to the decision-making process and therefore a methodology through which hospitals' strategic directions can work on the co-creation of healthcare services and can evaluate and act on healthcare performance through the experience lived by the patient. This 'unknown' audit system is part of an organization's quality management systems, and it is an interface between the organization and the 'customer'. Using this methodology, users can participate in the reorganization of the service or activity [4]. This methodology should not be confused with the evaluation of patient satisfaction, which turns out to be a subjective measurement. The Mystery Patient methodology enables to map the quality of the service provided over time through the objective monitoring of contextual, structural, procedural, and relational aspects.

This work investigates the active research areas in the literature relating to the issue of healthcare organizational performance measurement through the perspective of patients and points out the peculiarities of this methodology for the revision of healthcare services through the development of an implementation framework.

In detail, the research question addressed is: How can patient involvement support the co-creation of value in the review of healthcare services?

Specifically, the objective of this work is to develop an implementation framework for the evaluation of the equity of access to healthcare services.

Material and methods

The methodology applied for the analysis consists of three main phases.

The first phase involves the literature review conducted according to the Systematic Literature Network Analysis (SLNA) method, aimed at gathering evidence on the topic to propose a methodological framework for the Mystery Patient methodology. In contrast to the classical approach of scientific literature selection, which employs subjective criteria for the sorting of the most interesting research contributions, the SLNA methodology is a quantitative matrix method based on algorithms that allow the isolation of the most impactful trends in the path of knowledge in a specific field of interest [14–16].

The source used for conducting the systematic literature review was the Scopus database, which has cross-thematic coverage and includes health sciences [17]. Access to the Scopus bibliographic database occurred on 21st June 2022.

Documents were extracted following the formulation of a search query consisting of the most frequent keywords in already published articles or reviews, and the conceptually broader

terms to avoid loss of information (i.e. 'mystery patient', 'simulated patient', and 'standardised patient') [6,8–11].

The search was limited to the field of interest (i.e. healthcare context), excluding only those papers dealing with the Mystery Patient method as a supporting tool for training healthcare professionals, which is not relevant to the research objective of this paper. No time, language, and country limits were imposed to avoid the exclusion of potentially significant contributions to the investigation objective.

The analysis of the results obtained from the SLNA focused on the analysis of the citation network (Citation Network Analysis – CNA) and the identification of the main path encompassing the most relevant articles published over the years serving as a hub in the line of evolution of scientific research on the use of mystery patients in healthcare [14–16]. The analysis was divided into three steps: 1. extraction of the connected components from the bibliometric network (i.e. removal of non-cited articles or articles that do not cite other works) and detection of the biggest connected component, which is functional for the determination of the main path; 2. variation of the temporal flow within the citation network (i.e. citation path from the oldest to the most recently published papers); 3. quantification of the cross-sectional weight of citations (Search Path Count method) and extraction of the main path component (cut-off of 0.5) [14–16]. Two software packages supported CNA: Vos-viewer (http://www.vosviewer.com/), used in the preliminary phase of data visualization and preparation and Pajek (http://vlado.fmf.uni-lj.si/pub/networks/pajek/), software used for network analysis.

The analysis of the literature was conducted from a twofold perspective: on the one hand, a reasoned synthesis of the papers aimed at identifying the main declinations of use of the methodology in the healthcare context, based on the primary objectives stated in the studies; on the other hand, the methodological steps across the different papers were reconstructed with the dual objective of demonstrating the scientific soundness of the method, and outlining an initial operational framework.

The second step of analysis involved the framework conceptualization. This step was conducted through the design and description of a detailed framework built on the evidence analysed in the previous phase, related to the application of Mystery Patient methodology. This activity aimed to develop a methodological protocol that could preliminarily describe a cross-cutting operational scheme for the application of the method. The area selected for this work is oncology, and the framework was implemented following a literature search related to the selected area, which enabled the identification of the measurements of major interest, and it was subsequently supplemented by focus groups conducted with experts belonging to eight Italian oncological patient associations and groups [18,19]. This stage aimed to identify the items (criteria) to be included in the framework and in a subsequent step adopting a Multiple Criteria Decision Analysis (MCDA) approach [20].

The third and final step was the implementation of the framework. This phase involved setting weights for each item that would be used to measure the healthcare service equity of access. An online survey in Italian was submitted to patients asking them about the perceived importance of every item using a 7 levels Likert scale (i.e. 1 = very unimportant; 2 =

unimportant; 3 = slightly unimportant; 4 = neutral; 5 = slightly important; 6 = important; 7 = very important) [21]. Data were collected prospectively through an electronic survey (i.e. LimeSurvey) among volunteer adult oncological patients (age ≥ 18). The evaluation form was tested with Italian patient associations to assess its comprehensibility as well as ease of completion and completeness of the information collected. The survey was made available for 6 months from March 2023 to August 2023, and it was disseminated among subjects through social channels of eight Italian oncological patient associations and groups. A non-probability convenience sample of approximately 250 responses was considered in the analysis. The sample was estimated based on the Slovin formula ($n = N/(1 + Ne^2)$) where 'N' is the quantification of the potential total population, and 'e' is the margin of error associated with sampling [22]. A margin of error of 6.5% was considered among the 3.6 million subjects diagnosed with cancer in Italy according to the latest available data relating to year 2020 [23].

Concerning data availability, because of the nature of this research, the data cannot be shared publicly and therefore supporting data are not available. The analysis received ethics approval from the Institutional Review Board (IRB).

Results

Literature review

From the original database of 458 papers, 335 articles had at least one citation, of which a subset of 161 articles constituted the biggest connected component (details reported in Supplemental Material in Supplement 1: Citation network). The main path included a network of 25 connected papers, and from them, four main groups of papers can be extrapolated (details reported in Supplemental Material in Supplement 2: Main path and in Supplement 3: Main path documents R1–R25).

An initial group of papers (i.e. R1–R6) builds the methodological foundations of the method, ranging from comparative studies between the Mystery Patient and other standard processes' quality assessment methodologies (e.g. clinical vignettes and chart abstraction) (i.e. R5, R6), to papers discussing the theoretical applicability of the methodology as a quality assessment tool in specific settings, such as the outpatient care (i.e. R4). The remaining papers in the group introduce specific quality measurement goals that can be pursued with the use of the Mystery Patient method (i.e. R2, R3). Specifically, the papers demonstrate the validity of the method in measuring clinician expertise in the context of cancer prevention (i.e. R2), and they underline the possibility of intercepting discrepancies in intra – and inter-specialty prescribing behaviours (i.e. R3).

In a second group of papers (i.e. R7–R9), the Mystery Patient method is employed as a criterion for assessing the communication skills and relational style of clinicians (i.e. R9). The methodology is applied in specific settings such as emergency medicine (i.e. R8), and compared with the real patient approach (i.e. R7).

A third group includes the most recent contributions (i.e. R10–R16), which show a twofold direction of methodological development.

A first subgroup (i.e. R10–R12, R15, R16) implements the method by reporting case studies that extol its potential use as an audit and management tool (e.g. fairness in the management of tuberculosis patients compared to expected intervention standards (i.e. R15); metrics for comparing the level of service offered in tuberculosis case management among providers within the healthcare system (i.e. R10); prevalence estimation associated with antibiotic drugs prescribing inappropriateness among primary care settings (i.e. R12)) although the most critical contributions in the subgroup generally recommend using the method in a blended mode (e.g. adopting complementary measurement tools to capture the multidimensional nature of healthcare quality (i.e. R15)).

A second subgroup of papers (i.e. R13, R14) presents an evolution of the trend in the use of the standardized patient method: from a technical quality of care assessment objective, focused on assessing clinician performance, to a broader goal of validating the quality of care provided by the clinical setting as a whole. In fact, a document (i.e. R14) presented a theoretical framework, inspired by implementation science, to derive the items related to quality assessment of the service, detectable through the Mystery Patient method (e.g. effectiveness, safety, patient-centeredness, efficiency, timeliness, and equity), and the factors that influence outcomes externally (e.g. health policies) and internally (e.g. health value chain stakeholders) affecting the quality of care among different providers (e.g. private vs. public).

A fourth group of papers (i.e. R17–R21) describes the use of the Mystery Patient method as an instrument for measuring the quality of the support offered in pharmacies for purchasing medications in specific scenarios and symptomatology (e.g. over the-counter medications (i.e. R19), antibiotic medications (i.e. R21), migraine and abdominal pain (i.e. R17)), including systematic reviews of the literature on the topic (i.e. R18, R20).

Overall, the methodology is recognized as a useful support for the goals of measuring the quality dimension of service, capable of returning uniform and standardized measures, unbiased by the clinician conditioning effect (i.e. Hawthorne effect).

Considering the implementation of the method with simulated patients, the risk of patient identification by the clinician is a major limitation in the adoption of the method (i.e. R22), along with the impossibility of employing the method for assessment activities associated with follow-up pathways, since it is a mechanism that involves one-time interactions; likewise, the method loses evaluative power in health case histories that require overt physical signs or invasive examinations, in addition to raising critical issues in the comparability of outcomes given the specificities of the patients enrolled and intervention settings (i.e. R4, R11, R15, R16, R23).

The flexibility of the methodology is undoubtedly a major advantage. The literature review demonstrates how the Simulated/Mystery Patient method finds wide and cross-cutting application in the healthcare setting, in terms of clinical scenarios selected for implementation of the method. The case histories covered range from the spectrum of psychological disorders (e.g. adjustment disorder, dementia, depression) to the management of chronic conditions (e.g. chronic obstructive pulmonary disease, diabetes mellitus), to common and recurrent symptoms (e.g. asthma, gastrointestinal tract disorder, hypertension,

back/neck pain, stroke), while the predominantly investigated supply node was found to be primary care (i.e. R1–R7, R10, R12–R15, R22–R25).

Although the literature review shows that the Mystery Patient method is robust and scientifically structured, the backbone of the literature traces scientific content that is located in non-European healthcare settings, with prevalence in economies in transition or developing countries (e.g. India, China, Africa). The geographic characterization of the identified case studies is a limitation at the current stage of the research, which does not allow the results obtained to be fully generalized. In contrast, the methodological protocol preliminarily derived describes a cross-cutting operational scheme that can be reasonably extended to both developed contexts and economies in transition or developing countries.

Framework conceptualization

The operational framework identified from the literature and reported in Figure 1 consists of four macro-phases of preparation (setting selection, patients' selection, training, pilot test) and two phases of implementation (healthcare service, evaluation).

Figure 1. Mystery patient framework.

Setting selection

The preliminary phase of the framework is related to the selection of the application setting subject to qualitative performance measurement, and clinical scenarios. From what emerges from the literature review, the choice of case histories tends to be related to the clinical conditions most frequently found in the healthcare setting under consideration; only a limited number of papers report the description by individual scenario (i.e. R10, R23, R24), and a quality assessment checklist of the selected cases (i.e. R13).

Regarding the pathology to be investigated, this first study refers to oncological pathologies, as they are internationally considered relevant since cancer is one of the leading causes of death worldwide, with nearly 10 million deaths in 2020 [24]. More specifically, the pathological condition considered is medical oncology. In particular, all those patients with a course of the disease that includes a follow-up pathway in the medium and long term are included [24].

Patients' selection

The second operational phase concerns the selection of the patients involved. The literature highlighted that the sample size is extremely varied and rarely assigned with specific randomization criteria, except for a work (i.e. R13) that mathematically justifies its value for the unit of analysis adopted (e.g. patient-clinic visits). All the analyses retrieved adopt simulated patients, although one analysis (i.e. R1) confirms the possibility of employing real patients. The choice of the type of subjects to be recruited for access to the healthcare service selected is predominantly related to the ability to interpret the behaviour of the real patient

(i.e. R13), and to represent physical parameters (e.g. age, gender) and socioeconomic status similar to those of a real patient (i.e. R11), although personal skills and character traits turn out to be key characteristics (i.e. R11, R13).

Patients should be selected within the setting considered, and no distinction is made between subjects belonging or not belonging to patient associations. The selection should be made through interviews that take into consideration specific characteristics highlighted in other studies of the same type: autonomy, interpersonal skills, ability to follow instructions, attention to detail, professionalism, punctuality and general reliability, helpfulness, intelligence, minimum level of education, previous work experience, maturity, observational and memory skills, impartiality and flexibility, as well as the ability to maintain an attitude that is akin to that implemented in normality and good comfort level in participating in the project (i.e. R11, R15, R23) [25,26]. Excluding membership in the pathology group under investigation, there are no constraints in terms of personal characteristics as these depend largely on the pathology under study and the involvement of heterogeneous population adds value to the analysis (i.e. in terms of socioeconomic status, age, sex, weight, stage of pathology). Since only real patients are involved, acting skills do not appear to be a characteristic to be considered, while familiarity with the tools mentioned in the questionnaire (i.e. telephone, computer, e-mail, internet sites/booking, and payment portals) is crucial. Each selected patient should confirm his or her willingness to participate in the project phase by completing an informed consent form (i.e. R11, R15).

Training

The method, then, includes an intermediate phase dedicated to preparing patients, which is performed in different ways in terms of the nature of the training programme (e.g. checklists, questionnaires) and verification (e.g. scoring methods), and duration of training. Specifically, training consists of preparation on the case to be interpreted; subjects are also trained on how to answer frequently asked questions, how to deal with unexpected situations (e.g. invasive examination/diagnostics), how to handle communication, and how to measure performance. Usually, a detailed description of the role/scenario and a measurement scheme is provided to patients.

Regarding the training/education phase, the patients should be trained by experienced lecturers exclusively on the management of the measurement phase and on the questionnaire; as real patients, it is not necessary to train the subjects regarding pathology, symptoms, and medical history. Patients should be trained in groups on the meaning of individual items and on the best way to interpret them, the ability to answer objectively, and the memorization, attention, and management of information to be collected during the booking and access phases (i.e. R11, R15, R23) [25]. Subjects should be also instructed in emotion control, to be able to avoid detection by the operators, be effective in measurement, and know how to maintain self-control during the performance (i.e. R11, R15, R23) [25]. Following the training phase, a simulation should be conducted to ascertain an understanding of all the information and to carry out the final selection of patients [27].

Pilot test

The next stage of the methodology includes a possible pilot test and the patient's completion of a quality checklist on the investigated domain. The use of pilot testing is explicitly reported in the minority of papers, with more emphasis on validating the methodology in more recent papers (i.e. R11, R13), except in two papers that constitute pilot studies (i.e. R24, R25).

The pilot test should be carried out to test the proposed methodology. In the testing phase, the aim is to involve patients' associations, healthcare facilities, as well as individuals who are experts in the selected area (i.e. medical specialists, dedicated nurses/case managers, general practitioners, psychologists, health economists, and patients). The facilities selected for the testing phase should be explicitly involved through a consent form indicating the willingness to participate in the project. The testing phase allows not only to test the methodology but also to highlight any critical issue and proceed to modify or supplement the methodology and the measurement tool, to make them more suitable for the context considered.

The methodological activity will be followed by the implementation activity, which includes an initial phase related to healthcare performance, followed by the measurement activity through the use of the questionnaire.

Healthcare service

In terms of implementation, the first phase is healthcare service provision, which is followed by the assessment/measurement of access performed by the 'simulated' patient. During the healthcare service provision phase, the patient carries out the preliminary activities in order to receive the healthcare service (i.e. booking) and go to the chosen facility to receive the service. Except for an analysis (i.e. R13), no paper states methodological criteria for validating the questionnaire (e.g. content, face or criterion validity, test-retest, or inter-reliability). The final stage is formalized through pre-existing questionnaires or checklists related to the health condition identified in the study design (e.g. National Cancer Institute recommendation (i.e. R2); Standardized patient reported form (i.e. R21); Institute of Medicine quality framework and Patient perception of the patient-centeredness rating scale (i.e. R13); checklists developed based on existing guidelines (i.e. R6), or composed based on selected constructs and items (i.e. R8)).

Concerning the domain of analysis, given the paucity of evidence emerging from the literature review on the domain of equity of access and the adequacy of healthcare service in this context, the first test aims to investigate this domain.

Finally, regarding the measurement tool, a questionnaire is implemented with the aim of serving as a cross-sectional and objective tool for measuring equity of access to healthcare services (i.e. R13) [28,29]. In detail, the tool is designed to be easily used by the patient to enable the implementation of the MCDA approach [20,30]. The first part of the questionnaire aims to retrieve personal data to frame the case history, while the second part is related to the measurement. The items identified include several areas: Geographical, Temporal, Payment, Socio-cultural, Digital, and Organizational/Structural. The total number of items

consists of 23 that can be used in both the first access and follow-up phases [4,31–37]. The complete questionnaire is presented in Table 1.

Table 1. Questionnaire.

	Personal Data:	
1	Age	18–100
2	Gender	Male | Female | Other
3	Nationality	European Union | Extra European Union
4	Province of residence	(List of Italian provinces)
5	Type of the chosen provider	Territorial provider | Public specialistic hospital | Public general hospital | Private specialistic hospital accredited with the National Health Service | Private general hospital accredited with the National Health Service | Private specialistic hospital not accredited with the National Health Service | Private general hospital not accredited with the National Health Service
6	Province chosen provider	(List of Italian provinces)
7	Motivation for choice the provider	Contained waiting list | Personal knowledge/reputation of the doctor | Word of mouth | Indication by general practitioner/carer | Reputation/ notoriety of the hospital | Agreement with insurance | Ease of reaching from the residence | Other (specify)
8	Type of service	Treatment phase | Follow-up phase
9	Name of service	(specify)
10	Site of oncological pathology	Upper aerodigestive tract | Exophages | Stomach | Colon and rectum | Liver | Pancreas | Gallbladder and biliary tract | Lung | Melanomas | Mesotheliomas | Soft tissue sarcomas | Breast | Uterus | Ovary | Prostate | Testicle | Kidney | Bladder | Central nervous system | Thyroid gland | Hodgkin lymphomas | Non-Hodgkin lymphomas | Leukaemia | Other (specify)

	Equity of access:	
1	Possibility of booking by phone	Weighting phase: Please assign an importance from 1 to 7 for each one (1 = very unimportant; 2 = little important; 3 = quite unimportant; 4 = neutral; 5 = quite important; 6 = important; 7 = very important) Evaluation phase: Yes / No | Minutes | Likert scale 1–7
2	Possibility of booking via email / website / portals	
3	Waiting time for the first telephone contact with the operator (if used)	
4	Waiting time for the operator's response in case of booking via email / website (if used)	
5	Waiting time from booking to service in the structure chosen for the provision of the service	
6	Time to reach the provider where the service is provided from the residence	
7	Presence of a structured front office with staff dedicated to customer orientation	
8	Waiting time from arrival at the provider for the first contact in person with the operator (if used)	
9	Waiting time between the scheduled time and the provision of the service	
10	Ease of payment (if due)	
11	Waiting time for payment of the service (if due)	
12	Presence of an online report submission service	
13	Waiting time for receiving reports for the service performed	

Evaluation

The last stage is the measurement of the service. Following the healthcare service, each patient completes the questionnaire and provides the final assessment of the service analysed. Downstream of this last phase, it is possible to integrate the data with those of any other measurements related to the same or other facilities and produce a report useful for benchmarking activities, as well as to support the decision-making process.

The extreme flexibility of the methodology combined with the need for the highest level of objectivity of measurement allows the methodology to be used in multiple contexts.

Framework implementation

An online survey was conducted with oncological patients to assess the degree of perceived importance concerning the 13 measurement items included in the questionnaire. The characteristics of the responders are presented in Table 2, while the results are presented in Table 3.

Table 2. Characteristics of responders.

Total population, *n*	251
Age, mean (±SD)	59.48 (±12.31)
Female, *n* (%)	184 (73.4)
Nationality within the European Union, *n* (%)	237 (94.3)
Treatment phase, *n* (%)	143 (57.0)
Patient residence, *n* (%)	
Northern Italy	193 (76.9)
Central Italy	32 (12.7)
Southern Italy	26 (10.4)
Provider location, *n* (%)	
Northern Italy	198 (78.9)
Central Italy	32 (12.7)
Southern Italy	21 (8.4)
Type of provider, *n* (%)	
Public general hospital	188 (75.0)
Private general hospital accredited with the National Health Service	32 (12.7)
Public specialistic hospital	15 (6.1)
Private specialistic hospital accredited with the National Health Service	11 (4.5)
Territorial provider	3 (1.2)
Private general hospital not accredited with the National Health Service	1 (0.4)
Private specialistic hospital not accredited with the National Health Service	0 (0.0)
Motivation of the choice, *n* (%)	
Personal knowledge/reputation of the doctor	86 (34.4)
Indication by general practitioner/carer	50 (20.1)
Reputation/notoriety of the hospital	39 (15.6)
Ease of reaching from the residence	27 (10.7)
Contained waiting list	17 (7.0)
Word of mouth	16 (6.6)
Other	14 (5.7)
Agreement with insurance	0 (0.0)
Pathology site, *n* (%)	
Breast	124 (49.4)
Colon and rectum	22 (8.8)
Other	15 (6.0)
Melanomas	15 (6.0)
Prostate	11 (4.4)
Uterus	11 (4.4)
Upper aerodigestive tract	10 (4.0)
Lung	6 (2.4)
Ovary	6 (2.4)
Liver	5 (2.0)
Non-Hodgkin lymphomas	5 (2.0)
Kidney	4 (1.6)
Pancreas	3 (1.2)
Leukaemia	3 (1.2)
Stomach	3 (1.2)
Testicle	2 (0.8)
Thyroid gland	2 (0.8)
Exophages	1 (0.4)
Mesotheliomas	1 (0.4)
Bladder	1 (0.4)
Hodgkin lymphomas	1 (0.4)
Gallbladder and biliary tract	0 (0.0)
Soft tissue sarcomas	0 (0.0)
Central nervous system	0 (0.0)

Note: SD: Standard Deviation.

Table 3. Weights of items.

Items	Weight *, mean (±SD)
Waiting time for receiving reports for the service performed	5.98 (±1.62)
Waiting time between the scheduled time and the provision of the service	5.75 (±1.62)
Presence of an online report submission service	5.73 (±1.83)
Possibility of booking by phone	5.69 (±1.67)
Waiting time from booking to service in the structure chosen for the provision of the service	5.65 (±1.79)
Time to reach the facility where the service is provided from the residence	5.56 (±1.68)
Waiting time from arrival at the facility for the first contact in person with the operator (if used)	5.38 (±1.56)
Waiting time for the first telephone contact with the operator (if used)	5.36 (±1.72)
Possibility of booking via email / website / portals	5.18 (±1.92)
Presence of a structured front office with staff dedicated to customer orientation	5.13 (±1.77)
Waiting time for the operator's response in case of booking via email / website (if used)	4.99 (±1.79)
Ease of payment (if due)	4.59 (±1.50)
Waiting time for payment of the service (if due)	4.55 (±1.52)

Note: * Likert scale 1–7. SD: Standard Deviation.

The survey was completed by 269 responders of which 251 were complete responses. The 251 responders are oncological adult patients with a mean age equal to 59.48 (±12.31). The majority of patients are females (73.4%), and from the European Union (94.3%). Concerning the site of the pathology, 49.4% of responders indicated breast. 57.0% of responders are in the treatment phase, while the remaining 43.0% are in the follow-up phase. Concerning the residence of the responders, the majority are from Northern Italy (76.9%), followed by Central Italy (12.7%) and Southern Italy (10.4%), while the location of the providers is mainly in Northern Italy (78.9%), followed by Central Italy (12.7%) and Southern Italy (8.4%). In the majority of cases, the provider is a public general hospital (75.0%), followed by private general hospital accredited with the National Health Service (NHS) (12.7%), public specialistic hospital (6.1%), private specialistic hospital accredited with the NHS (4.5%), territorial provider (1.2%) and private general hospital not accredited with the NHS (0.4%). Moreover, responders indicated that the motivation for the choice of the provider was in most cases the personal knowledge/reputation of the doctor (34.4%), followed by the indication by general practitioner/carer (20.1%), the reputation/notoriety of the hospital (15.6%), the ease of reaching from the residence (10.7%), the contained waiting list (7.0%), the word of mouth (6.6%).

Concerning the weights assigned to each of the thirteen items related to the equity of access, even though the mean score of all items is higher than 4.5, and therefore considered quite important or important, from the survey some differences emerge in terms of perceived importance of items. From the responses, it emerges that the three items considered most important are: the 'waiting time for receiving reports for the service performed', followed by the 'waiting time between the scheduled time and the provision of the service' and the 'presence of an online report submission service', while the three items perceived less

important are the ‘waiting time for payment of the service’, the ‘ease of payment’ and the ‘waiting time for the operator’s response in case of booking via email / website’.

Discussion and conclusions

This analysis aimed to investigate the possible uses of the Mystery Patient methodology as a co-creation tool for the evaluation of healthcare performance in the field of equity of access. Furthermore, the results of the preliminary analysis aimed at providing a tool for implementing the methodology that includes a quantification of the weights of the items related to equity of access in the context of oncology services through the results of the questionnaire administered.

Theoretical implications

The review of the literature on the Mystery Patient method informs that two streams of research are active in the healthcare field: a first strand, more rooted and mature, which extols the characteristics of the Mystery Patient method as a tool for evaluating physician technical performance, and a second strand, still relatively less mature, which directs the scope of application of the method to the measurement of health service quality. Overall, the methodology is widely acknowledged as a valuable tool for measuring the quality of service, as it provides consistent and standardized measures that are not influenced by clinician biases.

Moreover, it has emerged that the Mystery Patient methodology comprises four macro-phases of preparation and two steps of implementation. The flexibility of the methodology allows it to be adapted to individual needs by integrating additional steps according to them.

The analysis of published literature highlights how Mystery Patient methodology can be a valid tool for evaluating the quality of healthcare services in different fields, and allowed the identification of a guideline for the implementation of the methodology. The most recent literature also discusses the need for generalizable tools that can act as a guideline for implementing Mystery Patient methodology [38–40]. Two recent consensus papers highlight the need to include in the report items to provide details on title, background, simulated patient characteristics, simulated patient scenarios, data collection methodology, and ethical concerns [38,39]. Furthermore, a recent review proposes implementation steps that include the adoption of a multidisciplinary team, the selection and evaluation of relevant references, the extraction of medical information and to form the basic items of the services’ quality assessment checklist to be adopted, to reach clinical expert consensus on the items, to pilot the items pool, and to determine the final items [40].

Therefore, even the most recent literature agrees on the need to standardize the methodology of the Mystery Patient and supports what emerged from the analysis presented, namely the need to clarify the context and type of patients, as well as the importance of a multidisciplinary team involvement and methodological support for the measurement phase [38–40].

Managerial implications

The case studies found in the literature highlight how Mystery Patient methodology can act as a tool to support managers of healthcare facilities and policy makers in the evaluation of the quality of the service delivered and can act as a tool for identifying deficiencies and reviewing processes. Recent case studies carried out in various fields, both in pharmaceutical dispensing and in medical care, as well as in different contexts, such as economies in transition or developing countries and in developed countries, confirm the advantages of the adoption of the methodology [41–44].

In terms of implementation, the work carried out can act as a methodological guideline for the adoption of the methodology and as a support for weighing the importance of the variables to be measured. A weighting of different items relating to equity of access within the context of oncology services is provided, which can be used as a basis for measuring the quality of the services provided. In this sense, although all the items relating to equity of access are considered important, the survey reveals that users are more sensitive to the waiting times for receiving reports and for providing the service.

Concluding remarks

The main limitation of the work is that the results cannot be generalized because the framework was validated by including only Italian associations operating in the oncological field.

The next steps for the work are to implement the retrieved weights with the MCDA approach to measure healthcare performance in the context considered.

The challenge for the future is to investigate deeply the potentialities of the Mystery Patient method in different geographical and pathological contexts, to perform experimental evaluations or case studies to test the methodology, and to better understand the potential advantages of the Mystery Patient method in terms of better outcomes.

In conclusion, this analysis highlights the potential of the Mystery Patient methodology as a co-creation tool for evaluating healthcare performance, particularly in the field of equity of access with a particular focus on the application in Italian oncology services. The review of literature underscores its dual role in assessing physician technical performance and health service quality, offering valuable insights through standardized measures. While the study focus on a specific setting that limits its generalizability, the analysis sets the stage for future research that could incorporate diverse geographical and pathological contexts. The analysis offers insights into the literature on the Mystery Patient methodology, supplemented by case studies and an implementation framework. This enriches the existing literature with a methodological tool enhanced by an items weighting system, specifically within the context of oncology services in Italy.

Moving forward, integrating the identified weights into a multicriteria decision analysis (MCDA) framework promises to enhance healthcare performance measurement. The challenge ahead lies in further exploring the Mystery Patient method through experimental

evaluations and case studies to unlock its full potential in achieving improved outcomes across different healthcare settings.

Authors' contributions

DC, SS and UR conceptualized the work and designed the study. MD and SS collected the data. SS analysed the data. DC, MD, SS and UR interpreted the data. SS and UR drafted the article with critical revision from DC and MD. All authors read and approved the final version of the manuscript.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

The authors declare that no funds, grants, or other support were received for the preparation of this manuscript.

Ethics approval

The analysis was approved by the Research Ethics Committee of Università Carlo Cattaneo – LIUC, Castellanza-Italy (P06.2-23).

Data availability statement

Because of the nature of this research, the data cannot be shared publicly and therefore supporting data are not available.

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