# Co-creation in healthcare: framing the outcomes and their determinants

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## Abstract

**Purpose** – Understanding the outcomes of co-creation (CC) in healthcare is increasingly gaining multidisciplinary scientific interest. Although more and more service management scholars have pointed out the benefits of cross-fertilization between the various research fields, the literature on this topic is still scattered and poorly integrated. This study aims to summarize and integrate multiple strands of extant knowledge CC by identifying the outcomes of health CC and the determinants of these outcomes and their relationships.

**Design/methodology/approach** – A structured literature review was conducted per PRISMA guidelines. A total of 4,189 records were retrieved from the six databases; 1,983 articles were screened, with 161 included in the qualitative thematic analysis.

**Findings** – This study advances a comprehensive framework for healthcare CC based on a thorough analysis of the outcomes and their determinants, that is, antecedents, management activities and institutional context. Extant research rarely evaluates outcomes from a multidimensional and systemic perspective. Less attention has been paid to the relationship among the CC process elements.

**Research limitations/implications** – This study offers an agenda to guide future studies on healthcare CC. Highlighting some areas of integration among different disciplines further advances service literature.

**Practical implications** – The framework offers an operational guide to better shape managerial endeavors to facilitate CC, provide direction and assess multiple outcomes.

**Originality/value** – This is the first extensive attempt to synthesize and integrate multidisciplinary knowledge on CC outcomes in healthcare settings by adopting a systematic perspective on the overall process.

**Keywords** Co-creation, Co-production, Resource integration, Systematic literature review, Healthcare, Outcome, Antecedents, Management, Performance

**Paper type** Literature review



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## 1. Introduction

Scholars, policymakers and practitioners increasingly recognize the need to overcome the traditional medical service delivery model characterized by the passive role of the patient. They paved the way toward a "patient paradigm" (Vogus *et al.*, 2020), implying patient-centeredness and patient active role in shaping healthcare services (Frow *et al.*, 2019). Scholars have broadened and extended the perspective of patient-centered care by considering patients' whole life, including personal needs and preferences beyond the medical perspective (Eklund *et al.*, 2019). In 2016, WHO moved toward a *people-centered care* framework, entailing a collaborative partnership between health professionals and engaged, empowered people or communities in co-creating health and well-being in a whole-life approach.

Value co-creation in health is "the benefit realized from integration of resources through activities and interactions with collaborators in the customer's service network" (McColl-Kennedy *et al.*, 2012, p. 375). It requires healthcare users (patients, groups of patients/citizens, caregivers and families) to integrate their resources with those from service providers (the healthcare organizations such as hospitals, nursing homes, outpatient clinics, etc.). Patients and their networks, seen as "resource integrators," substantially affect health outcomes (Virlée *et al.*, 2020). This integration may occur through various activities and practices (e.g. administering treatment, redesigning treatment with medical staff, diet and exercise and positive thinking). It is not restricted to the core of health service (i.e. the delivery phase), going beyond the encounter between clinicians and patients (McColl-Kennedy *et al.*, 2012; Pham *et al.*, 2019). Service research scholars have emphasized how the strong interdependence and integration between constellations of actors (i.e. providers, professionals, patients, families, or communities) shape a complex ecosystem, a "relatively self-contained, self-adjusting system of resource-integrating actors connected by shared institutional arrangements and mutual value creation through service exchange" (Vargo and Lusch, 2016, p. 11). This systemic approach allows investigating value through a dynamic and holistic lens, considering its multidimensionality, not merely a function of individual well-being but of system well-being, generated at micro, meso, macro and mega levels (Frow *et al.*, 2019; Vargo *et al.*, 2017).

The literature acknowledges the need to investigate co-creational health outcomes (McColl-Kennedy *et al.*, 2017a) and their antecedents (Pham *et al.*, 2019). Scholarly attention to the benefits realized has increased (Marsilio *et al.*, 2021). Although the literature emphasizes the positive side of this "flow-mutual service provision" (Vargo and Lusch, 2016, p. 10), interaction value does not have "a magic nature" (Dudau *et al.*, 2019). Co-creation (CC) experiences can also destroy value (value co-destruction) (Echeverri and Skålén, 2011; Keeling *et al.*, 2021). Despite substantial scientific efforts on CC in healthcare and scholarly work devoted to understanding its outcomes and antecedents, research integrating and consolidating literature across disciplines is needed. Current reviews investigated different parts of the CC process in isolation (e.g. Palumbo, 2016) or did not specifically analyze CC effects. For example, McColl-Kennedy *et al.* (2017a) focused on patients' roles across key practice approaches (e.g. traditional medical model, self-management and value CC). Laud *et al.* (2019) mapped resource misintegration manifestations. Others provided a narrow view, including a limited number of papers (Peng *et al.*, 2022), focusing only on a segment of public care services (Lopes and Alves, 2020) or business and economics literature (Laud *et al.*, 2019).

To date, research has been carried out along disciplinary lines (service research, public management, medicine, nursing, etc.), with little knowledge sharing among them (McColl-Kennedy *et al.*, 2017a), despite repeated calls regarding the benefits of cross-fertilization in healthcare (e.g. Davey and Krisjanous, 2021) and, more generally, in transformative service research (Anderson and Ostrom, 2015).

This study aimed to provide a comprehensive systematization of current evidence from a process and multidisciplinary perspective, answering the following research questions.

*RQ1.* What are the outcomes of CC in the healthcare service ecosystem for the actors involved?

*RQ2.* What are the determinants (antecedent and managerial activities) of these outcomes and their relationships within the value CC process?

The review contributes to service literature in several ways. First, it develops a comprehensive multi-actor and multi-dimensional framework, by also taking into account perspectives (e.g. community) still not fully considered in service management literature. Second, it suggests some research priorities to guide future research efforts, also by bringing out numerous potential venues for cross fertilization with the other main research streams identified (i.e. health research and public administration and management). Third, the paper offers some insights for practitioners, providing an operational guide to better shape managerial endeavors in facilitating CC and assessing the multiple outcomes.

The remainder of this paper is as follows. The theoretical background section traces the evolution of the CC concept in relation to other "co-paradigms" (i.e. co-production) in different literature streams. The methodology section explains how a systematic literature review was performed. Next, the study presents the findings: (1) synthesizing and integrating the extant multidisciplinary knowledge regarding CC outcomes in healthcare into a comprehensive framework, and (2) showing how antecedents and management activities impact CC encounters and outcomes. Finally, it proposes a research agenda for CC in health care, providing guidelines to support practitioners in managing CC.

## 2. Theoretical background

CC and other "co-paradigms" (Dudau *et al.*, 2019, p. 1577) are at the center of debate in many research areas. The heightened interest across numerous disciplines presents an opportunity to explore the issue from multiple perspectives. However, this can cause confusion when defining terms. This section traces the evolution of the theoretical underpinnings of CC and co-production (CP) in the three main disciplines involved in our study.

### *2.1 Service management*

In the strategic management and marketing literature, CP refers to value creation outside the boundaries of the firm through customer participation in forming goods and services (e.g. the transport and assembly activities of IKEA furniture) to generate more value than the traditional transactional process (Wikström, 1996). Value CP offers an alternative view of industrial value creation; the customer goes from being a passive consumer of "the value created by producers" to being a co-creator and co-inventor (Ramírez, 1999). This is based on goods-dominant logic and assumes a firm-centric view. CC does not simply mean transferring activities to customers or customizing products and services but considers customer–company interaction as the locus of value creation (Prahalad and Ramaswamy, 2004). Lusch and Vargo (2006) offered a complete paradigm shift toward service-dominant logic. It abandons the notion of value-in-exchange (value derived from the willingness to pay in a market exchange) and embraces that of value-in-use (value derived through the consumption of an offering and related experience) (Lusch and Vargo, 2006; Vargo *et al.*, 2017). "Value is not produced; resources out of which value can be created are produced" (Grönroos and Ravald, 2011, p. 7). It is possible to produce the cooking ingredients needed to prepare a dish, but not the value derived from having a nice time dining with friends. Here lies the difference between production and creation, and consequently, CP and CC.

In service delivery, since production and consumption occur simultaneously, the customer is a co-producer of the service itself and a co-creator of the generated value-in-use (Grönroos and Ravald, 2011). CP "involves participation in the creation of the core offering itself. It can

occur through shared inventiveness, co-design, or shared production of related goods and can occur with customers and any other partners in the value network." (Lusch and Vargo, 2006, p. 284). It is a component of CC, the process by which multiple actors (e.g. firms, employees, customers, stockholders and government agencies) integrate, via numerous activities and practices, resources and competencies, to co-create value, always (and only) determined by the beneficiary (Vargo *et al.*, 2008). Hence, value is co-created through resource integration. The firm can provide partial inputs to the service process; customers are always co-creators.

In healthcare, value CC implies the integration between users' personal resources (e.g. skills, knowledge) and related activities, including self-generated activities (e.g. collecting information), their private resources (e.g. friends and family), health providers' resources (e.g. clinical staff, medications, hospital beds and equipment) and other sources such as local community and government departments (McColl-Kennedy *et al.*, 2012). This value can be also co-destroyed (Keeling *et al.*, 2021; Vargo *et al.*, 2017). For instance, a patient afraid to describe symptoms or life habits because they are inhibited by the doctor's dominant attitude generates a "resource misintegration" (Laud *et al.*, 2019).

Service logic focuses on the central role of customers and the managerial implications for value creation. Grönroos *et al.* (2011, 2013) argue that customers are value creators. A firm can mostly or only facilitate value creation by offering potential value-in-use (value proposition). The CC or value creation takes place following customer interaction in the joint sphere, where the customer has a twofold role (co-producer of resources and processes and value creators with the firms), or in the activities the customer implements alone, creating value independently (customer sphere). In healthcare, the activities occurring in the provider's sphere (e.g. training physicians, buying medical equipment, etc.) facilitate users in value creation. For example, when a patient books the visit, interacts with clinicians and leaves the clinic, the provider's value proposition (*potential* value-in-use) changes to a *real* value. This is the joint sphere, where the health user and provider are co-creators; the provider can directly and actively influence the user's value creation. The user also creates value successively, independent from the provider and its processes (e.g. the patient with a healthy lifestyle). This is the value-creation phase of the user sphere.

### *2.2 Health research*

A recent review revealed the relatively low scientific maturity of co-paradigms in the health field (Fusco *et al.*, 2020), which lacks the development of specific theoretical frameworks. Health research [1] scholars mainly refer to the definitions provided by governmental or non-governmental institutions, service management, or public management frameworks. In 2016, Batalden *et al.* proposed a conceptual framework that can be defined as the seminal framework for CP in health research. Two well-known models in the health literature (i.e. house of care, entailing collaborative management and personalized care planning of chronic health conditions, and the Chronic Care Model, acknowledging the need for productive interactions between informed, active patients and prepared and proactive professionals) explicitly recognize that CP, understood as the interdependent work of users and professionals, is not an addendum but an essential characteristic of healthcare services.

The term "co-creation" has been adopted in recent years, referring to productive interactions between patients and healthcare professionals (e.g. den Boer *et al.*, 2017), mostly in health digital innovation, describing the process through which health users are involved as equal partners and active contributors during the ideation, design and testing phases (Whitehouse *et al.*, 2013).

### *2.3 Public administration and management*

In public administration and management (PAM) literature, CP, defined as the "process through which inputs from individuals who are not 'in' the same organization are transformed

into goods and services" (Ostrom, 1996, p. 1073), has a long history dating back to the late 1970s. In the past two decades, it has returned to the forefront and is interpreted in various ways by scholars (Cepiku *et al.*, 2020). It can be an individual, group, or collective practice referring to users' direct involvement in any public service delivery phase (Nabatchi *et al.*, 2017). PAM has traditionally adopted a product-based logic perspective, emphasizing the public sector organization (PSO) as the value producer (Osborne, 2018). According to this view, CP implies that users *can* play an active role (Eriksson, 2019); therefore, it is only a possible *addendum* to public service processes (Osborne *et al.*, 2016; Palumbo and Manesh, 2021).

Recently, some authors have stressed the need to revise the conceptualization of this approach, incorporating "the service theory perspective of co-production as an inalienable and involuntary element of the public service delivery" (Osborne *et al.*, 2016, p. 646). Osborne *et al.* (2016) consider CP "the voluntary or involuntary involvement of public service users" (p. 640). Developing public service-dominant logic (PSDL) and its replacement, public service logic (PSL), pushed for a shift from CP (which becomes one of many CC activities) to a value CC perspective (Osborne *et al.*, 2016, 2022; Osborne, 2018). "Co-creation assumes an interactive and dynamic relationship where value is created at the nexus of interaction. Value for the service user and the PSO are thus created not by linear production but rather by this interaction occurring within the context of the service user's wider life experience" (Osborne, 2018, pp. 225–226). To become "an excellent public service organization," PSOs must become user-focused and service-oriented (Grönroos, 2019). Value creation (in the user sphere) and value CC (in the joint sphere) are impossible without the user. Working in isolation (in the provider sphere), a PSO only plays a facilitator role, whereas it becomes a co-creator of value itself only in the joint sphere.

However, despite the consistent efforts and the great strides forward in framing CP and CC in PSOs, research on PSL is at an embryonic stage and "the confusions and contradictions still reign in the public service co-production discourse" (Palumbo and Manesh, 2021, p. 2).

This study comprehensively reviews the current evidence by adopting a multidisciplinary lens. Moreover, by paying more attention to the broader value CC network (Osborne *et al.*, 2022; Vargo *et al.*, 2017), it integrates extant knowledge per a systemic and multi-stakeholder approach. The goal is to identify (1) the outcomes of health CC for each actor involved and (2) the determinants of these outcomes and their relationship within the value CC process.

According to the theoretical background and acknowledging the shift from the CP paradigm to value CC, we now use the term health "co-creation" (CC) and consider CP as its component.

## 3. Methodology

As described in depth in the Web Appendix and here showed in Figure 1, we conducted a systematic literature review (Tranfield *et al.*, 2003) per preferred reporting items for systematic reviews and meta-analyses (PRISMA) guidelines (Moher *et al.*, 2009).

There is a history of misinterpretation, overlap and ambiguity in using the terms CC and CP. Therefore, we decided to include both in the search query. The information hence obtained can be analyzed to provide insights into the determinants and outcomes that would otherwise be missed by using narrower search parameters.

We considered empirical studies reporting at least one outcome and focusing – also or only – on co-creative activities falling into the joint sphere, those that require interactions between healthcare users (i.e. patients, groups of patients/citizens, caregivers and families) and healthcare providers (e.g. cooperating, co-learning, CP, co-training, etc.). "The core of interaction is a physical, virtual, or mental contact, such that the provider creates opportunities to engage with its customers' experiences and practices and thereby influences their flow and outcomes" (Grönroos and Voima, 2013, p. 140). Following this criterion, we excluded papers that considered users creating value independently from providers (e.g. self-service bowel screening).

**Figure 1.**
PRISMA flow diagram

Finally, the analysis included 161 articles (for the overview, see the Web Appendix).

For thematic qualitative analysis, we used a deductive-inductive approach (Braun and Clarke, 2006). We worked with the frameworks of Mustak *et al.* (2016) and Cepiku *et al.* (2020) for the first coding of evidence, adding/modifying categories if deemed appropriate. Following Mustak *et al.*, we used the classification of antecedents (factors that drive customer participation) and outcomes (positive or negative results). From Cepiku *et al.*, we derived management approaches (activities that aim to affect customer input).

Health professionals (healthcare workers providing care treatment such as physicians, nurses, physiotherapists, etc.) are considered separately from the health provider (healthcare organizations such as hospitals, nursing homes, outpatient clinics, etc.).

## 4. Results

Figure 2 illustrates the comprehensive framework derived from our systematic review [2].

The framework encompasses different outcome categories (classified according to the "beneficiary," i.e. health users, health service providers, health professionals and community) and the linkages among the outcomes and antecedents and/or management activities. Value CC is a complex process, the final result of which can be affected by antecedents and management activities.

Following Mustak *et al.* (2016), antecedents are those factors that drive CC. These antecedents concern diverse levels and perspectives, classified into four categories: health users (e.g. skills and competence), health providers (e.g. organizational culture), services (e.g. acute vs chronic) and health professionals (e.g. demographic attributes). The antecedents "constitute potential targets for co-creation management activities" (Mustak *et al.*, 2016, p. 258) as they can hinder or facilitate CC. The management activities retrieved from the literature are health service providers' activities that affect/facilitate CC (training employees to improve their soft skills, health users to improve their health literacy, developing plans to specify their tasks and actions, etc.). The institutional context involves the macro-environment in which CC occurs, potentially influencing all the involved dimensions and their links.

### *4.1 Outcomes of co-creation in healthcare service*

The analysis highlighted 274 outcomes; that is, each paper reported 1.7 outcomes on average. Supplementary Table I in the Web Appendix shows the frequency of the outcomes for each actor and their classifications. For descriptive purposes, we report the constructs CC and CP used by the authors and related research strands.

In the text, outcomes classification is in *italics*.

*4.1.1 Outcomes for healthcare users.* Several papers report CC outcomes for patients and caregivers.

CC positively affects patient *satisfaction,* both for the enjoyment of the participation/process (Eriksson, 2019; Kim, 2018) and service satisfaction (Kim, 2019; Sweeney *et al.*, 2015). CC results in improved *perceived quality* (Gallan *et al.*, 2013; Kim, 2019) and *perceived value* (Hau, 2019).

CC may also positively affect *health, well-being and QoL*. Several studies have reported increased health outcomes (Brown *et al.*, 2020; Fors *et al.*, 2015). In addition, CC improves the perceived QoL (Sweeney *et al.*, 2015) and overall (social, existential, psychological and physical) well-being (McColl-Kennedy *et al.*, 2017b; Pham *et al.*, 2019).

Acquiring new *learning* in terms of knowledge and skills, such as self-management or communication skills (Flemig and Osborne, 2019), and improved awareness have been assessed mainly in collective (i.e. group of users/community) CC and/or health promotion interventions (Jo and Nabatchi, 2019).

Jo and Nabatchi (2019) found that CC strengthens patient beliefs in the usefulness of interaction with service professionals, increasing their *activation* for future encounters.

**Figure 2.**
A comprehensive framework for healthcare co-creation in a joint sphere

Co-creating patients feel *empowered* by playing an active role and having greater control over service delivery (Munoz, 2013). As the sense of empowerment increases, participants become more involved in decision-making, managing and/or controlling resources and sharing leadership (Jo and Nabatchi, 2019). Other empirically reported positive *psychological impacts* are related to self-esteem and self-confidence (Eriksson, 2019; Mantovani *et al.*, 2017), self-control and self-efficacy (Fors *et al.*, 2015), sense of usefulness and social contribution (Sharma *et al.*, 2017) and eustress (Mende *et al.*, 2017).

*Behavioral and attitude changes* have mostly been identified in the mental health field, where CC generates a different awareness of oneself, of one's health status, as well as changes in social relationships and the vision of one's future (e.g. greater confidence in being able to find and keep a job) (Mantovani *et al.*, 2017). Scarce (and conflicting) evidence was found for compliance. Mende *et al.* (2017) found a positive association between CC and compliance, while Osei-Frimpong (2017) did not find a (statistically) significant influence of CC on compliance.

CC enhances *the quality of patient*s' *relationships with health professionals*. For example, improved patient–clinician communication has emerged in several studies on e-health CC, as these tools facilitate the exchange of information and reduce mistakes and/or misunderstandings (Piñho *et al.*, 2014).

From an economic perspective, CC leads to *reduced health expenses* for patients (Damali *et al.*, 2016; Spanò *et al.*, 2018). Comparing home-based (co-creative practice) and hospital-based therapeutic strategies, patients who carried out home-based strategies benefited from cost savings (e.g. fewer missed work/school days and lower travel expenses) (Spanò *et al.*, 2018) and *time savings* when CC occurs through the use of technology, as in the case of telehealth (e.g. apps) or, more broadly, of e-health (e.g. electronic health record systems) (Piñho *et al.*, 2014).

The literature also offers some evidence of *the drawbacks of CC, such as* increased anxiety and stigma (Neech *et al.*, 2018) and a feeling of inadequacy, mainly caused by the lack of the necessary knowledge or training (Mantovani *et al.*, 2017); or worrying when the staff seems disengaged (Farr, 2018). Other drawbacks included increased inequalities of access to service due to poor literacy of some patients without the required skills to perform some CC activities perceived as too difficult (Farr *et al.*, 2018; Wilberforce *et al.*, 2011); and a feeling of pressure from a role that requires personal time and resources, as well as a sense of frustration due to unfulfilled expectations regarding CC and its outcomes (Munoz, 2013). Only one study specifically addressed value co-destruction, and Keeling *et al.* (2021) showed that CC can lead to self-esteem reduction and feelings of exclusion from patients.

The effects on caregivers have been little investigated compared to those on patients, although they play a crucial role in the CC of care, especially when healthcare users are in fragile clinical conditions. CC is related to higher satisfaction with caregivers' services (Farnese *et al.*, 2020; Suárez-Álvarez *et al.*, 2021), an increased sense of well-being and empowerment and a reduced sense of burden (Chiocchi *et al.*, 2019). Low or ineffective involvement and a sense of inappropriateness result in dissatisfied caregivers (Flemig and Osborne, 2019).

*4.1.2 Outcomes for healthcare providers.* Scholars have widely addressed the impacts on healthcare providers.

Current evidence shows that CC improves healthcare providers' cost/efficiency. Cost savings for the provider may be derived from lower hospitalization/medical costs due to treatment at home and/or higher appropriateness of healthcare services (Spanò *et al.*, 2018). A positive effect on efficiency (e.g. time reduction in procedures, access to health information and reduced duplication of resources) has been verified when CC is linked to the introduction of a technological tool (Beirão *et al.*, 2017; Piñho *et al.*, 2014).

The *effectiveness* of a co-created service has been evaluated in terms of service improvement (Eriksson, 2019) and the usability/acceptability of the service (Turner *et al.*, 2015), especially regarding participation in the co-design of e-tools (Farr *et al.*, 2019).

CC promotes *innovation* as users introduce new ideas more closely aligned with patient needs, especially during co-planning and co-design activities (Sehgal and Gupta, 2020; van Damme *et al.*, 2016). Therefore, it also improves the *personalization* of care and the adaptability/flexibility of services (Farr *et al.*, 2018).

CC affects *behavioral intentions, trust and loyalty*. Increased loyalty and word-of-mouth recommendations are both direct (Banytė *et al.*, 2014; Sweeney *et al.*, 2015) and related to the increased perceived quality of services and service satisfaction (Kim, 2019).

Considering the *drawbacks* of CC for providers, a user's inadequately coordinated and monitored resource integration in value creation with continuous adjustments and clear responsibilities can result in an erratic quality of service (Tuurnas *et al.*, 2015). A lack of shared goals and vision can cause low acceptability of CC intervention and increased stigma (Boerema *et al.*, 2017). Moreover, CC may increase provider costs, such as investment in new IT systems, development of new service options, retraining staff to work in new flexible ways and spending more time communicating with patients (Wilberforce *et al.*, 2011).

*4.1.3 Outcomes for professionals.* Few studies have analyzed the perspective of healthcare professionals.

C*hanges in perspective and professional behavior* are among the most frequently investigated effects. CC enhances positive emotional reactions, attitude and confidence (Davies *et al.*, 2014) and leads to higher "humanistic connection" and enhanced accountability toward patients and better staff communication (Farr, 2018), an increase in behavior intentions (Ding *et al.*, 2019), empathy (Hastings *et al.*, 2018) and self-efficacy (Hastings *et al.*, 2018).

In co-creating the service process, patients bring their own knowledge and experiences, contributing to *new staff knowledge and skills*, thereby improving the overall delivery of care (Thörne *et al.*, 2017). This effect is particularly marked in the co-delivery of training/courses (for professionals and/or patients) (Davies *et al.*, 2014).

There is mixed evidence regarding health professionals' *job satisfaction*, *job well-being*, *burnout* and CC. Although some authors show CC of care is associated with higher job satisfaction (Breidbach *et al.*, 2016; Ding *et al.*, 2019), others (den Boer *et al.*, 2017) do not. Increased well-being or decreased burnout was found, for instance, by den Boer *et al.* (2017) and van der Meer *et al.* (2018), whereas Farnese *et al.* (2020) reported that none of the CC dimensions analyzed were related to burnout.

The few studies providing evidence on *work engagement* and *motivation* show that CC positively impacts them (Ding *et al.*, 2019; Hastings *et al.*, 2018).

Among the *negative effects*, the literature reports a high variability in the quality of information and excessive workload for clinicians (Farr *et al.*, 2018), significant apprehension and pressure due to co-creative activities and increased patient expectations within the context of resource constraints (Holland-Hart *et al.*, 2019). Discomfort from having patients as co-workers is related to the feeling of being "criticized" (Farr, 2018), the shift in power dynamics (Dalgarno and Oates, 2018), or the fear of offending patients (Davies *et al.*, 2014).

*4.1.4 Outcomes for community.* CC can generate social and individual effects. However, literature on this topic is still scarce.

CC activities with community members were found to reduce inequalities and improve access *(i.e. service democratization)* to healthcare in deprived areas and/or minority groups (Brown *et al.*, 2020; Eriksson, 2019).

Benefits have also been demonstrated in *changing local attitudes, culture and social learning*. For example, communities have learned the importance of cancer tests because of the preventive health intervention created by a representative minority group (Eriksson, 2019).

CC also produces an enhanced feeling of social cohesion, improved relations with neighbors and new knowledge about health, resulting in improved health practices and *community well-being* (Derges *et al.*, 2014).

CC can also strengthen *social capital* because it improves networking and reduces conflict, enhancing social cohesion/support (Brown *et al.*, 2020; van Damme *et al.*, 2016). It also generates greater awareness of creating changes in the community, defined as *community empowerment* (Munoz, 2013).

### *4.2 Determinants of CC and its outcomes: institutional context, antecedents and management approaches*

*4.2.1 Institutional context.* The relationship between the institutional context (i.e. state and governance traditions, regulatory frameworks and socio-economic and cultural issues) and CC is under-investigated in the literature. Evidence of contextual *financial needs* and poor *healthcare infrastructure* is rare and contradictory. A study that collected and analyzed data from two developing countries showed that financial constraints and poor healthcare infrastructure induce healthcare professionals and citizens to co-create. It is considered a matter of survival and necessity rather than an expression of citizen participation or a democratic tool (Mangai and De Vries, 2019). However, in developed countries, findings show that in the presence of economic hardship, communities are more resistant to shifting toward co-created healthcare models and more disposed to maintaining traditional provider-user dynamics (Munoz, 2013).

*4.2.2 Antecedents.* The antecedents are factors that drive health user-provider interactions. They can affect the activation of the interaction (affecting the CC process and outcome) and/or resource integration during CC (affecting the outcomes). We identified four types of antecedents related to healthcare users, providers, services and professionals (Supplementary Table II in the Web Appendix). In the text, specific categories are in *italics*. Antecedent-outcome relationships are highlighted in the text and Supplementary Table II in the Appendix.

4.2.2.1 Healthcare user-related antecedents. The extant literature has paid considerable attention to factors related to healthcare users that may facilitate or obstruct CC.

Regarding *sociodemographic characteristics,* women and young people seem more likely to co-create (Farr *et al.*, 2018, 2019). Poor *health status*, especially mental health, is an obstacle to CC (Farr *et al.*, 2019; Holland-Hart *et al.*, 2019). The level of specific *competencies and knowledge* (e.g. health literacy, ICT skills, language, communication, or listening skills) can favor (or hinder, if lacking or poor) CC because they affect patient perceptions of the usefulness of collaborating with staff and/or patients' ability in the CC endeavor (Farr *et al.*, 2019; Virlée *et al.*, 2020). Considering the linkage with outcomes, ICT skills and age (young) influence the acceptability of a co-designed e-health tool in CC (Farr *et al.*, 2019). Age (elderly) also has a considerable moderating effect on perceived service quality and service satisfaction; elderly patients (≥60 years) were more satisfied and perceived a higher service quality than younger patients (Kim, 2019). Health literacy has a moderating role in CC and compliance; patients with low health literacy benefit more in terms of compliance intentions than patients with higher health literacy levels, as the former experience greater eustress (positive response to a stressor) resulting from CC (Mende *et al.*, 2017). However, other evidence shows that health literacy is a predictor of higher perceived outcomes and process value (Hau, 2019). The *availability of resources*, such as money and time, greatly influences willingness and ability to co-create (Morton and Paice, 2016; Munoz, 2013).

*Psychological and emotional characteristics* have been extensively investigated as endogenous antecedents of CC, such as level of empowerment (Holland-Hart *et al.*, 2019; Tuurnas *et al.*, 2015); patient readiness (Damali *et al.*, 2016); positivity (Gallan *et al.*, 2013);

emotional commitment (Banytė *et al.*, 2014); health locus of control, optimism and health regulatory – both promotion and prevention – focus (Pham *et al.*, 2019, 2021); propensity to change (Farr *et al.*, 2019; Munoz, 2013); gratitude for clinicians (Neech *et al.*, 2018); and confidence and trust in clinicians (Virlée *et al.*, 2020). Regarding psychological enablers, self-efficacy activates patient participation and directly affects perceived outcome value (Hau, 2019). Some co-creative activities, which Pham *et al.* (2019) refer to as "voluntary extra-role activities" (e.g. helping other patients; peer support groups), are driven by altruism, protective motives, empathy and willingness to contribute (Mantovani *et al.*, 2017; Pham *et al.*, 2019). However, specific patient assumptions (e.g. mistrust of technology) can negatively impact CC activation and processes (Farr *et al.*, 2019; Holland-Hart *et al.*, 2019).

The *expected benefits* (e.g. payments, the possibility of reaching goals, or personal development) act as CC enablers (Mantovani *et al.*, 2017; Pham *et al.*, 2019).

The *relationships* between patients and caregivers, family, friends and other patients contribute to activating and performing some co-creative activities, such as co-learning (McColl-Kennedy *et al.*, 2017b; Virlée *et al.*, 2020). Strong bonds between patients/representatives and communities also facilitate the engagement of their networks (Brown *et al.*, 2020; Eriksson, 2019). Moreover, *a patient's wider social network* is also a predictor of higher perceived outcomes and process values (Hau, 2019).

4.2.2.2 Provider-related antecedents. Few studies have reported on provider-related antecedents.

Several studies have focused on *resource availability*. CC may require additional time and financial resources; consequently, staff shortages or financial constraints limit the opportunities for some co-created activities, for example, in the case of adopting a new tool and/or substantial organizational change (Farr *et al.*, 2018; Wilberforce *et al.*, 2011). Adopting new e-health tools for CC is favored by the compatibility between pre-existing information systems (Beirão *et al.*, 2017; Farr *et al.*, 2019). Resource orientation, expressed in terms of the capacity to recognize and utilize both internal (e.g. human resources and in-house R&D activities) and external resources (e.g. collaborations with resource partners), positively affects CC, increasing the potential for service innovation (Sehgal and Gupta, 2020).

O*rganizational culture* has emerged as another influential antecedent of a provider's propensity to co-create. Patient-centered care approaches positively affect CC of care (den Boer *et al.*, 2017). Innovation orientation and positive risk-taking are other cultural attributes that facilitate the activation of resource integration and the CC process itself (Farr *et al.*, 2019; Farr, 2018).

External partnerships and interactions between *healthcare providers and other organizations*, such as local authorities, research organizations and third-sector organizations, constitute useful antecedents for group/community CC activation as they promote the recruitment of community members and volunteers (Derges *et al.*, 2014; Mantovani *et al.*, 2017).

4.2.2.3 Service-related antecedents. The *types and features* of services affect actors' willingness to co-create. Healthcare users of long-stay/chronic services are more willing and able to put their efforts into CC than those of acute services (McColl-Kennedy *et al.*, 2012). Regarding linkages with outcomes, patient satisfaction decreases when CC occurs during the first hospitalization or short periods of hospitalization, whereas it increases for long-stay patients (Ding *et al.*, 2019). With reference to the setting (inpatient/outpatient), CC activities are difficult to carry out in secure inpatient settings (i.e. with legal restrictions due to patients' compromised mental capacities) where hierarchical models are prevalent and a patient's active role is perceived as dangerous (Lewis-Morton *et al.*, 2017). However, focusing on general mental health, for clinicians, the introduction of CC through e-tools is more useful and informative for inpatients than for already well-known chronic outpatients (Whitehouse *et al.*, 2013).

The *level of service reorganization* can influence the degree to which professionals are willing to co-create; the more the service needs to change, the greater the resistance and fatigue of the staff (Farr *et al.*, 2019).

4.2.2.4 Professional-related antecedents. Few studies have focused on factors influencing a professional's propensity or ability to co-create.

Among *socio-demographic characteristics*, age appears to be a discriminating factor. Senior physicians proved less active in CC through e-health platforms and more resistant to adopting e-health CC tools (Whitehouse *et al.*, 2013). Age and organizational tenure moderate the linkage between CC and job satisfaction; younger nurses or those with shorter tenures benefit more from patient participation than older nurses or those with longer tenures (Ding *et al.*, 2019).

*Transversal competencies*, such as communication skills, emotional competence and the propensity to share information, have emerged as facilitators of CC (Virlée *et al.*, 2020).

As for *psychological and emotional enablers,* resistance to change and fear of damaging existing therapeutic relationships or patient safety can hinder CC activation (Whitehouse *et al.*, 2013).

Good pre-existing *interactions* with patients (Tuurnas *et al.*, 2015) and positive previous *experiences* of cooperation (Holland-Hart *et al.*, 2019) motivate professionals to co-create.

*4.2.3 Management activities.* Management activities aim to facilitate joint CC. They can affect the overall process, that is, enhancing those antecedents that may positively influence the propensity to co-create, supporting effective resource integration in interactions, and thus potentially influencing final outcomes. We classified management activities into five categories: supportive leadership, institutional arrangements, planning and accountability, healthcare users' management tools and professionals' management tools (Supplementary Table III in the Web Appendix). In the text, specific categories are in *italics*. Management activity–outcome relationships are highlighted in the text and Supplementary Table III in the Appendix.

4.2.3.1 Supportive leadership. CC requires nurturing a co-working culture to realize an *equal partnership* (Davies *et al.*, 2014; Flemig and Osborne, 2019). This happens through building a *comfortable environment* that is inclusive, non-judgmental, safe, empowering, open, creative and dynamic (Flemig and Osborne, 2019), as well as developing mutual *trust, respect* and *democracy* (Keeling *et al.*, 2021; Neech *et al.*, 2018). However, this equality is difficult to achieve because of social and power inequalities among participants. These potentially destructive dynamics must be understood, managed and minimized (Farr, 2018). Values and supportive leadership are essential for connecting people and co-creating value (Davies *et al.*, 2014; Morton and Paice, 2016).

4.2.3.2 Institutional arrangements. Institutional arrangements include the structure and processes implemented for co-created services, the rules governing the interaction between healthcare users and providers, the allocation of responsibilities and boundaries and the scope and intensity of users' efforts.

This review highlights that *formalized structures or processes* facilitate CC. Using specific organizational units and roles, such as a multidisciplinary team and a facilitator/coordinator, are recurrently successful management mechanisms to involve patients per their capabilities and resources and coordinate activities (Fors *et al.*, 2015). The "service orchestrator" – defined as "dedicated firm-centric actors who facilitate and orchestrate resource integration, and thereby value co-creation, between other interdependent actors (e.g. patients and medical staff) in complex HCSSs (e.g. hospitals)" (Breidbach *et al.*, 2016, p. 459) – increases patient involvement in CC, (as perceived by staff) and leads to greater job satisfaction.

Adopting *formal rules* can decrease uncertainty and enhance perceived abilities. These rules facilitate effective collaboration (Davies *et al.*, 2014; van Damme *et al.*, 2016) and avoid drawbacks, such as increased complexity or reduced patient representation (Neech *et al.*, 2018; Tuurnas *et al.*, 2015). There is a need to find the right level of institutionalization

since, in excess, it could discourage customer commitment to CC (Mangai and De Vries, 2019). A study on staff perception of caregivers' expectations and behaviors (Farnese *et al.*, 2020) found that when caregivers' expectations are consistent with staff roles (behaviors, responsibility, etc.), this is associated with a concrete collaboration in care activities (co-executing). However, when caregivers' expectations are perceived as disproportionate, this leads to a higher caregiver involvement in providing feedback on service designs (co-planning). In addition, role-social conflict was negatively associated with caregiver satisfaction.

The clarity of the *allocation of responsibility, boundaries and (eventually) selection criteria* for CC is crucial. CC always implies a shift in power dynamics and greater shared responsibility between patients (or other healthcare users) and professionals. However, the responsibilities of patients/caregivers/community may differ according to the specific situation, service, or patient capacity (Batalden *et al.*, 2016). These rules should be clarified before beginning the CC. Mistaken expectations can be prevented by clearly interacting with healthcare users and specifying the intended roles, selection criteria, level of CC required and aims (van Damme *et al.*, 2016). Healthcare services are complex and highly knowledge-intensive. Selecting "the right people" for some co-created activities (e.g. co-design or co-delivery) is an important managerial lever. For instance, involving representatives or champions can facilitate interactions between professionals and target groups (e.g. minorities) (Brown *et al.*, 2020; Mantovani *et al.*, 2017). Patient selection is influenced by patients' medium-high level of education and skills (Morton and Paice, 2016; Neech *et al.*, 2018), pre-existing good relationships (Neech *et al.*, 2018) and time availability (Morton and Paice, 2016). However, the preferences resulting from the selection criteria (e.g. skills and education), especially if unclear, may negatively affect the inclusivity of involvement, with the risk of increasing the marginalization and frustration of some categories of healthcare users (Munoz, 2013; Neech *et al.*, 2018).

Finally, using e-tools has received increasing attention (Beirão *et al.*, 2017; Piñho *et al.*, 2014) as a facilitating tool for the recruitment and selection of healthcare users (e.g. through social media) (Farr *et al.*, 2018).

4.2.3.3 Planning and accountability. Some studies point out the need for *goal setting and an evaluation plan* with specific quantitative/qualitative measures to monitor CC outcomes (Davies *et al.*, 2014; Fors *et al.*, 2015). Goals, progress and outcomes should be shared transparently (i.e. an accountability process) with healthcare users (Farr, 218; Morton and Paice, 2016). A clear shared vision and purpose reduces competing interests (Morton and Paice, 2016), whereas the mismatch of vision and goals could induce low acceptability of a co-created intervention (Boerema *et al.*, 2017) and, thus, customer frustration (Munoz, 2013). Monitoring and reporting enable the assessment of CC success.). Seeing the "fruits of one's own efforts" leads to increased future CC intentions (Morton and Paice, 2016), while a lack of information on CC outcomes leads to a sense of dissatisfaction regarding the overall experience (Neech *et al.*, 2018). However, some authors warn that setting up a reporting system to capture CC outcomes could represent a burden on the staff and participants (Flemig and Osborne, 2019).

Finally, CC can generate additional or differential costs (e.g. implementation costs for new tools, payments for participation in specific activities and drug costs), thus necessitating clear commissioning of funds (Davies *et al.*, 2014).

4.2.3.4 Management of healthcare users. As healthcare users act as semi-employees in CC, the provider should apply specific managerial methods and techniques to integrate their resources in the production and delivery of services.

Many studies have covered healthcare user *training*; these activities aim to improve abilities and skills to foster appropriate participation (Eriksson, 2019; Jo and Nabatchi, 2019). Damali *et al.* (2016) distinguish between "know-what" and "know-why training." The first aim

was to provide patients with information on what they needed to do during the treatment/service, clarifying the patient's role. The "know-why" training enables patients to fully understand the benefits of performing tasks, increasing their motivation to co-create. They found that role clarity and increased motivation positively impact patients' effective behavior in value CC.

Other management activities proven to have a positive influence on the CC process concern *motivation and support building*, such as implicit and explicit reward mechanisms, granting responsibility and control, emotional support, or practical help provided to users by professionals during CC (Thörne *et al.*, 2017).

*Communication* is also important in creating a comfortable atmosphere (Kim, 2018). Staff communication during health encounters strongly influences patient engagement in CC, and consistent, fair, cooperative and empathetic communication positively motivates patients (Banytė *et al.*, 2014; Kim, 2018). Keeling *et al.* (2021) assessed how supporting a dialogue where (*1*) equality, mutual knowledge building and the priorities of each participant are important (dialogic democracy); (*2*) transparent and accessible information is provided, and patients are encouraged to ask questions (intellectual honesty); and (*3*) mutual appreciation of experiences, opinions and emotions can co-create value, whereas the absence of these mechanisms can destroy it, causing feelings of exclusion and alienation in patients. Moreover, empowered interactions (professional behavior to empower patients, such as encouraging them to express opinions, allowing the decision of the treatment option – if any – they prefer, etc.) impact perceived value (Hau *et al.*, 2017).

4.2.3.5 Management of health professionals. Few studies have dealt with the tools for managing and motivating health professionals. They mainly provide *staff training* to support co-created activities and acquire new technical knowledge, such as new technology (Turner *et al.*, 2015; Wilberforce *et al.*, 2011). Professionals' engagement and effort in CC also benefit from *motivational* training (Turner *et al.*, 2015) and from receiving *support* from colleagues and top management (Sharma *et al.*, 2011).

## 5. Discussion, direction for future research and implications

### *5.1 Discussion and research agenda*

This study performed a systematic review to identify the extant empirical knowledge on (1) the relevant actors and outcomes of CC in healthcare and (2) the determinants of these outcomes and their relationship within the value CC process. Specifically, it focuses on the "joint sphere" in CC, the arena where resource integration among health users and providers occurs.

The literature has often considered CC a normative practice and beneficial in itself without examining how positive outcomes occur. The interactive process between service providers and users can lead to value CC and co-destruction (Dudau *et al.*, 2019; Echeverri and Skålén, 2011). Understanding how it works as a real-word phenomenon is a crucial academic and managerial issue (Grönroos, 2019). Thus, this study offers a comprehensive framework integrating the extant multidisciplinary knowledge about CC outcomes in healthcare, showing how antecedents and management activities impact the CC encounter and its outcomes. Moreover, it reveals some critical gaps in the research that represent opportunities for further studies. Table 1 shows the eight research opportunities (RO) we identified and provides examples of potential research questions.

*5.1.1 Outcome.* RO #1: *Broadening the analysis on all actors involved:* This framework is the first attempt to provide a clear categorization of the outcomes according to the four categories of actors investigated in the extant literature: health users (including patients, groups of patients/citizens, caregivers and families), service providers, professionals and community. The reviewed articles paid particular attention to patients and providers.

| Research area | Research opportunities | Research questions |
|---|---|---|
| Outcomes | #1 Broadening the analysis on all actors involved | What are the outcomes for *caregivers*?<br>What are the outcomes for *professionals*?<br>What are the outcomes for *community*? |
| | #2 Adopting multi-actor and longitudinal perspective | Are there *links* between the outcomes across different actors (e.g. which are the *interdependencies* between *patient* and *caregiver/wide network* outcomes?)?<br>Can they reinforce or hinder each other?<br>Are there *links* between the outcomes for the same actor?<br>Which outcomes are sustainable during time? |
| | #3 Unveiling value co-destruction | Which are the *unintended outcomes* for the actors involved? |
| Context | #4 Looking up beyond the meso-level | What characteristics of the *macro and institutional environment*, if any, facilitate or hinder the resource integration? |
| Antecedents | #5 Encompassing a more complete view | What *caregivers' antecedents* influence resource integration and outcomes?<br>What *professionals' antecedents* influence resource integration and outcomes?<br>Which *service characteristics* influence resource integration and outcomes? |
| | #6 Deepening the interactions | What *combinations of antecedents* most affect resource integration and outcomes?<br>How do the *different antecedents interact* (e.g. demographic and psychological characteristics of health users)? |
| Management activities | #7 Sustaining and reinforcing resource integration | What characteristics of *leadership* facilitate the creation of a comfortable environment and equal partnership?<br>What is the most appropriate *level of formalization* of co-creation processes?<br>How should the *selection criteria* be formulated in order to reduce representation issues?<br>Which *performance management system* can capture co-creation outcomes?<br>Which are the most effective activities to support and *manage users' and professionals'* effort in resource integration?<br>What *combinations of management activities* are more effective in terms of resource integration and outcomes?<br>How can the outcome be sustained over the *long-term*? |
| Relationships among components of the framework | #8 Embracing a service eco-system perspective | Which *combination* of *antecedents* and *management activities* most affect the resource integration and its outcomes?<br>What are the links between *antecedents* and *management activities*?<br>Which management activities can strengthen the antecedents?<br>What antecedents assist the management activities?<br>Which *management activities* reduce the *conflicting impacts* of different antecedents on the same outcome or the same antecedent on the different outcomes?<br>What are the *links* between the *institutional context, antecedents and management activities*? |

**Table 1.**
Future research agenda

Despite being recognized as key in co-creating care, especially for frail patients, interest in the impact of CC on *caregivers* remains limited. In keeping with a disease-centered approach, the prevalent focus is still on the patient in a vacuum rather than the patient and their broader informal and formal (expert patient groups, professional caregivers, etc.) relationship resource networks. Sparse evidence confirms that relationships with caregivers and the wide social network are helpful in CC and affect patient-perceived value (Hau, 2019). Moreover, positive caregiver outcomes (e.g. satisfaction) in CC encounters foster higher levels of beneficial patient outcomes (Suárez-Álvarez *et al.*, 2021).

Even the findings on outcomes for *professionals* are still scant and are mostly investigated in the health research stream. There is a wider acknowledgment that professional well-being (e.g. job satisfaction; burnout) is strictly related to the quality of care (Bodenheimer and Sinsky, 2014). Focusing only on the well-being of health users, without paying attention to that of employees, can create destructive tensions "antithetical to value co-creation" (Vogus *et al.*, 2020, p. 984). They may negatively impact the well-being of employees and their way of working and, therefore, negatively impact users (Anderson and Ostrom, 2015). Thus, it is important to conduct further research to analyze if and how CC positively or negatively impacts physicians and nurses as individuals.

The outcomes for the *community* were investigated less in our dataset. Assuming a collective-level perspective provides an understanding of CC for the entire population of a local area, independent of their direct involvement in any collective or individual CC activities (Nabatchi *et al.*, 2017). Scholars summarize "value to community" (social value) and "value to society" (political and environmental) as the locus of values that do not accrue to the individual recipient of the service or the service provider (Dudau *et al.*, 2019). Each individual is embedded within a wider social context, and the value is not merely a function of individual well-being but community well-being (Vargo *et al.*, 2017). This is particularly true in healthcare, for example, planning local health services, launching screening and prevention campaigns and promoting well-being activities. The community is an important actor in current health policy at each level; building or reinforcing social trust, mutual respect and social networks is one of their focal aims (WHO, 2016). CC, especially when implying collective actions and interactions among individuals, may help to develop community well-being (Derges *et al.*, 2014) and empowerment (Munoz, 2013) and promote new social bonds and revitalize a community spirit (Brown *et al.*, 2020) but more empirical evidence is needed.

*RO #2 – Adopting multi-actor and longitudinal perspectives:* Considering the fundamental nature of CC as a multi-actor paradigm, the co-generated value must be evaluated through a multi-stakeholder approach. What is valuable to one actor at a particular place and point in time may not be valuable to a different actor or to that same actor at a different time and place (Vargo *et al.*, 2017). Currently, the literature considers outcomes in isolation and at a given time. The analysis shows that the relationships between and within different outcome types have largely been neglected. Outcomes can reinforce each other or manifest trade-offs, such as those between short- and long-term results. Thus, the trade-offs, when they emerge, and how they can be managed are interesting topics to investigate. For instance, the above calls for an improved understanding of the role of the broader network in the value CC process. Future research should pay more attention to the role of the caregiver, considering CC interdependencies between patient and caregiver outcomes (e.g. well-being, satisfaction and perceived burden). Concerning the "time" of evaluation, the review confirms the embryonic research stage on long-term sustainability (Keeling *et al.*, 2021). In summary, the challenge is to adopt a wider and more comprehensive perspective (i.e. considering all actors involved, including professionals, caregivers and the community), with feasibility and sustainability assessments (i.e. considering the specific characteristics of the CC initiative and the mid- or long-term outcomes). To this end, it could be useful to adopt longitudinal designs to provide more reliable insights into changes in cause-and-effect relationships over time.

*RO #3 – Unveiling value co-destruction*: The literature has shown a tendency toward emphasizing its benefits rather than potential pitfalls. Recently, scholars have warned that value can also be co-destroyed (Vargo *et al.*, 2017), but this issue deserves further empirical study. Awareness of value co-destruction is a recent perspective in the service (Keeling *et al.*, 2021) and PAM literature (Eriksson, 2019), while there is increasing evidence of value co-destruction during service encounters in health research. Unintended consequences can affect healthcare users (e.g. increasing pressure and stigma), providers (e.g. the randomness of quality) and professionals (e.g. burnout). Value co-destruction can also result in missing opportunities to enhance community value, or even worse, co-destruction may result in progressively diminished opportunities in already vulnerable communities. An investigation of this societal perspective on value co-destruction is still absent from the literature.

*5.1.2 Institutional context. RO#4 – Looking up beyond the meso-level:* CC initiatives seem to be studied in a bubble, with no link to the institutional context, although the literature suggests it is a context-dependent phenomenon (Cepiku *et al.*, 2020), and that "macro-level changes may change all other levels over time" (Frow *et al.*, 2019, p. 2665). Empirical evidence still neglects to recognize the roles of specific elements (e.g. political systems, views on the role of government, financial health and legal and institutional frameworks) and their relative importance in terms of the size and direction of CC outcomes. This could be due to the impossibility of controlling an exogenous condition; however, national and/or transcultural comparative studies could help demonstrate which institutional conditions may facilitate or hinder CC initiatives.

*5.1.3 Antecedents. RO #5 Encompassing a more complete view:* The framework systematized antecedents in relation to healthcare users, providers, services and professionals. The analysis generally reveals extensive research on antecedents, mainly on patients; however, some categories remain under-investigated, that is, those related to *caregivers, professionals* and *service*s. This means that there is still only a partial view of levers that can positively or negatively drive CC.

*RO #6 Deepening the interactions:* The same antecedents may have contrasting effects on the resource integration and/or its outcomes, or different antecedents can have an opposite effect on the same outcome. For instance, the advanced age of healthcare users negatively influences the activation of e-health CC and the acceptability of technological tools (Farr *et al.*, 2019). However, older adults show higher satisfaction and perceived service quality in traditional settings (Kim, 2019). A higher level of health literacy positively impacts the link between activation and perceived value (Hau, 2019) but negatively impacts the link between CC and compliance intention (Mende *et al.*, 2017). Thus, it is necessary to go beyond the moment of resource integration and shed light on *specific links between antecedents and outcomes* of CC; for example, health literacy/age/gender drives resource integration, but with what effect? Extant knowledge is slim when it turns to antecedents' interactions with outcomes. The main linkages were quantitatively investigated in relation to individual satisfaction or the perceived value of users or professionals, mainly in the SMM stream. Further research should deepen this interaction, finding effective combinations of antecedents to achieve the desired outcomes.

*5.1.4 Management activities. RO #7 – Sustaining and reinforcing resource integration*: Literature on management activities, which this study organized in relation to supportive leadership, institutional arrangement, planning and accountability, management of healthcare users and management of professionals, is scarce. Resource integration in the joint sphere enables the provider to co-create value, offering the opportunity to directly and actively influence this emerging value (Grönroos and Voima, 2013). This opportunity translates into further organizational complexity and additional coordination processes (Tuurnas *et al.*, 2015). Thus, resource integration must be monitored closely, and substantial effort is needed to ensure adequate engagement of users and professionals, as well as

sustainable and effective CC practices. Few studies have investigated the relationship between such managerial challenges and outcomes, and most consider how the lack of specific managerial levers can contribute to value co-destruction (e.g. dissatisfaction and frustration). For example, accountability systems, supported by performance management systems designed to monitor different dimensions, such as inputs, processes and outcomes, are needed to align goals and expectations and allow them to be verified (Morton and Paice, 2016). However, the difficulty of measuring outcomes can hamper adopting a results-driven management system and understanding the differential benefits of CC (Flemig and Osborne, 2019). Some activities (e.g. co-training, co-design) have the need to define the "rules of the game" and the selection criteria (e.g. who should participate, how are they chosen and under what conditions); however, the question of excessive formalization or the representation of some patient categories (Mangai and De Vries, 2019) remains. Overall, the management of CC encounters requires further investigation.

*5.1.5 Relationships among the framework components. RO #8: Embracing a service ecosystem perspective:* As CC is not a normative good practice and healthcare is a particularly complex service struggling to realize the benefits of value CC, this study investigates whether extant literature on CC outcomes also considers the antecedents and managerial challenges that may help or hinder value CC. The findings show that only half of the papers investigate outcomes in light of their determinants, that is, the institutional context, antecedents, or management activities. The prevailing attention is on how they affect the activation of the interaction and/or resource integration during CC ("resources integration in joint sphere" component in our framework). However, minimal papers highlight specific links with outcomes, as underlined in RO #6 and #7. Extant knowledge, therefore, appears fractured and focuses only on specific actors or phases of the process. The results call for further research to consider the complex and mutual interactions that link the institutional context, antecedents, management and outcomes. This would help reduce uncertainty and identify the most effective combinations of antecedents and management activities for successful CC. Value is a system-level construct (Osborne *et al.*, 2022; Vargo *et al.*, 2017) formed through interactions among multiple actors that integrate multiple resources in a given time and context. Thus, assessing this value created (or destroyed) cannot ignore an ecosystem perspective that considers all forces and actors. In this direction, the proposed comprehensive framework could offer a useful scaffold for designing future empirical studies and gathering new insights into CC processes.

### *5.2 Theoretical and managerial implications*

This review enriches and stimulates the current academic debate on CC in several ways and offers various new approaches.

First, to the best of our knowledge, this study is the first attempt at an extensive summary and integration of multidisciplinary knowledge on CC outcomes in health settings. It draws results from three principal research streams (SMM, PAM and HR) and shows that the existing literature is patchy. There are areas under investigation that are covered well or less well by various streams. Each stream shows different areas of strengths and weaknesses. Thus, this study opens up numerous potential avenues for interdisciplinary cross-fertilization to meet the substantial challenges of value creation through resource integration.

The results confirm the evolutionary trajectory of co-paradigm (i.e. CP and CC) usage in management studies. There is a prevalence of CP in the PAM realm (with a long-standing emphasis on product-based logic) and CC in SMM (with a well-established perspective on service logic). If theoretical foundations and conceptual differences have now been established in SSM and PAM research, despite the burgeoning development of the

literature, a co-paradigm consensus is still lacking. Many HR studies take their definitions from grey literature (e.g. NEF, NESTA) or adopt the two terms interchangeably, sometimes without any explicit definition, with a higher focus on the practices (also promoted by specific public policy, e.g. the UK) rather than theoretical framing. From this perspective, our study offers HR an opportunity for theoretical clarification.

Moreover, HR studies traditionally adopt a provider-centric and paternalist perspective, in which CC is an option offered at provider discretion to patients or groups of citizens, while the value CC service management paradigm encourages a shift toward a user-centered perspective.

This review develops a comprehensive multi-actor and multidimensional framework by identifying lesser-discussed perspectives in the service management literature. The framework considers the community as a major player, emphasizing the social impact in the CC discourse. Similarly, it regards professionals as partially distinct from providers, capable of influencing (antecedent) and being influenced (outcome) by CC. Second, the institutional context is acknowledged as a necessary dimension for evaluating feasibility, managing processes, and assessing CC results. Thus, this study responds to the most recent calls in the literature (Frow *et al.*, 2019; Vargo and Lusch, 2016) by systematizing the existing research into a broader ecosystem perspective on value creation.

Finally, the study offers insights for healthcare managers and professionals, providing an operational guide to better shape managerial endeavors in facilitating CC, orienting it toward the desired direction and assessing multiple outcomes.

Although the framework refers to the healthcare sector, it can also be useful for other transformative services, where the service interactions stimulate "uplifting changes" (Anderson and Ostrom, 2015, p. 243) in the lives of individuals, groups, communities and ecosystem broadly (e.g. education, social services). Future studies should empirically verify generalizability and adaptation to a specific context.

In conclusion, the framework promotes a comprehensive and overarching approach to co-creation, prompting managers to consider all aspects (i.e. antecedents and managerial activities) dynamically affecting resource integration. CC is a complex and risky process. Structured management efforts are required to deal with the complexity of the resource integration process to its inner "contextual and experiential nature" (Vargo *et al.*, 2017). They attempt to avoid drifting to co-destruction and exploiting the full potential of value CC. The classification of outcomes related to the main actor supports managers in identifying those best suited for the specific context in which CC is embedded and builds a customized multi-stakeholder performance management system.

## Notes

1. The health research stream includes health service research, healthcare management research, medical and nursing research, health informatics and health policy.
2. At the end, for the space provided by a journal article, the authors have chosen to include a maximum of two references per each category of outcome/institutional context/antecedent/management activities, leaving a wider referencing in the tables included in the Web Appendix.

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## Appendix

The supplementary material for this article can be found online.

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