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Stakeholder analysis in health innovation planning processes: A systematic scoping review

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ABSTRACT

Integrating health innovations into the health system is a complex endeavour that requires a well-designed planning process engaging key stakeholders. Stakeholder analyses lay the foundations to inform appropriate planning processes and undertake strategic actions. A systematic scoping review was performed to explore how stakeholder analyses are applied in health innovation planning processes and a guideline to report stakeholder analyses was developed. The literature search was conducted in PubMed, Scopus and DOAJ; grey literature was sought using Google. Articles reporting stakeholder analyses during the planning process of health policies, systems, products and technologies, and services and delivery methods were included. Fifty-one records were incorporated in the qualitative synthesis. Stakeholder analyses were conducted worldwide, used in all types of health innovations, applied in all phases of the planning process and conducted both prospectively and retrospectively. The steps followed to perform stakeholder analysis, the methods used, the stakeholder attributes analysed and how authors reported the analyses were heterogeneous. Forty-one studies reported the identification of stakeholders, 50 differentiated/categorised them and 25 analysed stakeholder relationships. Only some authors proposed future actions based on the results obtained in their stakeholder analysis. A list of Reporting Items for Stakeholder Analysis (i.e., the RISA tool) is proposed to contribute to the reporting guidelines to enhancing the quality and transparency of health research.

1. Introduction

Since population needs and health systems are continuously evolving, integrating health innovations in such systems is essential in order to provide solutions to both existing and emerging needs. According to the WHO, "health innovation identifies new or improved health policies, systems, products and technologies, and services and delivery methods that improve people's health and wellbeing" [1]. However, modifying usual care and introducing health innovations into the health system is a complex endeavour. To enhance the integration and future success of any health innovation, comprehensive planning is required. Health innovations' planning processes usually share an underlying structure that encompasses a set of sequential phases [2]. Following a planning process allows for developing effective health innovations, but also for addressing aspects other than effectiveness that are necessary for successful scale-up [3]. Additionally, to achieve successful integration, health innovation's planning processes must include the perspectives, experiences and opinions of stakeholders that have an interest, influence, or are affected by the innovation to be implemented [4–6].

Examples of stakeholder participation across the different phases of health innovations' planning processes can be found in the literature [7–9]. However, participatory studies do not usually report why or how the stakeholders involved in such processes

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were selected, or whether the engaged stakeholders were appropriate (i.e., presented desirable attributes) to be involved in health innovation planning [10–12]. To organise participatory planning processes that are fair and transparent, in which the right stakeholders are engaged, these processes must be designed based on the results of a stakeholder analysis [13,14]. A stakeholder analysis may be defined as an approach oriented to understand who the stakeholders around a health innovation planning process are and, based on information gathered about them (e.g., attributes, relationships), prioritise who should be involved or has been involved in such planning process [15,16]. Conducting a stakeholder analysis may help: (1) understand the context in which the innovation will be developed and implemented; (2) inform the planning process and the individuals, groups or organisations to be involved; and (3) develop strategies to both support a suitable development and implementation of the innovation and avoid potential barriers to its integration into the system [17–19].

The key steps to carry out stakeholder analyses were organised by Reed et al. [15]: (1) Defining the context and boundaries for the analysis; (2) Applying stakeholder methods; and (3) Recommending future actions and stakeholder engagement. Moreover, within the second step (i.e., applying stakeholder methods) three activities should be conducted: (2a) the identification of stakeholders; (2b) the differentiation or categorisation of stakeholders based on the study of stakeholder attributes (e.g. power, position, level of interest, etc.); and (2c) the investigation of stakeholder relationships. It is important to note that stakeholder attributes may change over time, due to variations in the context or the phase of the health innovation planning process, causing new stakeholders to emerge and others to fade [20–23]. For this reason, stakeholder analyses must be updated over the planning process and so allow for appropriate changes in the key stakeholders to be engaged in the process [9,20,22].

Due to their value and interest, stakeholder analyses need to be undertaken correctly and, to be able to evaluate if this happens, it is necessary to report them thoroughly. Existing reviews of the literature and guidelines on stakeholder analysis provide information on different aspects of these analyses, such as: the methods to use [15,24]; the necessary steps and aspects to take into account to perform the analysis [15,16,19,25]; the theoretical approaches to stakeholder analysis [22]; or, the uses of stakeholder analysis in the policy, healthcare management and development literature [17]. However, to the best of our knowledge, there are no reviews in the literature focusing on the application of stakeholder analyses in health innovation planning processes. Understanding the applicability of stakeholder analyses in these processes and the methods used to select the right stakeholders may help improve the design of planning processes and decision-making. Thus, addressing this topic may facilitate policymakers, researchers and practitioners to better design and manage the processes. Scoping reviews are a useful approach, as they help understand the evidence in a field not yet widely reviewed, especially when the research question is broad and the existing literature is heterogeneous [26,27]. Scoping reviews are acknowledged for having "potential to advance healthcare practice, policy and research" [28]. Therefore, the general purpose of this systematic scoping review was to provide an overview of the use and reporting of stakeholder analyses in health innovation planning processes. Specifically, it aimed to:

1) Understand what are stakeholder analyses used for
2) Identify what are the methods used to perform those analyses
3) Know what are the attributes analysed for the stakeholders
4) Develop and pilot a tool to guide future reporting of stakeholder analyses (the Reporting Items for Stakeholder Analysis –RISA– tool).

2. Methods

A systematic scoping review of studies reporting a stakeholder analysis carried out in a health innovation planning process was performed. The Arskey and O'Malley framework [26] and the Joanna Briggs Institute's recommendations for conducting systematic scoping reviews [27] were used.

2.1. Literature search

A search was conducted to identify original papers that included a stakeholder analysis in health. Search strategies (Fig. 1) were kept sensitive to ensure breadth of coverage [26,27] and no time or language limits were set. Different sources were explored to ensure wide access to the existing research evidence [26]. A search in PubMed – which includes Medline and PubMed Central databases –, Scopus and DOAJ (Directory of Open Access Journals) was performed in June 2017. Grey literature was sought using the Google search engine, and the first 25 results were explored. Additionally, the reference lists of the included articles were also scanned to identify other relevant articles. Since no key specific journals to this topic were identified, hand searching of journals was not performed.

2.2. Eligibility criteria and study selection

Articles were included if they reported a stakeholder analysis conducted during a health innovation planning process. For the purpose of this study, the terms *stakeholder analysis*, *health innovation* and *planning process* were considered as defined below:

An article was deemed to present a *stakeholder analysis if described:*

A process made in a specific context to systematically: i) identify stakeholders (individuals, groups or organisations); ii) differentiate or categorise stakeholders; or iii) investigate the relationships between the stakeholders; if this was done to prioritise them and know who to involve/has been involved in a decision-making or planning process (adapted from Reed et al. [15].

Health innovation (1)

> "Health innovation identifies new or improved health policies, systems, products and technologies, and services and delivery methods that improve people's health and wellbeing."

Planning process, adapted from [2,4,29].

The health innovation planning process was considered here a process composed of the following phases: (1) preparatory phase, where the organisational structure and the resources for setting up the planning process are prepared; (2) needs assessment and setting objectives, where the health needs, its causes and contributing factors, the individual, organisational and community resources to tackle them are analysed [30], and the aim of the innovation defined; (3) development, where the innovation is theoretically developed, modelled and piloted for refinement; (4) impact assessment, where the innovation's effects on clinical and economic parameters and on people's health-related quality of life is measured; and (5) implementation, including the adoption, implementation and sustainability of the innovation.

Articles meeting the aforementioned inclusion criteria were then excluded if: (1) the procedure/methods to perform the stakeholder analysis were not specified in the article (i.e. no methods were described for any of the identification, categorisation or analysis of stakeholder relationships steps); (2) the article did not report original data of a stakeholder analysis; or (3) the article was written in non-Roman characters.

Titles and abstracts were reviewed against the inclusion criteria by one author. Articles meeting these criteria and those in doubt

PubMed (02/06/2017)

"stakeholder theory" OR “stakeholder interviews” OR “stakeholder involvement” OR “stakeholder engagement” OR “stakeholder analysis” OR “stakeholder mapping” OR “actor analysis” OR “stakeholder identification”
OR
((“stakeholder groups” OR “stakeholder group”)
AND
(identification OR involvement OR engagement OR analysis OR mapping))
OR
((stakeholder[TIAB] OR actor[TIAB]) AND "network analysis"[TIAB])

Scopus (02/06/2017)

(TITLE-ABS-KEY((“health” OR “healthcare”))) AND (TITLE-ABS-KEY((“stakeholder involvement” OR “stakeholder engagement” OR “stakeholder analysis” OR “stakeholder mapping” OR “stakeholder theory”)))

DOAJ (02/06/2017)

“stakeholder analysis” OR “stakeholder mapping”

Google (19/02/2018)

“stakeholder analysis” AND health filetype:pdf
“stakeholder mapping” AND health filetype:pdf

Fig. 1. Search Strategies.

were considered for the full-text screening. At this stage, inclusion and exclusion criteria were applied. Any uncertainty related to the study selection was resolved through discussions between two authors and, when agreement in these discussions was not achieved, a third author intervened.

2.3. Data extraction

A data extraction form was developed including general information about the study and a list of Reporting Items for Stakeholder Analysis to include in the RISA tool. The list of reporting items was initially chosen by the authors considering the “key methodological steps necessary for stakeholder analysis” proposed by Reed et al. [15], the stakeholder analysis guidelines developed by Schmeer [19], the framework for stakeholder analysis developed by Gilmour and Beilin [25], and the questions discussed by Varvasovszky and Brugha in their explanation on how to do a stakeholder analysis [16]. The data extraction form was then piloted and refined with five of the included studies [27,31]. A version of the final data collection tool can be found in Supplementary appendix 1. One author carried out the data extraction; any doubts were discussed with a second author, and a third one was consulted when discrepancies between the first two authors existed. The Reporting Items for Stakeholder Analysis were used for the data extraction of all included articles and discussed by two authors to generate the final tool presented in the results.

2.4. Data analysis and synthesis

In accordance with the literature on the methodology to conduct scoping reviews [31], a qualitative content analysis of the articles included in the study was performed. A deductive, descriptive approach was used in which data was primarily coded to the predefined categories contained in the data extraction form and, when needed, further organised in subcategories to classify and clarify the information contained in each of the categories. Microsoft Word and Excel 2016 were used to perform the analysis.

The results of the review were organized following the structure provided by Reed et al. [15] on key methodological steps for stakeholder analysis: (1) Context of the studies; (2) Application of stakeholder methods, which involves (a) stakeholder identification; (b) stakeholder differentiation/categorisation; and (c) analysis of stakeholder relationships; and (3) Recommendation of future actions and stakeholder engagement.

3. Results

3.1. Characteristics and context of included studies

The literature search returned 2261 records after removing duplicates. The screening of titles and abstracts yielded 116 records for full-text eligibility, of which 51 were finally included in the qualitative synthesis. A search and decision diagram along with the reasons for exclusion can be found in Fig. 2 (based on the PRISMA flowchart [32]. Publication dates denoted a substantial increase in studies reporting stakeholder analyses for health innovation planning processes in the last three decades: from four studies published from 1990 to 2000, to 11 published from 2001 to 2010, to 36 published from 2011-search date. Stakeholder analyses were carried out in a variety of countries in Africa, America, Asia, Europe, and in Australia. Supplementary appendix 2 provides further details on the authors, year of the study, country, prospective/retrospective direction and scope of the analysis, health innovation and planning process for the included studies.

Stakeholder analyses were used in the planning processes of all types of health innovations. Table 1 classifies each stakeholder analysis according to the health innovation, the phase of the planning process in which the stakeholder analysis was conducted, and whether the study was prospective or retrospective. As can be seen in this table, there are more descriptions of stakeholder analysis for policies, where they were used for the preparatory phase, needs assessment / setting objectives, policy development, policy assessment and implementation. In other words, stakeholder analyses were used in all phases of the planning process. Services and delivery methods are the second innovation with more descriptions of stakeholder analysis. Here, stakeholder analyses were used in all phases of the planning process except for the

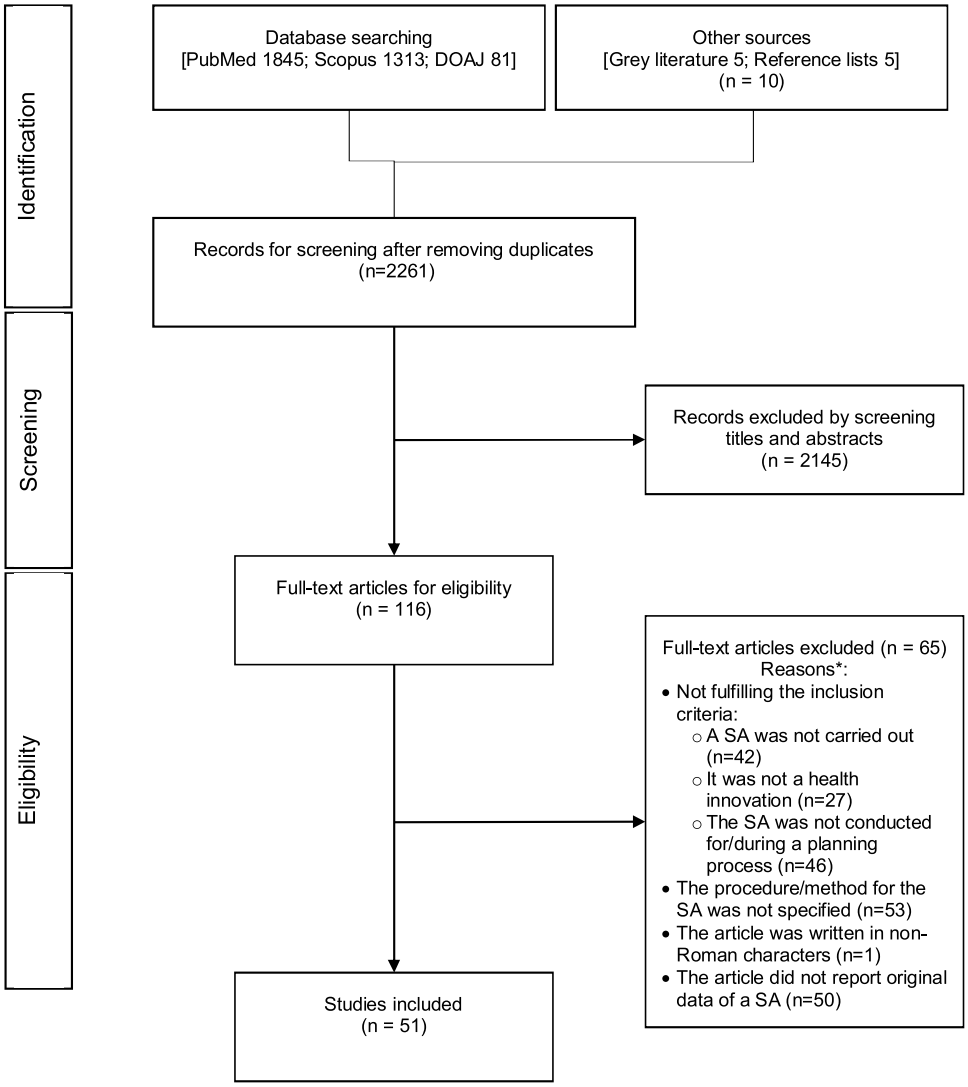

Fig. 2. Study selection, based on the PRISMA flowchart [32]. *More than one reason may apply simultaneously. SA: stakeholder analysis.

impact assessment phase. Prospective stakeholder analyses were more frequent in the early phases of the planning process (i.e., before implementing and evaluating the innovation). Their applications included: understanding the context where the innovation was to be implemented [33]; identifying a group of people that could lead the planning process [20]; knowing who to involve in the planning process [34,35]; undertaking strategic planning [36–39]; or understanding whose wants and needs should be reflected in the innovation [18,40]. Stakeholder analyses were performed retrospectively in latter phases of the planning process (i.e., when the innovation was already developed). Examples of their applications were: understanding what happened in previous phases of the planning process to assess success or failure [41,42]; understanding how stakeholders shaped the planning process or the innovation [43–45]; or understanding the context in which the planning process took place and the process of change [46].

3.2. Application of stakeholder analysis methods

The studies were heterogeneous in the processes and steps followed to perform the stakeholder analysis, the methods used, and the way authors reported these analyses.

3.2.1. Stakeholder identification

The stakeholder identification methods were not reported in four studies [34,41,42,47]. In another 10, these methods were not clearly reported [18,37,44,48–54]. The most frequent approaches used to identify stakeholders were the combination of at least two of the following methods: the review of literature/documents/media/web (used in 28 studies); individual interviews (n = 20); snowballing (n = 16); research team discussions/brainstorming (n = 13); group interviews/meetings/brainstorming (n = 10); expert or stakeholder consultation (n = 8); surveys/questionnaires (n = 4); and Delphi method (n = 1). Table 2 shows the variability on how methods were combined for each of the studies, finding the greatest variability for prospective stakeholder analysis in policies.

The results of the stakeholder identification were usually presented in the articles in a descriptive manner, combined in tables with the information obtained in the categorisation step, or using stakeholder maps.

3.2.2. Stakeholder differentiation/categorisation or prioritisation

The differentiation/categorisation of stakeholders was the step of the stakeholder analysis that received most attention in the literature. Table 3 summarises the stakeholder attributes and data collection methods employed for this step of the analysis providing

Table 1
Included studies, considering the health innovation and the phase of the planning process in which the stakeholder analysis was conducted.

	Preparatory phase[a]	Needs assessment + setting objectives[b]	Development[c] (including piloting the innovation)	Impact assessment[d] (clinical, economic and humanistic impact)	Implementation[e] (adoption, implementation & sustainability)
Policies (n = 27; P = 15;R = 12)	P = 2 Morone et al., 2014 [75]; Ancker and Rechel, 2015 [36]	P = 10 Varvasovszky and Mckee, 1998 [59]; Glassman et al.,1999 [50]; Aliyu, 2002 [64] ;Gil et al., 2010 [33]; Chao-Yin et al., 2010 [38]; Surjadjaja and Mayhew, 2011 [54]; Ardalan et al., 2012 [37] ; Abiiro and McIntyre, 2013 [48]; Mitropoulou et al., 2014 [61]; Phillips et al., 2016 [76]	P = 2 Hoeijmakers et al., 2007 [67]; Gilson et al., 2012 [18]		P = 1 Kimani et al., 2016 [68]
			R = 1 Williams et al., 2009 [46]	R = 1 Mohamadi et al. (2017) [72]	R = 10 Horev and Babad, 2005 [51]; da Silva Santos et al., 2011 [42]; Basaza et al., 2013 [60]; Machado, 2013 [52]; Lim et al., 2014 [43]; Nabyonga-Orem et al., 2014 [77]; Onoka et al., 2015 [45]; Nigenda et al., 2016 [44]; Silva et al., 2016 [74]; Vos et al., 2016 [79]
Products & Technologies (n = 4;P = 4)		P = 2 Costa et al., 2012 [40]; van Woezik et al., 2016 [56]	P = 2 van Limburg et al., 2015 [9]; Pouloudi et al., 2016 [73]		
Services & Delivery methods (n = 15;P = 12;R = 3)	P = 2 Auvinen et al., 2012 [58]; Franco-Trigo et al., 2017 [20]	P = 4 Kumar et al., 1997 [63]; Petruney et al., 2010 [39]; Transform Nutrition, 2011 [70]; Shahandeh el al., 2012 [35]	P = 2 Ten Asbroek et al., 2005 [47]; Yassoub et al. (2017) [62]		P = 4 Namazzi et al., 2013 [55]; Alive & Thrive, 2014 [66]; Haidari et al., 2014 [81]; Makan et al., 2015 [53]
			R = 1 Henriksen et al., 2005 [41]		R = 2 Park et al., 2014 [69]; Suryoputro and Isarabhakdi, 2016 [57]
Systems (n = 5;P = 5))		P = 1 Drake et al., 2011 [71]			P = 4 Burton, 1999 [49]; Harpham et al. 2001 [34]; Drake et al., 2010 [65]; Shao et al., 2015 [78]

P: prospective; R: retrospective.
Definitions of the phases in the planning process (adapted from [2,4,29]): (a) Preparatory phase, where the organisational structure and the resources for setting up the planning process are prepared; (b) needs assessment and setting objectives, where the health needs, its causes and contributing factors, the individual, organizational and community resources to tackle them are analysed [30] and the aim of the innovation defined; (c) development, where the innovation is theoretically developed modelled and piloted for refinement; (d) impact assessment, where the innovation's effects on clinical and economic parameters and on people's health-related quality of life is measured; (e) implementation, including the adoption, implementation and sustainability of the innovation.

references to the articles. All the included studies, except one [39], reported the analysis of stakeholder attributes to differentiate or categorise them. A high variability was found in both the attributes analysed and attributes combinations in the analyses. The most frequent stakeholder attributes analysed were: stakeholder power or influence (analysed in 39 studies); stakeholder attitude or position (n = 33); stakeholder level of interest in the issue (n = 15); the role the stakeholder played or their contribution (n = 13); stakeholder knowledge or awareness (n = 5); impact of the issue on the stakeholder (n = 5); stakeholder legitimacy (n = 4); and stakeholder urgency (i.e., "the degree to which stakeholder claims call for immediate attention" [21]) (n = 4). Stakeholder's stakes or interests in the

Table 2
Methods used for stakeholder analysis identification.

Health innovation | Study	Research team discussion / brainstorming / previous knowledge	Literature / documents / media /web /review	Expert / stakeholder consultation (other than interviews)	Individual interviews	Group interviews / meetings /brainstorming	Delphi	Survey / Questionnaire	Snowballing technique	Not reported
Pol Varvasovszky and McKee, 1998 [59] [P]				✓				✓	
Pol Glassman et al., 1999 [50] [P]		✓		✓ a					b
Pol Aliyu, 2002 [64] [P]		✓		✓ c					
Pol. Hoeijmakers et al., 2007 [67] [P]						✓		✓	
Pol Gil et al., 2010 [33] [P]	✓			✓				✓	
Pol. Chao-Yin et al., 2010 [38] [P]	✓		✓						
Pol Surjadjaja and Mayhew, 2011 [54] [P]	✓			✓				✓	b
Pol Ardalan et al., 2012 [37] [P]	✓			✓					b
Pol Gilson et al., 2012 [18] [P]		✓		✓	✓ e				b
Pol Abiiro and McIntyre, 2013 [48] [P]	✓							✓	b
Pol Mitropoulou et al., 2014 [61] [P]	✓	✓	✓						
Pol Morone et al., 2014 [75] [P]							✓		
Pol Ancker and Rechel, 2015 [36] [P]		✓		✓f				✓	
Pol Kimani et al., 2016 [68] [P]	✓				✓			✓	
Pol Phillips et al., 2016 [76] [P]	✓			✓				✓	
Pol Horev and Babad, 2005 [51] [R]		✓							b
Pol Williams et al., 2009 [46] [R]			✓	✓				✓	
Pol da Silva Santos et al., 2011 [42] [R]									✓
Pol Basaza et al., 2013 [60] [R]		✓					✓		
Pol Machado, 2013 [52] [R]		✓		✓					b
Pol Lim et al., 2014 [43] [R]		✓	✓						

Table 2 (*Continued*)

Health innovation | Study	Research team discussion / brainstorming / previous knowledge	Literature / documents / media /web /review	Expert / stakeholder consultation (other than interviews)	Individual interviews	Group interviews / meetings /brainstorming	Delphi	Survey / Questionnaire	Snowballing technique	Not reported
Pol Nabyonga-Orem et al., 2014 [77] [R]		✓		✓				✓	
Pol Onoka et al., 2015 [45] [R]		✓		✓					
Pol Nigenda et al., 2016 [44] [R]		✓							b
Pol Silva et al., 2016 [74] [R]		✓							
Pol Vos et al., 2016 [79] [R]	✓	✓							
Pol Mohamadi et al. (2017) [72] [R]		✓		✓					
Prod & Tech Costa et al., 2012 [40] [P]			✓						
Prod & Tech van Limburg et al., 2015 [9] [P]		✓			✓ g		✓	✓	
Prod & Tech Pouloudi et al., 2016 [73] [P]		✓		✓ h				✓	
Prod & Tech van Woezik et al., 2016 [56] [P]		✓	✓					✓	
Serv & DM Kumar et al., 1997 [63] [P]	✓								
Serv & DM Ten Asbroek et al., 2005 [47] [P]									✓
Serv & DM Petruney et al., 2010 [39] [P]		✓							
Serv & DM Transform Nutrition, 2011 [70] [P]		✓			✓				
Serv & DM Auvinen et al., 2012 [58] [P]		✓							
Serv & DM Shahandeh el al., 2012 [35] [P]		✓		✓	✓				
Serv & DM Namazzi et al., 2013 [55] [P]	✓								
Serv & DM Alive & Thrive, 2014 [66] [P]					✓				

Table 2 (*Continued*)

Health innovation | Study	Research team discussion / brainstorming / previous knowledge	Literature / documents / media /web /review	Expert / stakeholder consultation (other than interviews)	Individual interviews	Group interviews / meetings /brainstorming	Delphi	Survey / Questionnaire	Snowballing technique	Not reported
Serv & DM Haidari et al., 2014 [81] [P]	✓			✓				✓	
Serv & DM Makan et al., 2015 [53] [P]		✓		✓ d	✓				b
Serv & DM Franco-Trigo et al., 2017 [20] [P]	✓				✓				
Serv & DM Yassoub et al., 2017 [62] [P]		✓	✓						
Serv & DM Henriksen et al., 2005 [41] [R]									✓
Serv & DM Park et al., 2014 [69] [R]							✓	✓	
Serv & DM Suryoputro and Isarabhakdi, 2016 [57] [R]				✓ d					
Syst Burton, 1999 [49] [P]		✓		✓ i	✓				b
Syst Harpham et al., 2001 [34] [P]									✓
Syst Drake et al., 2010 [65] [P]		✓			✓ j				
Syst Drake et al., 2011 [71] [P]		✓			✓			✓	
Syst Shao et al., 2015 [78] [P]		✓	✓						

Pol: Policies; Prod & Tech: Products and technology; Serv & DM: Services and delivery methods; Syst: Systems.
[P]: Prospective; [R]: Retrospective.
[a]guided interviews; [b]not clearly reported; [c]along with consensus opinion; [d]in-depth; [e]brainstorm; [f]semi-structured in-depth; [g]researchers and expert recommendations brainstorm; [h]semi-structured and un-structured in-depth; [i]semi-structured and structured; jinformational meetings.

Table 3
Stakeholder attributes and data collection methods for stakeholder categorisation/prioritisation.

Health innovation | Study	Stakeholder attributes										Data collection methods for the categorisation/prioritisation								
	Stakes (identification)	Attitude / Position	Impact on stakeholder	Interest (level)	Knowledge / awareness	Legitimacy	Power / Influence	Roles / contribution	Urgency	Other	Not reported	Expert consultation	Focus group	Group consensus	Individual interviews	Literature/ document/media	Observation	Research team knowledge/ brainstorming	Survey/ Questionnaire	Workshop
Pol. Varvasovszky and McKee, 1998 [59] [P]	✓	✓		✓			✓			✓ a					✓	✓			✓	
Pol. Glassman et al., 1999 [50] [P]	✓	✓					✓			✓ a					✓	✓				
Pol. Aliyu, 2002 [64] [P]		✓		✓			✓							✓ Consensus opinion	✓	✓				
Pol. Hoeijmakers et al., 2007 [67] [P]	✓				✓		✓	✓		✓ b					✓		✓			
Pol. Gil et al., 2010 [33] [P]	✓	✓					✓			✓ a					✓					
Pol. Chao-Yin et al., 2010 [38] [P]		✓								✓ c					✓				✓	
Pol. Surjadjaja and Mayhew, 2011 [54] [P]		✓					✓			✓ d					✓	✓	✓			
Pol. Ardalan et al., 2012 [37] [P]				✓						✓ e				✓						
Pol. Gilson et al., 2012 [18] [P]	✓	✓					✓								✓			✓		
Pol. Abiiro and McIntyre, 2013 [48] [P]	✓	✓		✓	✓		✓						✓		✓	✓				
Pol. Mitropoulou et al., 2014 [61] [P]	✓	✓					✓	✓		✓ f					✓	✓			✓	
Pol. Morone et al., 2014 [75] [P]		✓								✓ g									✓	
Pol. Ancker and Rechel, 2015 [36] [P]	✓	✓					✓	✓							✓	✓				
Pol. Kimani et al., 2016 [68] [P]							✓	✓		✓ h			✓						✓	
Pol. Phillips et al., 2016 [76] [P]	✓	✓ (change over time)			✓		✓			✓ i			✓		✓		✓			
Pol. Horev and Babad, 2005 [51] [R]	✓						✓	✓		✓ j						✓				
Pol. Williams et al., 2009 [46] [R]			✓	✓			✓	✓					✓		✓					

Table 3 (*Continued*)

Health innovation | Study	Stakeholder attributes											Data collection methods for the categorisation/prioritisation								
	Stakes (identification)	Attitude / Position	Impact on stakeholder	Interest (level)	Knowledge / awareness	Legitimacy	Power / Influence	Roles / contribution	Urgency	Other	Not reported	Expert consultation	Focus group	Group consensus	Individual interviews	Literature/ document/media	Observation	Research team knowledge/ brainstorming	Survey/ Questionnaire	Workshop
Pol. da Silva Santos et al., 2011 [42] [R]				✓			✓						✓		✓	✓				
Pol. Basaza et al., 2013 [60] [R]		✓		✓			✓									✓			✓	
Pol. Machado, 2013 [52] [R]	✓					✓	✓		✓						✓	✓				
Pol. Lim et al., 2014 [43] [R]	✓	✓								✓ k		✓				✓				
Pol. Nabyonga-Orem et al., 2014 [77] [R]		✓					✓	✓							✓	✓				
Pol. Onoka et al., 2015 [45] [R]	✓	✓			✓		✓								✓					
Pol. Nigenda et al., 2016 [44] [R]	✓						✓	✓		✓ l					✓	✓				
Pol. Silva et al., 2016 [74] [R]										✓ m					✓					
Pol. Vos et al. (2016) [79] [R]		✓	✓				✓								✓	✓		✓		
Pol. Mohamadi et al. (2017) [72] [R]	✓	✓		✓			✓	✓		✓ o					✓	✓	✓			
Prod & Tech Costa et al., 2012 [40] [P]										✓ p		✓								
Prod & Tech van Limburg et al., 2015 [9] [P]	✓			✓ (importance of values)		✓	✓		✓	✓ q		✓ (brainstorm session)	✓		✓				✓	
Prod & Tech Pouloudi et al., 2016 [73] [P]	✓	✓						✓							✓	✓				
Prod & Tech van Woezik et al., 2016 [56] [P]	✓					✓	✓		✓						✓				✓	
Serv & DM Kumar et al., 1997 [63] [P]	✓	✓						✓		✓ r			✓		✓					
Serv & DM Ten Asbroek et al., 2005 [47] [P]		✓					✓					✓								
Serv & DM Petruney et al., 2010 [39] [P]											✓				✓					
Serv & DM Transform Nutrition, 2011 [70] [P]		✓					✓			✓ s										✓ Net-Map (participatory interview technique)
Serv & DM Auvinen et al., 2012 [58] [P]		✓		✓			✓			✓ t					✓					
Serv & DM Shahandeh el al., 2012 [35] [P]	✓		✓				✓			✓ u			✓		✓	✓				

Table 3 (*Continued*)

Health innovation | Study	Stakeholder attributes											Data collection methods for the categorisation/prioritisation							
	Stakes (identification)	Attitude / Position	Impact on stakeholder	Interest (level)	Knowledge / awareness	Legitimacy	Power / Influence	Roles / contribution	Urgency	Other	Not reported	Expert consultation	Focus group	Group consensus	Individual interviews	Literature/ document/media	Observation	Research team knowledge/ brainstorming	Survey/ Questionnaire	Workshop
Serv & DM Namazzi et al., 2013 [55] [P]	✓	✓					✓						✓		✓					✓
Serv & DM Alive & Thrive, 2014 [66] [P]		✓					✓			✓ [a]										✓ Net-Map (participatory interview technique)
Serv & DM Haidari et al., 2014 [81] [P]		✓	✓	✓			✓								✓	✓				
Serv & DM Makan et al., 2015 [53] [P]		✓	✓	✓			✓	✓					✓	✓	✓			✓		✓
Serv & DM Franco-Trigo et al., 2017 [20] [P]							✓			✓ [v]										✓
Serv & DM Yassoub et al., 2017 [62] [P]		✓			✓					✓ [w]					✓				✓ (questionnaire in the interviews)	
Serv & DM Henriksen et al., 2005 [41] [R]	✓	✓		✓			✓	✓		✓ [x]		✓								
Serv & DM Park et al., 2014 [69] [R]										✓ [y]									✓	
Serv & DM Suryoputro and Isarabhakdi, 2016 [57] [R]		✓		✓ (interest in being involved: active, passive)			✓			✓ [z]					✓					
Syst Burton, 1999 [49] [P]	✓						✓			✓ [aa]					✓	✓				✓ meetings
Syst Harpham et al., 2001 [34] [P]										✓ [ab]					✓					
Syst Drake et al., 2010 [65] [P]		✓					✓			✓ [ac]					✓			✓	✓ (questionnaires)	
Syst Drake et al., 2011 [71] [P]		✓					✓			✓ [ad]					✓			✓	✓	
Syst Shao et al., 2015 [78] [P]		✓		✓		✓	✓		✓					✓ Delphi					✓	

[P]: Prospective; [R]: Retrospective; Sth: stakeholder.

[a]Strength of position; [b]Interests; [c]Level of support, preferences; [d]Priority sth give to the issue; [e]Internal/external, sth impact on the issue; [f]Territorial level, sector; [g]Involvement and area of action; [h]Sector; [i]Understanding of proposed policies; jActions, sth impact on the goals of the reform (positive, indifferent, negative); [k]Issues causing conflict; [l]Incentives; how they adapted/interpreted the policy; [m]Sth involvement (direct, indirect); [o]Winner/loser, opportunities and challenges of sth; [p]Internal/external; [q]Value; [r]Institutional capacities, sth importance to the success of the project, sth perception on different issues, preferred mechanism to build and implement new system; [s]Level of support; [t]Internal/interface/external; [u]Importance, sth impact on the project, primary/secondary sth, key sth; [v]Key sth; [w]Resources, sth promptness, mode of support, alliances, conditions to offering support; [x]Area of interest; benefits, advantages, consequences, rewards, expectations; motives, commitments, satisfaction; attitude to other sth; [y]Public/private; [z]Identity (age, level of education, occupation, length of employment, organization's origin), involvement; [aa]Sth impact on the project (positive/negative), importance or level of priority given to the sth, primary/secondary; [ab]primary, secondary; [ac]Opportunities and obstacles to key players; [ad]Perceived opportunities and obstacles; strength of position;

issue were identified in 22 of the 47 studies included. As shown in Table 3, stakeholder power and position were analysed together in 27 of the studies and combined with stakeholder stakes (n = 8), stakeholder level of interest (n = 7) or both (n = 4). Some tendencies for the combination of attributes were found depending on the type of innovation:

- the combination of power, position and stakeholder stakes for policy studies;
- power, position and level of interest for services and delivery methods;
- power, legitimacy and urgency for products and technologies; and
- power and position for systems.

Some authors combined the attributes to create analytical stakeholder categories, oriented towards the design of stakeholder engagement strategies. Some examples were: a) population, subjects, leaders and players [42]; b) drivers, blockers, supporters, bystanders [55]) c) dormant, discretionary, demanding, dominant, dangerous, dependent, definitive, non-stakeholder [56]; or d) saviour, sleeping giant, friend, observer, saboteur, trap, irritant, time-bomb [57].

Some forms of data display for the stakeholder differentiation/categorisation were also distinctive, such as: power vs interest matrix [41,42,58], influence maps [33,59], forcefield analysis or position map [18,50,53,60,61], stakeholder support vs resources [62], and importance vs influence matrix [63].

The most common data collection methods for the stakeholder categorisation were individual interviews (n = 37), literature/documents/media review (n = 20), surveys/questionnaires (n = 13), focus groups (n = 10), workshops (n = 6), expert consultations (n = 5), group consensus (n = 4) and observations (n = 4). In prospective studies, the variability in data collection methods and how they are combined is higher than in retrospective studies (see Table 3).

3.2.3. Investigation of the relationships between stakeholders

The relationships between stakeholders were analysed in 25 of the 51 studies, two of which reported analysing the relationships but not the results of these analyses [64,65]. Most of these studies performed a qualitative analysis of stakeholders' relationships, except for six that analysed relationships using social network analysis [38,66–70]. The most common approach to analyse relationships was to gather stakeholders' interactions, with no specific interaction defined, 9 studies [33,43,52,60,65,71–74]; followed by collaboration or cooperation between stakeholders, four studies [34,46,59,67], and stakeholder coalitions or partnerships, three studies [64,75,76]. Studies performing Social Network Analysis clearly defined the type of relationship to analyse, and identified communication, involvement in public health actions and strategic collaboration networks [67]; information, position and action networks [38]; financial resources flows, cooperation and information sharing [68]; funding flows [70]; research and advocacy networks [66]; and stakeholder exchanges –information, resources-, and type of interactions –cooperation, conflict- [69]. Moreover, two of the included studies analysed future potential relationships, such as willingness to form alliances [62], and links that needed to be built [77].

The relationships were mostly reported in a descriptive manner. The exceptions to this were two articles representing the relationships as lines in an influence map [33,59]; and the articles that performed Social Network Analysis reporting relationships in sociograms [38,66–70]. In terms of the data collection methods, those most commonly used to perform this step of the analysis were: individual interviews; questionnaires; literature/document review; Net Map participatory interview; and direct communication.

3.3. Future actions and stakeholder engagement

Although the implications of the stakeholder analyses and their results were generally discussed in the included studies, only some authors made explicit the future actions based on the results obtained in the stakeholder analysis. Examples of these actions included: developing strategic approaches to achieve the desired change [54]; select and implement policy measures to foster the adoption of an intervention [61]; reach identified stakeholders with a communication intervention that addressed barriers and facilitators to support the implementation of the desired strategy [39]; carry out stakeholder interviews to cross-verify the stakeholder network identified [66]; or approach stakeholders to organise a workshop to develop a shared vision [20]. Only six studies explicitly commented on strategies to engage or deal with stakeholders based on the results obtained [34,53–55,68,78]. Additionally, two more studies provided recommendations related to specific stakeholders: activities to secure decision makers' support [75], or to adequately represent and empower the public [51]. Other type of recommendations were also provided: recommendations on performing stakeholder analysis [9], on how to use the results of a prospective stakeholder analysis [18]; lessons identified by stakeholders for successful policy processes [46], or lessons for stakeholder engagement in health-sector reforms [60]. Finally, some studies reported reflections on how to address complexity, such as addressing health issues in fragmented environments [79] or addressing "wicked problems" co-creating with stakeholders [56].

3.4. Reporting items for stakeholder analysis (the RISA tool)

As a result of reviewing the literature, the experience of data extraction for this review and discussions between two authors, a comprehensive list of Reporting Items for Stakeholder Analysis was summarised in a tool (i.e., RISA; Table 4) to guide future systematic reporting of stakeholder analyses. The items in the RISA tool are structured in three main domains, corresponding to the steps for stakeholder analysis by Reed et al. [15] that were used to present the results of this review. Next to the items, three columns were created. The first column provides clarifications on the items. The second was created to introduce the page in which the information in each of the items is reported in a manuscript. The third column allows introducing the page of the manuscript stating why the information corresponding to a specific item is considered not necessary in a particular case.

4. Discussion

This systematic scoping review provides valuable insights on how stakeholder analyses have been used in practice across all phases of health innovation planning processes. It also shows the different applications of stakeholder analyses, which can vary from assessing the feasibility of an innovation, to understand the key stakeholders to involve in health planning, to design specific strategies to support the design or implementation of an innovation or to understand how interventions were developed or implemented. This review allows readers to easily locate practical examples of stakeholder analysis and specifically for inspiration and so may to assist policymakers, researchers or health planners to better understand the interest and usefulness of these analyses to enhance health innovation planning. Moreover, the review highlights shortcomings in the report of stakeholder analysis and the existing room for methodological improvement in this area. It should be noted

Table 4
Reporting Items for Stakeholder Analysis*: the RISA tool.

Context		Clarifications	Information reported on page #	Reason why this information was deemed not necessary on page/line #
Aim of the stakeholder analysis		What were the specific objectives of the stakeholder analysis?		
Reasons for conducting the stakeholder analysis		Was the stakeholder analysis meant to support planning or did it have a different purpose? What?		
System boundaries for the analysis	Scope or level of the stakeholder analysis	At what level were the stakeholders analysed? Were they local, regional, state, national or international stakeholders?		
	Direction of the analysis (prospective vs retrospective)	Was the analysis performed looking forward or backwards?		
Individuals conducting the stakeholder analysis		Who identified stakeholders, classified them, identified relationships and performed the data analysis? All the individuals stated in the specific items "source of information" (see below) should be part of the answer to this question.		
Data collection duration		How long did data collection last?		
Application of stakeholder analysis methods		**Clarifications**	**Information reported on page #**	**Reason why this information was deemed not necessary on page/line #**
Stakeholder identification	Stakeholder definition applied for the analysis			
	Steps carried out/process followed	What was the specific sequence of steps followed to identify stakeholders (if any)?		
	Source of information	Who provided the information for the stakeholder identification or where was it obtained?		
	Data collection methods	What were the methods used to collect data to identify stakeholders? (E.g., literature review, interviews, etc.)		
	Data display / Presentation of results	How are the findings of the stakeholder identification presented? (E.g., description, tables, maps, etc.)		
Identification of stakeholders' stakes/interests	Steps carried out/process followed	What was the specific sequence of steps followed to identify stakeholder stakes (if any)?		
	Source of information	Who provided the information for the stakeholder stakes or where was it obtained?		
	Data collection methods	What were the methods used to collect data on stakeholder stakes? (E.g., literature review, interviews, etc.)		
	Data analysis	What were the techniques used to analyse the stakes?		
	Data display / Presentation of results	How are the findings for the stakeholder stakes presented? (E.g., description, tables, figures, etc.)		
Stakeholder differentiation/ categorisation or prioritisation	Stakeholder attributes and attributes definitions	What were the stakeholder attributes used to differentiate/categorise or prioritise stakeholders? What are the attributes definitions?		
	Steps carried out/process followed	What was the specific sequence of steps followed to differentiate/categorise or prioritise stakeholders (if any)?		
	Source of information	Who provided the information for the stakeholder attributes or where was it obtained?		
	Data collection methods	What were the methods used to collect data on stakeholder attributes? (E.g., literature review, interviews, etc.)		
	Data analysis	What were the techniques used to analyse stakeholder attributes / To come up with the stakeholder categories?		
	Data display/Presentation of results	How are the findings for the stakeholder differentiation/categorisation presented? (E.g., description, tables, matrices, etc.)		
Investigation of the relationships between stakeholders	Steps carried out/process followed	What was the specific sequence of steps followed to identify stakeholder relationships?		
	Relationships analysed	What were the specific relationships analysed? (E.g., alliances, communication, collaboration. . .)		
	Timeframe for the relationships analysed	E.g., relationships in the last year, at present, potential relationships.		

Table 4 (*Continued*)

Context		Clarifications	Information reported on page #	Reason why this information was deemed not necessary on page/line #
		If the relationship analysed was collaboration, was it collaboration in the last year? At present? Willingness to collaborate?		
	Source of information	Who provided the information for the stakeholder relationships or where was it obtained?		
	Data collection methods	What were the methods used to collect data on stakeholder relationships? (E.g., literature review, interviews, surveys, etc.)		
	Data analysis	What were the techniques used to analyse stakeholder relationships? Were there any indicators used? (e.g. density, centrality, centralization in social network analysis)		
	Data display/Presentation of results	How are the findings for the stakeholder relationships presented? (E.g., description, sociograms, maps, etc.)		
Measures to ensure the trustworthiness or validity and reliability of the stakeholder analysis		Arguments that show why the results of the analyses are credible/valid, reliable, etc.		
Future actions and stakeholder engagement		Clarifications	Information reported on page #	Reason why this information was deemed not necessary on page/line #
How the results will be used; strategies for stakeholder engagement based on the results of the stakeholder analysis / how findings influenced the stakeholder engagement; recommendations for the future				

*The items in this checklist were chosen by the authors from Gilmour and Beilin [25]; Reed et al. [15]; Schmeer [19]; and Varvasovszky and Brugha [16]. Additionally, they were piloted and refined through their use for data extraction of the 51 studies included in the scoping review and authors discussions. The structure derives from the "key methodological steps necessary for stakeholder analysis" by Reed et al. [15].

that, for the purpose of this review, an article was considered to present a stakeholder analysis, if it described at least one of the steps for application of stakeholder analysis methods described by Reed et al [15]. This decision was made considering that this is a scoping review, so it aims at mapping the knowledge existing in the literature (to make use of what can be learnt from the studies carried out so far) and does not involve analysing any aspect of the quality of the included studies. However, those designing stakeholder analyses should ideally aim at performing each of the steps proposed by Reed et al. [15] and presented in the introduction section of this paper. To facilitate the latter to happen, the information in this article was organised following the key steps for stakeholder analysis [15] and a new guideline (i.e., the RISA tool) has been proposed to enhance the quality and transparency of stakeholder analysis.

4.1. Context of stakeholder analyses

The exponential growth in stakeholder analysis reports in the last three decades may indicate that these analyses are increasingly being recognised as an intrinsic part of health innovation planning processes. It also highlights the fact that stakeholders are inherent to health innovation planning processes. Moreover, the variety of countries across the world in which stakeholder analyses were performed show that their usefulness has no geographical restrictions and that they are applicable in different contexts and countries with highly disparate income levels and cultures. The stakeholder analysis information gathered in this paper for each of the phases of any health innovation planning process contributes to advance the overall knowledge of these processes. Looking at the results, the fact that stakeholder analyses are more used in the policy arena, both with a prospective and a retrospective direction, could be related to the existence of the seminal works published by Brugha and Varvasovszky [16,17] in this area. In general, given stakeholder analysis usefulness and despite the growth in reports, there is still room for improvement in the use of these analyses in health innovation planning processes.

4.2. Methodological considerations for stakeholder analyses

Out of the three activities comprising the application of stakeholder analysis methods, the categorisation and differentiation of stakeholders is the one in which more emphasis was placed. It is somewhat surprising, that the identification of stakeholders was at times overlooked, when stakeholders were going to be classified or categorised, a fact that has previously been called to the attention of other authors [9,15]. The identification of stakeholders is critical and avoiding it may lead to the omission of stakeholders that could be important for the process [16,22,25]. On the other hand, the analysis of stakeholder relationships provides information on stakeholder dynamics that helps to better explain the complexity of the context in which the innovation takes place, and provides direction to develop and apply stakeholder management strategies [22]. Although the extent and the thoroughness of the stakeholder analysis may be influenced by external circumstances, such as time, funding and human resources [16,20], an effort should be made to ensure access to the information needed for the planning process.

The array of methods found in the studies and their multiple combinations highlight the flexibility of stakeholder analyses. At the same time, this variability also points out the challenge of deciding how many and which methods to use when planning for a stakeholder analysis. Conducting methodological research jointly assessing the methods and the usefulness of the results they yield for the planning process would be helpful to guide the future selection of methods. On the other hand, the heterogeneity also applies to the stakeholder attributes used in the analyses. Although power is the attribute that is first thought about and the most used in stakeholder analyses, the most powerful stakeholders are not always the most interested or the ones that need more attention [80]. This may explain why several stakeholder attributes

are usually combined in the studies. Therefore, it is helpful to decide upfront on the most useful information for a specific situation when choosing the right attributes to analyse. It is also necessary to consider who is going to carry out the analysis (i.e., experts vs stakeholders), since some of the attributes may be more complex to understand for a lay audience (e.g., stakeholder salience approach [21] analysing power, urgency and legitimacy) [9]. Besides, it is important to clearly define the attributes that will be used and make them understandable to all participants to enable consistency throughout the analysis. This is illustrated by examples on how the same attribute can be used with different meanings, such as: the use of power and influence interchangeably [60] or as different attributes [48]; or the use of impact both to refer to the impact the stakeholder has on the project [37,49] or the impact the project has on the stakeholder [53,81].

4.3. Future actions and stakeholder engagement

It would be useful that future actions and stakeholder engagement strategies based on the results of stakeholder analyses be recommended more often. The absence of application of the findings of stakeholder analysis in the literature may be due to publication bias. It is also true that not all processes are similar, and that reality makes it necessary sometimes to consider a balance between the information released and that kept private [16]. In addition, stakeholder engagement is broad and complex enough to be considered on its own. However, providing some recommendations, even if these cannot delve into the specifics, would complete the analyses, as well as increase the knowledge in the area and the understanding of stakeholder analyses applications. A good example is provided by Thomas and Gilson [23] on proposals to manage stakeholders based on the results of a stakeholder analysis. Although excluded from the review because the methods for the stakeholder analysis were not specified, this article may serve as inspiration, along with the examples provided in the results of this review. Research evaluating the effectiveness/impact of strategies implemented as a result of a stakeholder analysis is needed [17] and would contribute to advance the field.

4.4. Reporting stakeholder analyses and the RISA tool

The systematic reporting of studies is being promoted internationally by the Equator Network to enhance the quality and transparency of health research [82]. As per the information in this study, stakeholder analyses have enough entity to be reported independently. Therefore, the RISA tool, a new contribution to the field, is proposed as a reporting guideline for stakeholder analyses. The items composing this tool have been chosen by the authors from the existing literature and have been piloted by their application to the 51 studies included in this scoping review. This tool may assist in providing solutions to different issues affecting the reporting of stakeholder analyses, as encountered in the conduct of this systematic scoping review. For example, in some of the articles assessed throughout the selection process, the authors declared doing a stakeholder analysis as part of their studies but did not report the methods or results of this analysis [83–85]. Besides, the heterogeneity found on the reporting of stakeholder analysis among those studies included in the review makes it a challenge to compare or even reproduce studies. Although confidentiality, or even strategy, could be reason to argue the level of detail or how the findings of a stakeholder analysis should be presented, there is no excuse to not clearly report the definitions, the context, and the methods used during the analysis. If this effort is undertaken, these analyses could be reproduced, evaluated and improved. At this stage, the RISA tool, by promoting systematic and ideally more comprehensive reporting, could also assist in defining future criteria to assess the quality of stakeholder analyses. Finally, the availability of systematic reports of stakeholder analyses may enhance the possibilities to compare studies and carry out systematic reviews in the future. This would, in turn, allow for improvement of the quality and transparency of the processes in which stakeholder analyses are used.

4.5. Limitations and strengths

Some limitations should be considered together with the results of this systematic scoping review. First, the terminology in this area is not clear. The term “stakeholder analysis” is used in the literature with two different meanings: analysing stakeholders’ characteristics vs having stakeholders analysing something. Moreover, some studies conducted a stakeholder analysis, although the term “stakeholder analysis” is not mentioned as part of the article; one study identified key stakeholders, their roles, incentives and power [44]; another identified and categorised stakeholders [74]; and yet another studied the actors and their interactions [69]. To retrieve these articles, a combination of different terms and a sensitive search strategy was used. Creating MeSH terms for “stakeholder”, “stakeholder analysis” and “stakeholder mapping” would contribute to use consistent terminology, and thus ease the identification of literature related to this topic in the future. Second, the heterogeneity in the methods and reporting of stakeholder analyses precluded the synthesis of the results. To offset this inconvenience, detailed results are organised in tables that readers could easily consult. Third, excluding studies written in non-Roman characters could have introduced some language bias; however, this is a broadly used exclusion criteria in systematic reviews. Finally, it is considered that only one author extracted data, which was compensated by discussions of any uncertainty with a second author, and when no agreement was achieved between the two authors, a third one joined the discussion.

A strength of this scoping review is that the information compiled about stakeholder analyses in health innovation planning processes can be applied to future processes. This paper also contributes to this field by: (a) facilitating Health Policy readership the access to the key steps to carry out stakeholder analyses proposed by Reed et al.; (b) proposing the RISA tool, in which clarifications to the different aspects of each of the steps of the stakeholder analysis are provided; and (c) referencing literature reviews and guidelines that provide information on different aspects of stakeholder analyses. In addition, the organisation of the results, following the key methodological steps for stakeholder analysis [15], provides structure to the heterogeneity found in the literature and makes the results easier to find and apply in practice.

5. Conclusion

Stakeholder analyses are used throughout the entire planning process of health innovations, more frequently for policies and services and delivery methods. They are used in a variety of countries with disparate income levels. In terms of the methods used, there is great heterogeneity on how stakeholder analyses are carried out, and of the range of stakeholder attributes analysed. This heterogeneity suggests that stakeholder analyses are a flexible technique. The heterogeneity may also be due to methodological flaws in some studies where key characteristics of stakeholder analyses are overlooked. These issues highlight the need for methodological research particularly assessing the stakeholder analysis methods and the usefulness of the results they yield for the planning process. On the question of reporting, the variability found emphasises how important it is to report stakeholder analyses thoroughly so that their quality could be evaluated and comparisons between stud-

ies be made in the future. Finally, the information gathered in this review may help policymakers, practitioners and researchers improve their understanding of stakeholder analyses and their application in planning processes; this paper provides them with practical information on the methods, attributes and relationships used so far in stakeholder analyses. The RISA tool is provided to guide and foster the systematic reporting of stakeholder analysis. This, in turn, would enhance the quality and transparency of the research and planning processes in which stakeholder analyses are used.

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Declaration of Competing Interest

The authors report no declarations of interest.

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Appendix A. Supplementary data

Supplementary material related to this article can be found, in the online version, at doi:https://doi.org/10.1016/j.healthpol.2020.06.012.

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