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Understanding the factors influencing the implementation of participatory interventions to improve care coordination. An analytical framework based on an evaluation in Latin America

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Abstract

Healthcare coordination is considered key to improving care quality. Although participatory action research (PAR) has been used effectively to bridge the gap between evidence and practice in other areas, little is known about the key success factors of its use in healthcare organizations. This article analyses the factors influencing the implementation of PAR interventions to improve clinical coordination from the perspective of actors in public healthcare networks of Brazil, Chile, Colombia, Mexico and Uruguay. A qualitative, descriptive-interpretative study was conducted in each country's healthcare network. Focus groups and semi-structured individual interviews were conducted to a criterion sample of: local steering committee (LSC) (29), professional platform (PP) (28), health professionals (49) and managers (28). Thematic content analysis was conducted, segmented by country and themes. The PAR process led by the LSC covered the return of baseline results, selection of problems and interventions and design, implementation and adjustment of the intervention, with PP. Interventions were implemented to improve communication and clinical agreement between primary and secondary care. Results reveal that contextual factors, the PAR process and the intervention's content influenced their implementation, interacting across time. First, institutional support providing necessary resources, and professionals' and managers' willingness to participate, emerge as contextual pivotal factors, influenced by other factors related to: the system (alignment with policy and political cycle), networks (lack of time due to work overload and inadequate working conditions) and individuals (not knowing each other and mutual mistrust).

Key Messages

- The results contribute to filling a gap related to factors of context, process and content that determine the implementation of participatory action research (PAR) interventions in healthcare organizations.
- The institutional support and interest of health professionals and management teams are contextual pivotal factors that may change over time.
- The implementation through the PAR process can become a factor of motivation and cohesion determining the adoption of care coordination interventions.
- The study provides an analytical framework and recommendations for the implementation of this type of intervention in other contexts.

Second, different characteristics of the PAR process have a bearing, in turn, on institutional support and professionals' motivation: participation, flexibility, consensual decision-making, the LSC's leadership and the facilitating role of researchers. Evidence is provided that implementation through an adequate PAR process can become a factor of motivation and cohesion that is crucial to the adoption of care coordination interventions, leading to better results when certain contextual factors converge.

Background

Care coordination between care levels is considered vital to ensure the quality of care, especially in health systems based on primary care (PC). Clinical information exchange, adequate access and agreement on the patient's clinical management between care levels are all key to the correct functioning of this model (Mehrotra *et al.*, 2011). In Latin American public healthcare subsystems, which are organized in networks with PC as the coordinator of patient care (Giovanella *et al.*, 2015), poor coordination across healthcare levels—mainly in the exchange of information and communication for patient follow-up and in access to secondary care (SC) for referred patients—is a common problem, leading to the duplication of tests and delays and inconsistencies in treatments (Vargas *et al.*, 2016; Vazquez *et al.*, 2017).

In response to this challenge, a wide range of strategies have been promoted primarily in high-income countries, and also in some middle- and low-income countries, from a single care coordination mechanism, e.g. clinical guidelines, multidisciplinary teams, to a comprehensive programme combining various mechanisms (Vargas *et al.*, 2015). However, the associated effects of these interventions depend on contextual factors and how well they are implemented. Interventions to improve care coordination are usually designed in advance and not adapted to the local context, an approach that is increasingly criticized for its lack of effectiveness in terms of adoption and sustainability over time (Blevins *et al.*, 2010). In Latin America, this is particularly the case of many of the care coordination strategies that are implemented within the framework of national policies to integrate health services networks, or initiated by a healthcare manager. They are generally top-down, introduced in healthcare networks without the participation of the recipients, or they fail to consider contextual factors, which hinder their use such as economic disincentives to collaborate, precarious working conditions, lack of time and interest or mistrust between care levels (Vargas *et al.*, 2015; Vazquez *et al.*, 2017; Vargas I *et al.*, 2018).

Action research has been successfully used as an alternative strategy to facilitate change in the organizations and close the gap between evidence and practice in industry and education (Hampshire, 2000; Soh *et al.*, 2011). Based on Lewin's pioneering works, its distinguishing features are the cyclical process of planning, action and evaluation, flexible and reflexive and the research partnership between the local people or practitioners and the researchers who act as facilitators (Waterman *et al.*, 2001). Approaches that aim for a more collaborative or collegiate research process are called participatory action research (PAR) (Cornwall and Jewkes, 1995).

The effectiveness of the PAR method lies in the involvement of the practitioners in the process, including decision-making, which first lends greater relevance and validity to interventions designed to resolve common practical problems in their working day, and second creates more interest and positive feedback for the changes being instituted (Waterman *et al.*, 2001; Loewenson *et al.*, 2014). Furthermore, by systematically monitoring and reflecting on the process and outcomes of change, it helps to bridge the gap between theory and practice.

Although PAR is not often applied in health services, some of its components such as the cyclical process of research-action, or the active participation of health professionals, are also used in quality models or to change clinical practice (Hampshire, 2000), to tailor interventions (Breimaier *et al.*, 2015) and to transfer evidence to professional practice (Bennett *et al.*, 2016). Moreover, reviews on the determinants of success in the implementation of interventions in health services (Greenhalgh *et al.*, 2004; Durlak and Dupre, 2008; Rogers, 2010) highlight the participation of users of the interventions in the process as key to their adoption and sustainability (e.g. in the problematization and feedback of results or design adjustment for adaptation to needs).

In the sphere of health organizations, PAR studies tend to focus on hospital nursing and are mostly conducted in the UK, Australia and the USA (Waterman *et al.*, 2001; Munn-Giddings *et al.*, 2010; Soh *et al.*, 2011; Bush *et al.*, 2017), and to a lesser extent in low-

and middle-income countries (Mshelia C *et al.*, 2013; Tetui *et al.*, 2017). Its application in the implementation of interventions to improve care integration is rare (Eyre *et al.*, 2017). In Latin America, with its longstanding, deep-rooted tradition of using PAR in the field of community health, its utilization in the health services is also very limited (Mercado-Martínez *et al.*, 2018). Moreover, PAR studies in health organizations do not usually analyse the interaction of context and the implementation of interventions (Waterman *et al.*, 2001; Munn-Giddings *et al.*, 2010; Soh *et al.*, 2011; Bush *et al.*, 2017), despite this being key to determining the factors of success or failure, sustainability and applicability of the intervention to other contexts (Damschroder *et al.*, 2009). Lack of time or material resources tends to be the most frequently cited obstacle (Waterman *et al.*, 2001).

By contrast, the determinants of the implementation of interventions have been extensively analysed in the literature on implementation science (Greenhalgh *et al.*, 2004; Durlak and Dupre, 2008; Damschroder *et al.*, 2009), although the evaluation of participatory processes is not usually taken into account and most studies are conducted in high-income countries. The evaluation framework used in this study is based on the three dimensions identified by Pettigrew and Whipp (Pettigrew, 1992; Damschroder *et al.*, 2009): the context of the intervention—health system and policy (outer setting) and health services networks (inner setting), the content or characteristics of the intervention and the process of implementation. The last two are grouped into a single dimension since in the PAR process the content of the intervention is defined participatively over the course of the process.

This study, which forms part of a wider research project (Equity-LA II; www.equity-la.eu; Vazquez *et al.*, 2015), aims to analyse, from the actors' perspective, the factors that influenced the implementation of interventions in the public health networks of five Latin American countries—Brazil, Chile, Colombia, Mexico and Uruguay.

Methods

Study settings
This collaborative study was developed in each country by teams made up of researchers and representatives of a public healthcare network selected according to criteria described elsewhere (Vazquez *et al.*, 2015): Brazil, the network of Caruaru (Pernambuco); Chile, the northern network of Santiago, encompassing three districts; Colombia, south-western district network of Bogotá; Mexico, state network of Xalapa (Veracruz); and Uruguay, ASSE network of the western region, encompassing three districts(Vargas *et al.*, 2018).

The PAR process of designing and implementing interventions to improve clinical coordination
The PAR process began in each country with the creation of a local steering committee (LSC) to lead the design and implementation process, made up of managers from the different care levels in the network, and in some cases also health professionals (Vargas *et al.*, 2019), together with the research team in the role of facilitator (capacity building, systematization, monitoring and feedback). In the first phase, the baseline study, evidence was produced on care coordination in the networks (Vazquez *et al.*, 2017; Vargas I *et al.*, 2018), which was presented to and discussed with the professionals; this process was particularly extensive in Chile, Colombia and Mexico. In the second phase, an inter-level professional platform (PP) was created with those interested in taking action, with which the

baseline study results were problematized and interventions were chosen. Subsequently, the interventions were designed and implemented through three types of process: (1) in Colombia, Brazil and Mexico, two PAR cycles: (i) a short initial design by the PP and/or LSC followed by implementation and (ii) adjustment and implementation; (2) in Chile, long design with greater participation on the part of inter-level working groups and LSC, in several cycles of action reflection, with pilot tests and implementation; and (3) in Uruguay, open design to be agreed with the PP and subsequent implementation (one PAR cycle) (Vargas *et al.*, 2019). It should be noted that, in all countries, there was a continuous process of collective reflection, which led to minor adjustments to the content of the interventions throughout the process.

Three types of interventions were implemented to improve communication and agreement between PC and SC doctors in the clinical management of patients (problems selected) (Table 1): joint meetings between PC and SC doctors to discuss clinical cases and/or ongoing training, in person in Brazil, Colombia and Mexico and online in Chile, where other health professionals also participated; offline virtual consultations between PC and SC doctors, by email in Brazil, and via a digital platform in Mexico; the drawing up and implementation of shared care guidelines in Brazil; and a multicomponent strategy to promote the use of referral and reply forms in Uruguay. In Chile, moreover, an induction programme was developed to foster a common identity and shared vision in the healthcare network. The interventions were not only aimed at the professionals of the platform (PP), but in many cases was also intended for all the network PC doctors, specialists and other professionals involved in the care of this type of patient. Participation in the interventions was voluntary.

The level of participation in the interventions was higher among the PC doctors of the network, particularly in those with a longer duration: attendance at joint meetings in Colombia (76% over 16 months) and frequent use of shared care guidelines in Brazil (96.7% over 21 months). It was lower among SC doctors (except for virtual clinical conferences in Chile, where more specialists participated as the intervention did not focus on a specific disease). By contrast, the number of offline virtual consultations conducted in Brazil and Mexico, the frequent use of referral forms in Uruguay and attendance at joint meetings in mental health in Brazil were low. Joint meetings in Chile, Colombia and Mexico and shared care guidelines in Brazil had a higher penetration (percentage with knowledge of the intervention) among network PC doctors (Table 1).

Study design
A qualitative, descriptive-interpretative study was conducted to analyse the process of implementation of care coordination interventions through PAR to determine the influencing factors from the actors' perspective.

Sample
A criterion sample was designed to include all the discursive variants on the implementation of interventions. Actors were selected who had participated at some point in the process: LSC, PP and working groups, other professionals who took part and managers who provided institutional support. The research team was excluded from the sample. Final sample size was between 14 and 41 informants per country, depending on when information saturation was reached (Table 2). As the PAR process was longer and deeper in Chile and Colombia, the opinions of the informants were richer and more

Table 1 Summary of the implementation of interventions and their penetration in the study networks (until the evaluation)

Joint meetings of PC and SC doctors and other healthcare professionals	Brazil Joint discussions of clinical cases in mental health	Chile Joint virtual clinical conferences	Colombia Joint meetings for discussion of clinical cases and medical training	Mexico Joint training sessions
Content	Discussion of clinical cases in mental health between PC teams and psychiatrists	Online conferences (discussion of clinical cases, referral criteria and follow-up) between PC and SC professionals	Discussion of clinical cases and medical training (chronic diseases) between PC and SC doctors	Training sessions between PC and SC doctors based on clinical cases in maternal and perinatal care and chronic diseases
Number of sessions carried out[a]	11 sessions	21 sessions[b]	37 sessions	5 sessions
Total participants per care level[a,c]	- PC doctors: 22 (28% Total PC doctors in network[l]) - SC doctors: 2 - Other healthcare professionals: 33	- PC doctors[b]: 59 (52% total PC doctors in network[l]) - SC doctors[b]: 23 - Other professionals[b]: 74	- PC doctors: 159 (76% total PC doctors in network[l]) - SC doctors: 15 - Other healthcare professionals: 60	- PC doctors: 58 (62% total PC doctors in network[l]) - SC doctors: 18 - Other healthcare professionals: 3
Duration of implementation (months)	7	13[b]	16	6
Penetration among network doctors: n (%) with knowledge of the intervention[d]	22 PC doctors (31.9%); n: 69 3 SC doctors (2.7%); n: 111	64 PC doctors (80.0%); n: 80 49 SC doctors (50.0%); n: 98	77 PC doctors (95.1%); n: 81 0 SC doctors; n: 101	63 PC doctors (72.4%); n: 87 19 SC doctors (20.2%); n: 94
Frequent use of intervention[d,e,f]: n (%)	18 PC(81.8%) n: 22 3 SC n: 3	30 PC (46.9%) n: 64 7 SC (14.3%) n: 49	64 PC (83.1%) n: 77 0 SC doctors; n: 101	58 PC (92%) n: 63 18 SC (94.7%) n: 19

Offline virtual consultation between PC and SC doctors	Brazil Virtual consultation between levels	Mexico Virtual communication system between levels
Content	Asynchronous virtual consultations in mental health via email between PC doctors and psychiatrists	Asynchronous virtual consultations in chronic diseases and maternal and perinatal care via a platform, and protocol repository between PC and SC doctors
Number of consultations conducted	11 consultations	11 consultations; accessed 208 times to look up information
Total users per care level[a,g]	- PC doctors: 11 (14% total PC doctors in network[l]) - SC doctors: 2	- PC doctors: 8 (8,5% total PC doctors in network[l]) - SC doctors: 7
Duration of implementation (months)	3	14
Penetration among network doctors: n (%) with knowledge of the intervention[d]	[h]	53 PC doctors (60.9%); n: 87 13 SC doctors (13.8%); n: 94
Frequent use of intervention[d,e,f]: n (%)	[h]	- 4 PC doctors (7.5%); n: 53 - 2 SC doctors (15.3%); n: 13

Others	Brazil Diabetes shared care guidelines	Uruguay Strategy to promote use of referral/counter-referral form	Chile Induction program for working in network
Content	- Creation and implementation of shared care guidelines (focused on necessary practices and care pathways)	- Standardized format, flowchart and rules of use	- Cross-level bidirectional visits between PC and SC and informative graphic and audiovisual dossier on the network
- Number of sessions carried out[a]	- 9 sessions for creation of shared care guidelines[i]		- 4 cross-level visits[b]
- Total participants per care level[a]	- 32 PC (41% total PC[l]) and 3 SC doctors participated in creating the shared care guidelines[i]		- PC doctors: 18 (16% total PC doctors in network[l]); 13 SC doctors and 170 other

(continued)

Table 1 (continued)

Others	Brazil Diabetes shared care guidelines	Uruguay Strategy to promote use of refer- ral/counter-referral form	Chile Induction program for working in network
			professionals participated in cross-level visits
Duration of implementation (months)	21	7	13
Penetration among network doctors: n (%) with knowledge of the intervention[d]	61 PC doctors (88.4 %); n: 69 16 SC doctors (14.4%); n: 111	15 PC doctors (30%); n: 50 34 SC doctors (27%); n: 126	16 PC doctors (20.0%); n: 80 6 SC doctors (6.1%); n: 98
Frequent use of intervention[d,j,f]: n (%)	- 59 PC doctors (96,7%); n: 61 - 13 SC doctors (81%); n: 16	- 11 PC doctors (64.7%); n: 17[k] - 25 SC doctors (73.5%); n: 34[k]	- 9 PC (56.2%) n: 16 - 4 SC (66.7%) n: 6

More details on the process and content of each intervention in: http://www.equity-la.eu/en/publicaciones.php?t=PR, PC: Primary care; SC: Secondary care.

[a]Information sources: attendance registers during intervention monitoring.

[b]Pilot tests of the intervention.

[c]Total number of assistants at meetings.

[d]Data drawn from COORDENA 2017 survey of PC and SC doctors.

[e]Frequent use = daily + weekly.

[f]Percentage calculated based on how many know of the intervention.

[g]Total doctors who conducted an offline virtual consultation.

[h]Not included in the questionnaire.

[i]Clinical case conferences for the creation of shared care guidelines.

[j]Frequent use = always + often.

[k]Sending in standardized format (intervention), when they make a referral or counter-referral to the other level..

[l]Total PC doctors in network: Brazil: 78; Colombia: 209; Mexico: 94; Chile: 113

varied, leading to an increase in the sample to reach information saturation.

Data collection

Data were collected by means of focus groups segmented by the type of informant, and individual semi-structured interviews were conducted to investigate certain topics in greater depth, or when groups could not be created due to professionals' lack of time. Topic guides were drawn up, which included, among other aspects, opinions on the process and factors that influenced the implementation of the interventions, related to the health system and its policies, networks or professionals. Informants were contacted and invited to participate according to the established criteria, using attendance registers taken at different stages in the process. Only one refusal to participate was recorded citing the lack of interest, in Colombia. The interviews generally took place in healthcare facilities and the focus groups in university facilities. They lasted between 45 and 120 min and were audio-recorded and fully transcribed. Data were collected from November 2017 to May 2018.

Data analysis and quality of information

Thematic analysis was carried out using the Atlas-ti or MAXQDA software. In the first stage, the process of implementation of the interventions in each country was analysed on a stand-alone basis and, in the second stage, a comparative analysis was conducted. Data were segmented by country and themes. Categories of analysis were generated through a process of mixing those from the topic guide with those emerging from the data. Themes were identified, coded, re-coded and classified to identify common patterns by looking at regularities, convergences and divergences in data in a process of constant comparison, going back and forth between the data and the conceptual framework.

To ensure the quality of results, the information was triangulated between different data collection techniques and it was contrasted with the informants and the literature. The results of the preliminary analysis were presented to and discussed with the participants of the interventions—LSC, PP and managers in each country, and later the cross-country analysis was presented in several international meetings. This allowed us to take their views into account in the final analysis. In addition, two international and five national analysts worked collaboratively on the analysis. Differences during the process of data analysis (e.g. coding and interpretation of the data) were discussed until an agreement was reached. These analysts had different backgrounds and in-depth knowledge of qualitative methods, the evaluation framework, the research topic and the context. The researchers gained awareness of their assumptions and preconceptions through reviewing the literature, seeking critique from experts and international researchers in the subject and discussing their assumptions throughout the research process.

Results

In the five experiences, factors emerge from the participants' discourse related to the context, the participatory process and the content of the interventions that influenced the implementation of the interventions (see Supplementary Tables S1a and S1b). The factors that differ according to experience interact with each other over the course of time.

Contextual factors that influenced implementation of the interventions
Related to policy and politics
The 'alignment of intervention objectives with local and/or national network policy' emerged as a factor that fostered institutional support in most of the countries (Supplementary Box S1 and Supplementary

Table 2 Final composition of informant sample by country

Type of informant	Brazil		Chile		Colombia		Mexico		Uruguay	
	FG, N (n)	II, (n)	FG, N (n)	II, (n)	FG, N (n)	II, (n)	FG, N (n)	II, (n)	FG, N (n)	II (n)
Local steering committee		10	1 (10)			3	1 (4)			3
Inter-level professional platform/working groups			3 (13)[a,b,c]			6[a]	1 (6)[a,e]			3[a,c]
Middle managers/directors of network			1 (3)[d]	5	1 (3)[a,b,c,d]	3		3		1
Health professionals (Level I/II/III)	1 (9)[a]			8[a,b,c]	2 (24)[a,b,c]			1[a]	1 (3)[a,d]	8[a,b,c]
Other professionals/administrative personnel				2		1				2
Total	1 (9)	10	5 (26)	15	3 (27)	13	2 (10)	4	1 (3)	17

[a]Doctors.
[b]Nurses.
[c]Other health professionals.
[d]Triangular group (three participants) ([Conde, 1993](#)).
[e]Focus group made up of four LSC and two PP members.
FG, focus group; II, individual interview; N, number of FGs; n, number of participants.

[Data](#)), as policymakers and network managers saw it as an opportunity to implement their policies or achieve their goals. This factor was key in Chile throughout the process:

> The whole process that the Panamerican Health Organization has been kind of proposing, or that the Ministry was proposing, also contributed I think, because actually it meant for us that the Health Service (network coordinator) saw it as an important task (Healthcare manager, Chile).

In Brazil and Mexico, adaptation of the interventions to new political priorities ensured the continuity of institutional support, diminishing the influence of the political cycle.

The 'political cycle', according to participants, interfered during the adjustment of the interventions in Colombia, Brazil and Mexico. In the latter two countries, it meant that implementation came to a standstill, due first to the lack of government activity during the election period and second to changes in local governments that reduced support for components that were not in line with their new priorities. In Colombia, support for the intervention was weakened by the constant rotation of managers and LSC members as a result of the network restructuring carried out by the new government.

In Uruguay, 'limited implementation of the primary care-based healthcare model' emerged as a barrier to the implementation of referral and reply forms, as patients are treated in SC and are not referred back to primary care for follow-up.

Related to the health services networks

Informants identified several structural, organizational and professional-related elements of the networks that influenced implementation in all five experiences.

Structural factors. 'Work overload of health professionals', which is attributed to insufficient resources, was the main structural barrier to the implementation of interventions in Chile, Mexico, Colombia and Uruguay, as it limited the institutional support for freeing up time to participate, especially in the case of doctors ([Supplementary Box S2](#) and [Supplementary Data](#)). In Colombia, this point emerged even more strongly from the discourse, although it was also related to healthcare providers' objective of 'financial sustainability' in a market model, as well as to the lack of understanding of healthcare managers regarding the contribution of the intervention to improving care quality:

> It's not that we don't want to as an institution, it's just that … we simply can't. We (…) are state-run, but really we have to be self-sustainable. So, how much does it cost the institution to free up 120 doctors for 2 hours every 2 months? (Healthcare manager, Colombia).

Lack of time also emerged in Mexico and Uruguay as a barrier to the use of offline virtual consultations and the referral/counter-referral form, respectively.

The 'limited availability of technological resources' (computers and internet) emerged in Brazil, Mexico and Chile as a barrier in the interventions that made use of these, obstructing the access of some centres and/or professionals and preventing the intervention from functioning properly.

Organizational factors. The 'institutional support' of network managers emerged in all five countries as the main organizational factor that influenced implementation of the interventions (Supplementary Box S2). In Chile, and in Brazil with the occasional interruption, it was identified as a facilitator that remained stable throughout the process. In Mexico, it was strengthened following political change; in Colombia, it was weakened; and in Uruguay, it remained frail. It was considered key in terms of whether the resources needed (professionals' time and materials) were available to implement the interventions (and in Brazil and Mexico also to solve operational problems—see Supplementary Box S2): '…there was support from the managers to protect these (allocated project) schedules, that normally doesn't happen with this kind of more low-scale project' (Professionals' inter-level working group, Chile);

> As for the managers, there was no interest. Not little interest, no interest! There should have been more coordination on our part, more involvement, because it depended exclusively on us (Healthcare manager, Colombia).

Moreover, informants attributed to this factor the limited participation of SC doctors in the joint meetings in Colombia, the lack of referral forms in some centres in Uruguay and the insufficient technological resources to implement online consultations in Mexico.

The 'inadequate working conditions' of doctors emerged strongly in Colombia as a barrier to implementation of the interventions. First, the temporary and/or part-time contracting of doctors led to

discontinuity in their participation due to the high turnover, a factor also identified by some informants in Brazil. Second, the working environment generated by the restructuring of the network, involving redundancies and salary cuts, reduced doctors' interest in participating:

> …. we got to do the meetings, and then before that they'd told off the doctors, they'd audited their accounts, they told them they were going to cut their salaries, etc. That creates bad feeling between people (…) that hindered to a certain extent the rollout of the sessions (PP, Colombia).

Individual factors of professionals. Professionals' interest, enthusiasm and commitment, which increased as they participated in the joint meetings (Supplementary Box S2), emerged strongly in Chile and Colombia, in particular, and also in Mexico with regard to the joint training sessions in maternal and perinatal care. The aspects that mainly contributed to this interest were the opportunity to 'receive training' and 'improve quality of care through coordination'. The latter reason was also cited in Brazil, and 'CV improvement' was given as a further motive in Mexico and Chile. This interest led professionals in Colombia and Chile to change shifts, attend out of working hours, administrate meeting spaces and help to spread word of the intervention:

> …. for example, like in Unit XXX the doctors themselves took control, managed their own spaces, fought over their place to be able participate …. They didn't give them any time…, but they would walk in there with the clinical case and documents reviewed (LSC, Colombia).

However, a lack of interest in participating also emerged in all five countries, with greater intensity in Uruguay and Brazil in general; and with regard to offline virtual consultations in Mexico, and replica meetings (meetings with other network doctors not in the PP) in Colombia. Contributing factors, according to interviewees, were: the 'limited adherence to the primary care-based model' of some SC doctors in Brazil, Chile and Uruguay and 'not knowing the doctors of the other care level', 'mutual mistrust' and PC doctors' 'shyness and fear to express their doubts' in Chile, Colombia and Mexico. However, these obstacles diminished as they participated:

> Yes, yes, at the start I found it really difficult to participate (…) at first it was like: 'um…what am I going to do there? They're all going to be looking at me, I've got to give a reply, it's scary, I don't want to do this' (…). But it's all got a lot better, (…) they want to participate, because they're enjoying it. (Administrative personnel, Chile).

Factors related to the PAR process and the content of interventions that influenced implementation

The PAR process and the content of the interventions influenced in turn—either directly or indirectly—institutional support and/or the interest of professionals and also the contextual factors that condition them, interacting across time.

Related to the PAR process

With significant differences between countries, three elements of the process that influenced implementation emerged: participation, characteristics of the PAR method and dissemination of the interventions in the networks.

The 'participation of health professionals' in the problematization, selection, design, monitoring and adjustment of the interventions emerges as a facilitator, with particular intensity and depth in Chile, and to a lesser degree, in Colombia (Supplementary Box S3 and Supplementary Data). The informants coincide in pointing out that participation in the different activities generated more ownership, commitment and motivation among professionals. In Chile, it also had a similar effect on the 'executives and middle managers of the network', members of the LSC, which favoured institutional support:

> (.) So when it's an idea, a strategy that comes from the group, it's already born with everybody willing and able, committed to the implementation process, which we knew was going to involve a set of challenges (LSC, Chile).

Moreover, it permitted greater awareness of the coordination problems in the network and the selection and adjustment of interventions according to their needs. However, less participatory elements of the process also emerged that demotivated some professionals, such as the influence of the researchers in selecting one of the interventions in Mexico, and the low level of participation of doctors at whom the intervention was directed in Uruguay.

In Chile, informants highlighted characteristics of the 'PAR method' used in the different spaces created for interaction across care levels (LSC, working groups): flexibility, participative, consensual and respectful decision-making, collective construction and methodological rigour. These also fostered motivation, communication, mutual knowledge and trust between the participating actors, thus improving their coordination in the implementation of the interventions. Some informants considered that the PAR method ensures greater commitment from participants and thus greater sustainability in interventions than the hierarchical format more commonly used to implement interventions:

> when you forget (about participation)…, probably to push it through more quickly, and you do it in, like, a more vertical way, what happens is that the result is more short-lived. When we've built it between all of us it's like it's more our own and we'll defend it, fight for it, polish it, I dunno, it kind of becomes more important to you and it's a result we all want (Healthcare manager, Chile).

The 'role of the LSC' as a facilitating factor throughout the process, key to gaining institutional support, emerged in all five countries, but with particular intensity in Chile, and in Colombia before the change in government; in Chile, moreover, it served to draw in new actors and expand the intervention. Furthermore, in all five experiences, the 'role of the research team' was also identified as a facilitator, for their essential support in methodology and training at all stages. Informants also highlighted their role in encouraging participation, interest and communication between actors in the network, and in Brazil and Chile in ensuring the continuity of activities and agreements. They also took on activities of the LSC and PP due to functional problems: in Colombia, in managing institutional support following the change in government, and in Uruguay, in designing the interventions.

Lastly, the 'dissemination of the interventions in the networks' emerged as a factor that influenced the participation of professionals. In Chile, the extensive and continuous dissemination of the

virtual clinical conferences fostered the growing participation of centres and professionals in the network. In the same vein, in Uruguay, the limited dissemination and/or continuity of the intervention in some centres contributed to the limited knowledge and use of the referral and reply form. Limited dissemination prevented greater network penetration of the cross-level visits in Chile, and of the joint meetings among SC doctors in Colombia.

Related to the content of the interventions

In the experiences with joint meetings, with the exception of Brazil, informants agreed that the 'type of intervention based on personal contact' and the 'continuous adaptation of content to professionals' needs' fostered their motivation to participate and encouraged them to get to know and trust doctors of the other care level better. In Colombia and Mexico, further motivators identified were the participatory character of the clinical case method based on reflection on their own healthcare practice; in Colombia, informants also mentioned joint learning across levels and, in Mexico, the collaborative attitude of the facilitators (SC doctors) towards the other level.

Certain elements emerged, however, that contributed to a lack of interest and a limited use of some interventions: in Uruguay, the 'perceived limited usefulness' of the referral and counter-referral forms on the part of some professionals because of its coexistence in the network with a policy implementing electronic medical records and/or the use of other forms; in Mexico, the unwieldy nature of the offline virtual consultation system; and in both countries, the fact that use of the intervention was 'non-obligatory'.

Discussion

Although numerous Latin American governments in recent years have issued policies fostering the integration of healthcare networks, many attempts fall short because of the difficulties involved in altering factors that influence the effectiveness of the interventions (Vargas *et al.*, 2015; Eyre *et al.*, 2017). The results of this study, based on the analysis of experiences in five different Latin American contexts from the actors' perspective, show that the PAR approach, correctly carried out in terms of time, method and levels of participation, can be successfully used to define priorities locally, as well as to remove contextual obstacles and facilitate the implementation of interventions in health services. Participation in the selection, design and implementation of the interventions gradually increased the motivation of the professionals to adopt the interventions and empowered them by enhancing professional control over the care coordination problems faced in their daily practice. Lessons can be drawn for the implementation of care coordination interventions in general and also for implementation research.

Key factors in the implementation of care coordination interventions through a PAR process: a framework for analysis

The results reveal, following Øvretveit's metaphor (Øvretveit, 2014), that contextual factors (soil and climate) and the characteristics of both the PAR process (gardener) and the care coordination interventions (seed) were key factors in their implementation, interacting across time (Figure 1). When these factors converge, like in the experience of Chile and some interventions in other countries, their adoption and sustainability may be greater.

Although many of the contextual factors identified appear in previous reviews (Greenhalgh *et al.*, 2004; Durlak and Dupre, 2008), analysing the opinions of the participants allowed us to establish the relationship and hierarchy of the factors influencing the implementation of PAR interventions. First, institutional support providing the necessary resources, together with the interest of health professionals and management teams in participating in the process and/or adopting the interventions, emerged as 'contextual pivotal factors', which are influenced in turn by other factors that may change over time (e.g. alignment of the interventions with institutional policies and objectives, interests of the professionals). Second, 'different characteristics of the PAR process' with which they were designed and implemented (its participatory, flexible, reflexive and democratic nature), all have a bearing, in turn, on the institutional support and motivation of the professionals and also on the factors that condition them, modifying and reinforcing them as facilitators as the interventions are implemented. In other words, the PAR process facilitates 'mutual adaptation', which has been identified as essential for effective implementation: the context/organization must adapt to the innovation and vice versa (Durlak and Dupre, 2008).

Bottom-up interventions also require institutional support

The results show that ongoing institutional support, which is key to guaranteeing the resources needed in non-participatory processes (Greenhalgh *et al.*, 2004), is also essential for interventions designed and implemented by health professionals (Ottmann *et al.*, 2011). In this case, their time becomes the most important resource, not only for implementation (action), but also throughout the selection, design and evaluation process (research). The time-consuming nature of the process as a limiting factor (in this case, moreover, the time of health professionals) has been mentioned previously in PAR organizational studies in the context of high-income countries (Waterman *et al.*, 2001). This barrier may be greater in settings with staff shortages or low productivity, such as the networks of study, and in interventions aimed at doctors where the cost is even higher (i.e. not being able to attend to patients). The alignment of interventions with institutional policies aimed at coordination in the network appears to have been key to the managers giving their support despite the investment involved in professionals' time, as well as raising their awareness about the benefits of the intervention, in keeping with previous studies (Greenhalgh *et al.*, 2004).

Furthermore, the results show how difficult it is to carry out organizational PAR processes in certain contexts, such as in settings of institutional instability commonly found in low- and middle-income countries (Yapa and Bärnighausen, 2018), in which political transitions translate into changes in management teams, political priorities and thus also institutional support for interventions. Flexibility of design, a characteristic of the PAR process, allows interventions to be adapted to the new institutional objectives, and only as long as what the literature calls the 'hard core' of the interventions is safeguarded (Rogers, 2010) (e.g. nature of PAR, general objective). PAR processes in market contexts, such as in Colombia, are similarly challenging, since they promote competition between providers and incentivize the maximization of healthcare activity to achieve financial sustainability and have precarious working conditions (Vargas *et al.*, 2016). Gaining the support of managers for professionals to participate in slow, flexible processes (Waterman *et al.*, 2001), which are profitable in the medium to long term (more appropriate referrals, less duplication of tests, etc.), or to improve the training and problem-solving capacity of a staff with a high turnover (Vazquez *et al.*, 2017), proves yet more difficult in this type of
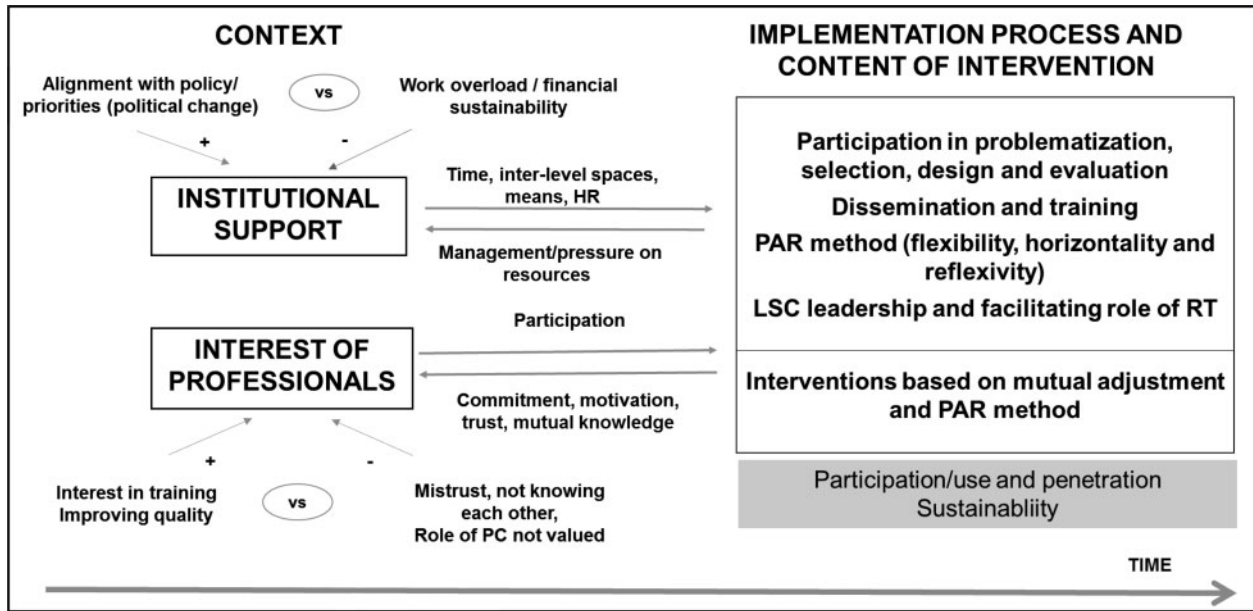
Figure 1 Key factors in the implementation of PAR interventions to improve care coordination between levels. HR, human resources; PC, primary care; RT, research team. Source: authors.

context, even when there are national and regional policies promoting these strategies (Salud, 2017).

The PAR process: individual and institutional factors of motivation and cohesion in the organizational culture of the network

Another finding, especially from the Chilean experience, is that the PAR process can become a key factor for the implementation of interventions. This is probably related to the fact that, in this experience, the participatory design process of the interventions was so long and thorough (with more cycles of reflection-action, and an extensive, growing and lasting participation). This fostered the LSC's leadership and the progressive deployment of the participatory method in the network (Vargas *et al.*, 2019).

First, participation in the research-action process gradually increased motivation to adopt the interventions, to the degree that it fostered awareness of the significance of the problem and the specific need to intervene (Durlak and Dupre, 2008). Moreover, the chance to act by participating in the selection and design of the interventions and reflect critically on one's own practice is extrinsic motivators for change (Hampshire, 2000) and empowers professionals by enhancing their control over the problems faced in their daily practice (Hart and Meg *et al.*, 1995). Involving local peoples as participants in the research-action process, including decision-making, is a distinguishing feature of participatory research. In this respect, although in mainstream implementation science, there is growing interest in the concept of intervention users participating in the process, the aim is generally to adapt predefined evidence-based interventions to the local context through a consultative process—local people are asked for their opinions and consulted by researchers before the intervention is made (Breimaier *et al.*, 2015)—rather than to define priorities locally in a collaborative exercise in which researchers and local people work together, in a process that can result in mutual learning (Cornwall and Jewkes, 1995).

Second, the PAR process influenced one of the main barriers identified in the literature for interventions to improve care

integration (Shortell and Hull, 1996): a hierarchical and fragmented organizational culture in subgroups of the healthcare network (PC vs SC level, managers/staff vs health professionals, etc.), with limited communication and trust, and potentially diverging interests. The creation of multidisciplinary spaces in which to meet and collaborate across levels for the design and implementation of the interventions in the different countries (LSC, PP, working groups), together with the PAR method, based on the egalitarian participation of all actors, shared decision-making and collective construction (Blevins *et al.*, 2010), favoured communication, mutual trust and coordination, in keeping with other PAR experiences (Soh *et al.*, 2011; Breimaier *et al.*, 2015; Bush *et al.*, 2017). This result is relevant because strategies to improve care integration are often recommended (Pan American Health Organization, 2010) without emphasizing that, to manage these changes, these types of spaces should be created and/or existing ones, usually based on a logical decision-making hierarchy, should be transformed.

In agreement with other PAR studies (Bennett *et al.*, 2016), the results highlight the importance of the presence of leadership in the implementation of interventions in a network. In this study, this was provided in the form of the LSC, which was made up of middle management and administrators, as well as health professionals. The involvement of directors—as long as the participatory nature of the process is preserved—also engages their interest in the process, which fosters institutional support for the interventions (Bush *et al.*, 2017). The presence of an external facilitator of change (researchers in PAR studies) was also highlighted as a key factor by participants; in particular, their constant support to ensure that the participatory process—slow and time-consuming (Waterman *et al.*, 2001)—is installed in the network, their role as mediators in the face of mistrust between actors and their guidance in PAR methodology, the opposite of traditional hierarchical decision-making.

The influence of care coordination interventions based on mutual adjustment

Some of the characteristics of the joint meetings for the discussion of clinical cases and medical training that were identified as facilitators

of interest and mutual trust are intrinsic to the PAR method: spaces for meeting and direct feedback between PC and SC doctors, reflection on own clinical practice, participation in the adjustment of content and the presence of a facilitator, in this case an internal one: a specialist. Although other authors have pointed out the suitability of these elements to promote change in clinical practice (Hampshire, 2000; Kristensen *et al.*, 2011), these findings also highlight the strength of the PAR method to gradually act on factors that hinder the use of care coordination mechanisms, such as mutual mistrust or low adherence to the PC-based model (Gittell, 2011; Vargas *et al.*, 2015). This makes it a powerful strategy to encourage the effective implementation of any type of coordination mechanism.

Finally, other factors that the literature identifies as enablers of adoption on the part of professionals were present in the interventions implemented: they were adapted to the local context (needs, knowledge, resources) and they were multifaceted (Boaz *et al.*, 2011), i.e. they did not merely address the problem (lack of communication and clinical agreement) but also its influencing factors.

Limitations of the study

In Brazil, Mexico and Colombia, the turnover of members of the LSC, PP and managers prevented informants from forming a complete and, in some cases, recent opinion on the process. Although this limitation was tackled by carrying out interviews with participants in each phase, it may have had repercussions on the depth of the data collected (e.g. factors or their interrelationships may not have been identified).

Conclusions

This study provides evidence on the influence of factors of context and process in the implementation of PAR interventions to improve care coordination across levels, and their interaction across time. It also reveals that the PAR process has a bearing, in turn, on the institutional support, motivation and cohesion in the organizational culture that can be crucial to the adoption of care coordination interventions. The PAR process leads to better results when it is correctly carried out in terms of time, method and levels of participation, which can substantially improve, when certain contextual elements converge such as the alignment with policy or institutional support. Several recommendations can be drawn from the results for the implementation of interventions through a PAR process in other contexts. First, bear in mind at the research planning stage what factors may have a bearing on the process and identify strategies to address them, e.g. agreements on creating working groups and protecting professionals' time, the involvement of managers, flexibility to adapt the 'soft core' of interventions to changes in institutional priorities. Second, prepare and carry out the PAR process properly, considering roles and types of participants, time, resources and efforts required to install the PAR process in the organization. Decisions should be aimed at ensuring a successful execution of the process, as well as achieving the ultimate objectives of the interventions. Lastly, incorporate PAR features into the care coordination interventions to be implemented: mutual adaptation, critical reflection on own practice geared towards action, feedback and a facilitator with knowledge of the method.

Supplementary Data

[Supplementary data](#) are available at *Health Policy and Planning* online.

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Acknowledgements

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